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AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES APPROPRIATIONS FOR 2009

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES

ROSA L. DELAURO, Connecticut, *Chairwoman*

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RODNEY ALEXANDER, Louisiana

NOTE: Under Committee Rules, Mr. Obey, as Chairman of the Full Committee, and Mr. Lewis, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

MARTHA FOLEY, LESLIE BARRACK, JASON WELLER, and MATT SMITH, *Staff Assistants*

PART 6

UNITED STATES DEPARTMENT OF AGRICULTURE

Research, Education and Economics

Printed for the use of the Committee on Appropriations

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AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES APPROPRIATIONS FOR 2009

TUESDAY, MARCH 11, 2008.

RESEARCH, EDUCATION AND ECONOMICS BUDGET

WITNESSES

GALE A. BUCHANAN, UNDER SECRETARY, RESEARCH, EDUCATION, AND ECONOMICS
MERLE D. PIERSON, DEPUTY UNDER SECRETARY, RESEARCH, EDUCATION, AND ECONOMICS
EDWARD B. KNIPLING, ADMINISTRATOR, AGRICULTURAL RESEARCH SERVICE
COLIEN HEFFERAN, ADMINISTRATOR, COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE
KATHERINE R. SMITH, ADMINISTRATOR, ECONOMIC RESEARCH SERVICE
JOSEPH T. REILLY, ACTING ADMINISTRATOR, NATIONAL AGRICULTURAL STATISTICS SERVICE
W. SCOTT STEELE, BUDGET OFFICER, DEPARTMENT OF AGRICULTURE

Ms. DELAURO. The committee is called to order. Thank you. I would very much like to welcome Under Secretary Buchanan, Deputy Under Secretary Pierson, Administrators Knipling, Hefferan, and Smith. Did I get everyone? And Mr. Reilly. Okay. Very good. Sorry. And welcome to Scott Steele.

Mr. STEELE. Thank you.

Ms. DELAURO. We all know that the research, economics, and extension budget is critical to sustaining America's agriculture place in the world as a leader in the scientific discovery and development. The results of the research are critical to crop development, to nutrition, to food safety, competitiveness, international trade, even homeland security.

Much of the good work is being done within our impressive land grant university system and in our experiment station. Some Connecticut institutions, for example, have used a stable foundation of predictable formula funds that had been available for years in order to hone research and respond immediately to plant and animal disease outbreaks such as West Nile virus and Lyme disease.

Indeed, the Connecticut agricultural experiment station, which is just about two blocks from my home in New Haven—and, by the way, the first agricultural experiment station in the country—they were instrumental in uncovering the problems involving imports

from China last year that discovered components of antifreeze in toothpaste imported from China, and played a key role in discovering a high concentration of lead in toys imported from China. The same station also was part of the network of labs that examined pet food that was contaminated with melamine last year.

This is the type of work that represents an opportunity for the state to become one of the first to detect potentially dangerous outbreaks, as well as one of the first to respond. It is urgent work taking place at the Connecticut agricultural experiment station with a clear purpose. It is not pork. It is not pet projects or a bridge to nowhere.

I should note that I am concerned about your budget's proposal to redirect a significant percentage of Hatch formula funds and the McIntyre-Stennis funds to a national competitively awarded multistate project. Competition is not a bad thing; it is a good thing. But this plan may destabilize our land grant and forestry funding system. As a nation, we depend on the land grant system to provide certain services, and we cannot afford to compromise its abilities to meet those commitments.

I am also taken aback by the wholesale closure of 20 ARS facilities across the country. I don't think that this is the moment to limit the capacity of groundbreaking agricultural research that is performed at these labs. Let me further highlight some of the proposed increases in research—bioenergy, water reuse in agricultural systems, and funding for research into the obesity epidemic. I believe these are critical investments, and I am delighted and glad to see that there is a renewed focus on these areas.

Your budget also includes an increase for food safety research, particularly the study of E. coli and other pathogens in fresh produce. Of course, we have witnessed an increase in the consumption of fresh fruits and vegetables. In light of the spinach recall in the latter part of 2006, it is clear that the results of your research will be vitally important.

So I thank all of you again today. I look forward to discussing these issues with you. I will yield time to the ranking member when he comes in for his opening comments, if he chooses to make them.

What we will now do is to move to your testimony, Dr. Buchanan. And you know that the testimony will be in the record. And so we will ask you to summarize and make the points that you would like to make, and then we can begin with the questioning.

I understand we have guests here this morning as well, the ARS Fellows? Okay. Very good. Thank you, and welcome to the hearing. Delighted to have you.

OPENING STATEMENT

Dr. BUCHANAN. Madam Chairwoman, members of the subcommittee, I am very pleased to appear before you to discuss the President's fiscal year 2009 budgets for the Research, Education, and Economics mission area of the U.S. Department of Agriculture and all of the agencies involved in that mission area.

I am accompanied by Dr. Merle Pierson, Deputy Under Secretary of REE; Dr. Ed Knipling, Administrator of the Agricultural Research Service; Dr. Colien Hefferan, Administrator of the Coopera-

tive State Research, Education, and Extension Service; Dr. Katherine Smith, Administrator of the Economic Research Service; and Mr. Joe Reilly, Acting Administrator of the National Agricultural Statistics Service. Also present is Dr. Scott Steele, Director of the Office of Budget and Program Analysis for the Department. Each administrator has provided written testimony for the record.

The President's budget requests $2.3 billion for the four REE agencies. The process for developing this budget required making tough choices to hold spending in check in order to achieve the President's goals on the balanced budget by 2012. Within the total $2.3 billion are requests for increases in higher priority programs, including bioenergy and biobased products, food safety, and water-related programs. These increases are offset by the elimination of congressional add-ons and decreases in lower priority programs.

This has been a very productive year for the REE mission area in this agency. We have achieved an increased level of collaboration across the agencies in REE, across the Department, and across the Federal government. While such collaboration is always extremely valuable, it is close to a necessity during a tight budget.

I am particularly pleased with the REE agencies who are enthusiastically engaged in coordination of research and education and other activities related to bioenergy and bioproducts, and in support of the President's goal for achieving a greater degree of energy security.

The REE mission area has worked hard this past year to develop the USDA REE Energy Science Strategic Plan. This provides a road map for the bioenergy and bioproducts programs of each of the four agencies for the next five years. The plan identifies the unique capacity of each of the REE agencies to address specific aspects of the energy situation.

Among the many bioenergy initiatives, we are planning an international energy science conference on sorghum later in the summer, to be held in Houston, Texas. Also, I want to invite you to participate in the Bioenergy Awareness Day, or BEAD II, which is scheduled for June 21st, which is the summer solstice.

BEAD II will showcase advances in agricultural energy science, and this year's event will be held at both the National Arboretum and on the lawn of the Jamie Whitten Building on the National Mall. The Nation's first energy crops garden, including over 20 biofuel crops, will be established at the National Arboretum.

Collaboration efforts across agencies and departments in bioenergy and bioproducts has become more active and visible over the last year. It has become the standard modus operandi for the REE agencies. ARS routinely establishes effective collaboration with scientists at universities where ARS labs are located. CSREES collaborates with several other departments in planning its research program. The agency also develops jointly funded competitive grant programs with other departments, such as DOE and NSF.

We are also pursuing ideas for research collaboration in energy science with the Department of Defense. Some other particularly notable collaborations include research on colony collapse disorder that is threatening the honeybee industry and the livelihood of many fruit and vegetable growers.

NASS is partnering with community-based organizations and tribal governments at a unprecedented level for the 2007 Census of Agriculture with the goal of increasing participation of minority and American Indians. Historically, they have been under-represented in the Census of Agriculture.

With the CSREES funding and leadership, a network of land grant universities has developed "eXtension." This is a new Web-based information system that will provide objective, scientific, research-based information to the public. eXtension will serve the needs of the anywhere-anytime generation of American users, giving them quick access to the organized customized resources they need to make informed decisions. It is an excellent example of how we are using the collaborative approach to improve the effectiveness and make better use of limited resources.

Turning to the fiscal year 2009 budget, I would like to highlight four priority areas identified for special attention in preparation of the REE agency budget. These include bioenergy and bioproducts, nutrition and obesity, food safety, and water.

The President's 2009 budget proposes an increase of $29 million of bioenergy and biobased products for the four REE agencies. This includes: a $6 million increase for research focusing on the development and use of energy crops and crop residues and efficient conversion to biofuel; a $19 million increase in competitive grants for bioenergy; $1.3 million to provide multidisciplinary undergraduate and graduate level programs; $0.4 million to strengthen our ability to analyze the regional impacts of bioenergy production; and $1.8 million to establish a data series on key elements of bioenergy production and use.

Obesity continues to be a major health problem for America. The incidence of overweight and obesity in children is of particular concern, foreshadowing a lifetime of health problems associated with being overweight, such as diabetes. The President's budget proposes a $12 million increase in ARS for research to determine the efficacy of healthy eating and physical activity patterns in the *Dietary Guidelines* in preventing obesity. A particular focus will be in preventing obesity in children and understanding the dietary patterns that contribute to obesity in low socioeconomic and minority populations.

The ARS budget proposes an increase of $14 million to enhance research to safeguard the Nation's food supply from foodborne pathogens and pathogens of biosecurity concerns. For example, the contamination of fresh produce remains an issue of concern for consumers, as well as the produce industry. The funds will support enhanced research to better understand the fate and movement of pathogens such as *E. coli* O157:H7 in vegetables and small fruit production.

Competing human, industrial, recreational, and ecosystem demands for water are challenging agriculture's access to water supplies. The ARS budget proposes $8 million to address several aspects of water reuse, including development of best management practices for our food production systems and processing plants. Under its national integrated water program, CSREES will support projects that address water and wastewater reuse as well.

The President's fiscal year 2009 budget request for the four agencies in the REE mission area provide a balanced research, education, and economics portfolio to address high national priority issues, and the proposed budget will enable the REE agencies to continue to make new discoveries and develop new technologies that contribute to the success of American agriculture. This success allows Americans to enjoy the highest quality, safest, and lowest cost food anywhere, while contributing to the Nation's effort to achieve a greater degree of energy security.

Thank you, and I look forward to responding to your questions and hearing your comments.

[The information follows:]

RESEARCH, EDUCATION, AND ECONOMICS

Statement of Dr. Gale A. Buchanan, Under Secretary for Research, Education, and Economics before the Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies

Madam Chairwoman, members of the Subcommittee, I am pleased to appear before you to discuss the President's fiscal year (FY) 2009 budgets for the Research, Education, and Economics (REE) mission area agencies of the United States Department of Agriculture (USDA). I am accompanied by Dr. Merle Pierson, Deputy Under Secretary of REE, and the Administrators of the four agencies: Dr. Edward Knipling, Administrator of the Agricultural Research Service (ARS); Dr. Colien Hefferan, Administrator of the Cooperative State Research, Education, and Extension Service (CSREES); Dr. Katherine Smith, Administrator of the Economic Research Service (ERS); and Mr. Joseph Reilly, Acting Administrator of the National Agricultural Statistics Service (NASS). Also present is Scott Steele, the Department's Budget Director. Each Administrator has submitted written testimony for the record.

The President's budget requests $2.3 billion for the four REE agencies. As we all know, we are in an era of constrained government spending. In keeping with that reality, the process for developing the budget required making tough choices to hold spending in check in order to achieve the President's goals of a balanced budget by 2012. Within the total of $2.3 billion are requests for increases in higher priority programs, including bioenergy and biobased products, food safety and peer reviewed competitive research grants. These increases are offset by the

elimination of Congressional add-ons and decreases in lower priority programs.

Before directly addressing the proposed budget, I would like to share with you some highlights of what I believe has been a very productive year for the REE mission area and its agencies. In addition to individual agency accomplishments, collaboration across the REE agencies, across the Department, and across the Federal Government has improved and has been extremely valuable.

I am particularly pleased with the manner in which the REE agencies, in support of the President's goal for achieving greater energy security, are enthusiastically engaged in coordination of research, education, and other activities related to bioenergy and bioproducts efforts. These activities are often carried out in collaboration with other Federal Agencies and Departments and Universities, with the goal of providing the research, education, and economic information needed to enhance sustainable energy security.

Last fall the REE mission area convened a National Workshop that included stakeholders from universities, other USDA agencies, and Federal Departments across the government to develop a comprehensive strategic plan that defines the role of REE agencies engaged in contributing to the Nation's effort to achieve reliable sustainable sources of agricultural-based energy and industrial products. The resulting Strategic Energy Science Plan for Research, Education, and Extension, now posted on the REE website, will provide a road map for the bioenergy and bioproducts program of each of the four REE agencies for the next 5 years. Key themes of the plan that employ the unique capacity of the REE agencies include a local and regional emphasis, a systems

approach to production, harvesting, handling, storage and conversion, and use of crop residues and animal wastes as feedstocks. Other goals of the plan are efficient use of energy and energy conservation and workforce development, and development of sustainable bioeconomies for rural America.

REE has also been actively participating in the Federal Interagency Biomass Research and Development Board, mandated by the Biomass Research and Development Act of 2000. The Board has become a very valuable forum for Subcabinet policy officials from across the Federal Government to coordinate activities and policies on a broad range of issues related to the emerging bioenergy industry. Under authorization by the Board, ERS is currently leading an inter-Departmental working group preparing an in-depth assessment, including costs and availability, of the Nation's biomass feedstocks for use in the generation of energy needed to meet the goals outlined in the Energy Independence Security Act of 2007. To achieve this goal will require annual production of 36 billion gallons of biofuels by 2022. This seminal report will provide an excellent benchmark for understanding many critical issues related to bioenergy production, such as the impact on biomass production on agricultural markets and sustainability.

Other REE bioenergy collaborations include an intra-REE Bioenergy Advisory Committee composed of agency program leader that will be responsible for implementing the new strategic plan, a scientist exchange with the Department of Energy (DOE), a new REE/Environmental Protection Agency working group addressing bioenergy and sustainability research issues of common interest, and a planned International Sorghum Energy Science Conference in later summer.

Finally, I want to invite all of you to participate in Bioenergy Awareness Day II, or "BEAD II", to be held on June 20th, the summer solstice. BEAD II will showcase advances in agricultural energy science. This year's event will be held at both the National Arboretum and on the lawn of the Jamie Whitten Building on the National Mall. As part of BEAD II, the Nation's first "Energy Garden" of over 20 biofuel crops will be established at the National Arboretum. Ribbon cutting signifying the official opening of the Garden will take place on June 21st, 2008. The event, lasting several days, will also feature research and education programs underway at ARS laboratories and at the Nation's land grant and other agricultural universities and colleges.

Productive research and development in bioenergy and biobased products is being conducted at ARS- and CSREES-supported laboratories in collaboration with industry partners who take innovative products to market. ARS researchers at the North Central Regional Research Center in Peoria, IL, have developed a biobased aluminum hot rolling lubricant formulation that a collaborating company has implemented in four different plants. The company has found that the biobased lubricants have superior performance and are cost competitive, if not cheaper, than currently commercially available lubricants.

The success of two CSREES funded research projects demonstrates how that agency's competitive programs are contributing to the development of agricultural-based energy and industrial products. With funds provided by National Research Initiative (NRI) competitive grant, Dr. Kaichang Li and his partners at Oregon State University developed a new high-performance, environmentally friendly adhesive made from soybean products that is replacing

conventional adhesive. In recognition of their research, Dr. Li and his associates received a Presidential Green Chemistry Challenge award in 2007. Additionally, the first commercial-scale biodiesel plant located in the upper Midwest was supported through a CSREES Small Business Innovation Research grant. The biofuel, which is converting animal fat and recycled cooking oil to biodiesel, meets industry biodiesel requirements and has potential for wide-scale commercial production of a viable alternative fuel.

While the REE bioenergy and biobased products program activities, including collaboration across Federal Agencies and Departments, have become more active and visible over the last year, collaboration is the standard modus operandi for REE agencies. ARS routinely establishes effective collaborations with scientists at the universities where they are located. CSREES collaborates with several other Departments in planning its research program. The agency also develops and jointly funds competitive grant programs with other Departments, such as DOE and the National Science Foundation. We are pursuing research collaboration in energy science with the Department of Defense.

Some particularly notable collaborations have been initiated over the last year. An excellent current example of productive collaboration across USDA agencies focuses on colony collapse disease (CCD) that is threatening the honey bee industry and the livelihood of many fruit and vegetable growers. At stake are many of our crops, including California's number one export crop, almonds, as well as many fruits and vegetables. The participating agencies are ARS, CSREES, the Animal and Plant Health Inspection Service, and the Agricultural Marketing Service. Bees are responsible for over $15 billion in annual added crop value and are as essential

to vegetable and fruit production as soil and water are to plant growth. CCD is a syndrome in which forager bees leave their hive and do not return. This past year the average loss across the Nation was 30 percent, but some beekeepers lost 80 to 100 percent. Reacting quickly to industry needs, REE has led the Federal response to this crisis, holding workshops to determine the likely causes of CCD; developing an Action Plan to address survey, analysis, research and mitigation needs; and establishing a steering committee to coordinate all efforts. No cause for CCD has been identified to date, but research continues.

NASS is partnering with community-based organizations (CBO) and Tribal Governments at an unprecedented level for the 2007 Census with the goals of increasing participation of minority farmers and American Indians who historically have been underrepresented in the Census. Taken every 5 years, the Census of Agriculture provides comprehensive data on the agricultural economy at the national, State, and county level that is used to assess trends and new developments within the sector. Increased participation by minority and Native American farmers and ranchers will enhance the accuracy of the survey findings. The questionnaires for the 2007 Census were mailed to the Nation's farmers and ranchers in December 2007. Last fall NASS held a national CBO partnering workshop to provide training on the Census and develop CBO-NASS partnering plans for Census Days at which staff would be available to assist operators complete their Census report forms.

With CSREES funding and leadership, a network of land grant universities has developed "eXtension." This is a new Web-based information system that will provide objective, scientific, research-based information to the public. We officially launched eXtension at the recent USDA

Outlook conference held in Washington, D.C. By creating high-quality research-based information, eXtension will serve the needs of the anywhere-anytime generation of American users, giving them quick access to the organized customized resources they need to make informed decisions. It is an excellent example of how we are using the collaborative approach to improve the effectiveness of limited resources.

Turning to the FY 2009 budget, I would like to briefly discuss proposed increases in four high priority program areas identified for special REE attention in the preparation of the REE agency budgets: bioenergy and bioproducts, nutrition and obesity, food safety, and water. As part of the budget formulation process, national program leaders from the REE agencies worked together to identify opportunities for collaboration, with or without funding increases.

Bioenergy and Biobased Products: The President's 2009 budget proposes an increase of $29 million in new bioenergy and biobased products activities for the four REE agencies. Successful transitioning of agriculture from traditional food and feed production to include bioenergy feedstock production will be extremely complex and require understanding of issues ranging from plant chemistry and nutrition to economics and sociology. The ARS budget includes a $5.9 million increase for research focusing on the development and use of energy crops and crop residues and efficient conversion to biofuels. With a $19 million increase in the NRI for bioenergy, CSREES proposes a portfolio of interdisciplinary projects that will reflect the diversity in feedstocks and geography. Also included in the CSREES budget is an increase of $1.3 million to establish a Biobased Products and Bioenergy Academic Center of Excellence to develop and provide multidisciplinary undergraduate and graduate-level programs that will

develop the workforce necessary to address issues related to the national bio-economy. The ERS budget requests $0.4 million to strengthen the agency's ability to analyze the regional impacts of bioenergy production and evaluate issues related to such issues as feedstock storage and shifts in commodity production. NASS would use a requested increase of $1.8 million to establish a data series on key elements of bioenergy production and use.

The Administration's Farm Bill proposals that were provided to Congress in June 2007 included $50 million of annual, mandatory funding for bioenergy research and education for the REE mission area. Neither the House nor Senate includes funding for this work in their Farm Bill drafts, although the House includes discretionary authorization language.

Funding the bioenergy increases requested in the President's budget is critical for the REE mission area to significantly strengthen its capacity to effectively participate in and contribute to the growing Federal effort to bring the Nation closer to achieving energy security through the development of an economically and environmentally sustainable bioenergy industry.

Nutrition and Obesity: Obesity continues to be a major public health problem. The incidence of overweight and obesity in children is of particular concern, foreshadowing a life of health problems associated with being overweight, such as diabetes. While obesity research has most often focused on the biomedical and clinical aspects of the condition and the role of food choice and exercise is increasingly recognized as important factors in healthy weight maintenance and obesity prevention. The President's budget proposes a $12 million increase in ARS for research to determine the efficacy of the healthful eating and physical activity recommendations made in

the *Dietary Guidelines* in preventing obesity. A particular focus will be preventing obesity in children and understanding the dietary patterns that contribute to obesity in low socioeconomic and minority populations.

Food Safety: The ARS budget proposes an increase of $7 million to enhance research to safeguard the Nation's food supply from foodborne pathogens, and pathogens of biosecurity concerns. Concern regarding the contamination of fresh produce remains an issue for consumers, as well as the produce industry. The possible sources of pathogens are numerous and their characteristics and movement complex. The funds will support enhanced research to better understand the fate and movement of pathogens, such as *E. coli* O157:H7, in vegetables and small fruit production. Such understandings are critical for developing science-based management practices in which the industry has expressed considerable interest.

Water: Competing human, industrial, recreational, and ecosystem demands for water are challenging agriculture's access to water supplies. In California alone, use of water in fruit and vegetable operations account for over 40 percent of total national water consumption. The increasing conflicts over allocation of fresh water points to the need to gain a better understanding of how to safely and effectively reuse water in agricultural production. The ARS budget proposes $8 million to address several aspects of water reuse, including development of best management practices for food production systems and processing plants. Under its National Integrated Water Program, CSREES will support projects that address water and waste water reuse.

REE FY 2009 Initiatives

I will now briefly describe the budgets proposals of the four REE agencies.

Agricultural Research Service: ARS' FY 2009 budget requests slightly over $1 billion in ongoing research and information programs and facilities. Within the total, the budget proposes increases to high priority programs, several of which were previously described. The budget also proposes program redirections within ongoing base resources to enhance priority research objectives and terminations of current projects, including earmarks, to offset increases. As the principal intramural biological and physical science research agency in the Department, ARS serves many USDA agencies and the larger agricultural community in conducting both basic and mission-oriented research. Results from ARS' basic research provide the foundation for applied research carried out by ARS, academic institutions, and private industry. ARS' applied research and technology development address the research needs of other USDA agencies, as well as of those engaged in the food and agriculture sector.

Over the last several years, great progress has been made in sequencing agriculturally important animal and plant genomes. Using these new maps, scientists are now identifying, characterizing, and manipulating the useful genes in these genomes. The President's FY 2009 budget for ARS proposes an increase for continued genomic research on plants and animals. In generating and classifying new information on genes, their location, and their characteristics, this research will move researchers closer to being able to apply the information and associated technology to a broad array of production challenges. For example, an increase of $1.8 million in the proposed budget would support functional genomics on beef cattle, with the long-term goal of increasing

nutrient utilization in beef cattle production. An additional $1.7 million would be used to improve plant genetic resources, specifically focused on enhancing the pest resistance and efficiency of water utilization in specialty crops.

Preventing, controlling, and mitigating the impact of animal and plant diseases is a never ending challenge in animal and crop production. Whether naturally occurring or intentionally introduced, they have the potential to cause serious threats to human health and devastate production. The ARS budget proposes a $4.6 million increase to enhance research in animal diseases, including Brucellosis and Rift Valley Fever Virus, using recent advances in immunology and genomics, among many techniques. A $4.3 million increase in plant diseases will be used to develop new pest and disease management technologies to avoid or control such diseases as citrus canker and soybean and wheat rust. An additional $780,000 proposed in the ARS FY 2009 budget is specifically focused on determining the causes and finding practical solutions to CCD. This research will be coordinated with research funded by CSREES through the Department's CCD Steering Committee.

Having a modern laboratory that meets both scientific needs and safety standards will be critical in enabling ARS to make its potentially very valuable contribution to mitigating or controlling any Avian Influenza (AI) outbreak, including a human pandemic. The President's budget proposes $13.2 million to complete the funding for the planning and design of the new Biocontainment Laboratory and Consolidated Poultry Research Facility in Athens, Georgia. The Athens and East Lansing, Michigan, labs currently housing poultry research are old and inadequate for addressing high virulent poultry diseases that require increased biocontainment

capabilities. When completed, this BSL-3 facility will consolidate our research on AI and provide scientists state-of-the-art facilities to address emerging and exotic poultry diseases, including AI and West Nile virus. Those diseases threaten not only the Nation's poultry industry, but potentially the health of all Americans.

Cooperative State Research, Education, and Extension Service: The President's FY 2009 budget provides CSREES about $1 billion. In providing critical funding for the research, education, and extension programs of the land grant system and other universities and organizations across the country, CSREES continues to play a central role in the generation of new knowledge and technology, and the transfer of that knowledge and technology to a broad range of stakeholders.

As in recent years, the proposed FY 2009 CSREES budget reflects the Administration's policy of supporting competitive research programs. The President believes that merit-based, competitive research programs represent the most effective mechanism for attracting the Nation's finest scientists to address the Nation's most pressing research challenges. Consistent with this policy, the NRI, the agency's flagship competitive research grant program, continues to be a very effective program for supporting cutting-edge research focusing on high priority problems. The FY 2009 budget proposes $257 million in the NRI. This includes the $19 million increase for bioenergy and biobased fuels research previously described.

An additional $2 million increase in NRI funding will support a new program emphasis on disaster resilience in rural and agriculturally-based communities. The funds will support research to identify factors that enhance the resilience of rural communities and families effected by

disaster and, as a result, increased preparedness and reduce damage and economic loss. NRI funding of $1 million will be used to establish an interdisciplinary research program on agroecosystem, emphasizing long-term systems-level analysis to identify strategies to increase the economic success and environmental sustainability of agriculture.

The budget proposes $43 million in the NRI to support on-going research, integrated and education projects in water quality, food safety, organic transition and pest management that were previously funded under Integrated Activities Account. While the focus of the programs will remain the same, transferring these programs to the NRI will allow the agency to gain greater efficiency in program administration.

Consistent with the policy of committing more resources to competitive research programs, the FY 2009 President's budget proposes to shift a significant portion of the funding for the Hatch and McIntire-Stennis formula programs to a competitive version of the current Hatch multi-State research program. This will encourage more collaboration across regions and institutions. Under the proposal, 70 percent of the total Hatch funding will be used to support the competitive multi-State program. In the first year 42 percent will be competitively awarded with the remaining being competed over the 4-year period, as current projects are completed. A similar proposal is made for the McIntire-Stennis formula program, with the introduction of a new nationally-competed multi-State program, with all multi-State funds being competed in 2009. Both proposals sustain matching fund requirements and leveraging of non-Federal resources and will improve the quality of these research programs by using the competitive process to ensure that the highest quality projects are selected. .

Under the President's Food and Agriculture Defense Initiative, the proposed CSREES budget also includes a $2 million increase for the Higher Education Agrosecurity program, to provide educational and professional development for personnel responsible for securing the Nation's agricultural and food system. Under the same initiative, $4.5 million is proposed to address the Asian Soybean Rust Pest Information Platform for Education and Extension and the National Animal and Plant Diagnostic Laboratory Networks to strengthen the networks' response to pest and pathogen threats.

The budget also proposes to eliminate the cap on indirect costs for competitively awarded grants, consistent with other Federal competitive research programs. The current cap prevents recipients from recovering legitimate indirect costs, discouraging participation in the CSREES programs. This change is particularly important in implementing the programs CSREES is jointly funding with other Federal science agencies.

Economic Research Service: ERS is provided $82 million in the President's FY 2009 budget. As the Department's principal intramural economics and social science research agency, ERS provides economic and other social science information and analysis on agriculture, food safety, human nutrition, the environment, and rural development. ERS produces such information and analysis to inform policy and program decisions made across the Department and makes the information accessible to USDA stakeholders and the general public.

In addition to the increase described above for bioenergy, the ERS budget includes a $3.5 million

increase to strengthen and enhance the agency's market analysis and outlook program. In response to rapid changes in agricultural commodity markets, the initiative will enhance the existing ERS market analysis and outlook program by extending the coverage of global markets and markets for increasingly differentiated products, including organics.

National Agricultural Statistics Service: NASS is provided $153 million in the President's 2009 budget request. NASS' comprehensive, reliable, and timely data are critical for informing policy decisions to promote stable agricultural markets and ensure a level playing field for all users of agricultural statistics. The President's budget provides a total of $39 million for the Census of Agriculture, which will fully fund the last year of the 2007 Census, processing and publishing the data collected. The results of the 2007 Census of Agriculture are scheduled to be released in February 2009.

Summary

In summary, the REE agencies' budgets present a balanced research, education, and economics portfolio with investments in a range of high national priority issues. The increases proposed will enable the REE agencies to continue to make new discoveries and develop new technologies that contribute to the success of American agriculture and allows Americans to enjoy the highest quality, safest and lowest cost food anywhere.

AGRICULTURAL RESEARCH SERVICE

Statement of Dr. Edward B. Knipling, Administrator
Before the Subcommittee on Agriculture, Rural Development,
Food and Drug Administration, and Related Agencies

Madam Chairwoman and members of the Subcommittee, I appreciate the opportunity to present the Agricultural Research Service's (ARS) budget recommendations for fiscal year (FY) 2009. The President's FY 2009 budget request for ARS' research programs is $1,037,016,000 which is a net decrease of $84,025,000 or 7.5 percent below the agency's current year funding level.

ARS' FY 2009 budget will place greater emphasis on priority research initiatives, targeting food safety, bioenergy and bioproducts, obesity prevention, livestock and crop diseases, genomics, genetics resources, Colony Collapse Disorder, and water reuse. These enhanced initiatives, totaling $47,080,000, will be accomplished through the redirection and reallocation of current resources within the same broad areas of our current program activities. The agency will address these priority initiatives, to the extent possible, by utilizing existing expertise. ARS' FY 2009 budget includes $15,125,000 to partially cover pay costs. Pay costs will also be funded from reallocated resources made available through research projects proposed for termination.

The specific priority research initiatives that ARS proposes for FY 2009 are:

- Food Safety -- $7,021,000

  Consumption of fresh fruits and vegetables continues to increase in the United States. However, the trend towards a more healthy diet has coincided with an increased number of deaths and foodborne illnesses associated with produce contaminated with enteric pathogens, such as *E. coli* 0157:H7 and *Salmonella*. Within the past several years, produce outbreaks from domestically grown produce has far outnumbered those from imported produce. Understanding these outbreaks, such as *E. coli* 0157:H7 in fresh lettuce and spinach, and preventing their reoccurrence is essential to the health of the general public and to the economic viability of the U.S. produce industry. ARS will develop management practices and intervention strategies to prevent pre- and postharvest contamination of produce by enteric pathogens.

- Bioenergy and Bioproducts -- $5,864,000

  America's dependence on foreign oil for energy threatens the Nation's security and adversely impacts the country's economy. Imports account for over 60 percent of our oil consumption, forcing consumers to spend more than $100 billion annually on oil from foreign sources. A Department of Energy/USDA report indicated that one third of U.S. petroleum demand could be replaced with biofuel produced from

domestic cellulosic material. Sources of cellulose include agricultural residues (e.g., corn stover, wheat straw, and sugarcane bagasse), herbaceous energy crops (e.g., switchgrass and Bermuda grass), animal wastes, and wood and forest residues. ARS will determine the optimal crop combinations and cellulosic feedstock, crop residues, and the technologies needed for their long-term sustainability, harvesting, preprocessing, storage, and delivery to bio refineries for conversion to energy and coproducts.

- Obesity Prevention -- $12,177,000

  Obesity is the Nation's fastest growing public health problem affecting every segment of the American population. Two of three adults are overweight; the number of overweight children has doubled in the past 20 years. Obesity carries with it the elevated risk of diabetes, hypertension, heart disease, and a number of other debilitating chronic diseases. In addition, the health care costs resulting from obesity and poor nutrition annually cost Americans over $260 billion. The "*Dietary Guidelines for Americans*," based on the best science available, is used as the basis for recommendations in the *Food Guide Pyramid*. They also serve as the primary source of dietary health information for U.S. policymakers, nutrition educators, and health providers. Unfortunately, few Americans follow the "*Dietary Guidelines*." This is particularly true for high risk populations, such as

children, low income groups, and minorities. ARS will determine the effectiveness of the healthful eating and physical activity patterns as set forth in the "*Dietary Guidelines*" in preventing obesity, with particular focus on preventing obesity in children. The results of this research will be substantially relied upon in formulating the 2010 revision of the "*Dietary Guidelines*" and other Federal nutrition policies and programs.

- Emerging Zoonotic and Foreign Animal Diseases -- $4,598,000

  As a result of human overpopulation in environmentally sensitive geographic areas, industrial expansion throughout the world, and global warming, emerging zoonotic diseases are surfacing as some of the most significant threats to public and human health. The intentional release of zoonotic pathogens (i.e., "bioterrorism") also poses a very real threat. Some of the most serious diseases include Brucellosis, Exotic Newcastle Disease, Coccidiosis, Classical Swine Fever, Bovine Viral Diarrhea Virus, Porcine Circovirus-2, Exotic Bluetongue Virus, Babesiosis and Rift Valley Fever Virus (RVFV). RVFV is just one example of a potentially devastating pathogen. It is transmitted to cattle and other ruminants by mosquitoes, but people can be infected by handling raw animal products as well as being bitten by mosquitoes. If RVFV is introduced from Africa to the United States, its presence would result in the death of young animals,

and could pose a direct threat to human life. Recent breakthroughs in the fields of immunology and genomics have provided revolutionary approaches for vaccine discovery research and the potential for eliminating some of these devastating infectious diseases. ARS will conduct comparative immunology studies and genomics research to advance the discovery of diagnostic tools and vaccines to control RVFV, Exotic Bluetongue Virus, and other serious emerging animal diseases. The agency will also research a new anti-tick vaccine to prevent the reinfestation of *Boophilus* ticks that transmit Babesiosis (i.e., Texas Cattle Fever).

- Crop Health -- $4,341,000

  Changes in crop management practices, modification of environments, and genetic shifts in pathogen populations offer exotic pests/diseases an advantage for their survival and spread. Potentially devastating plant diseases include Citrus Canker, Citrus Leprosis Virus, Soybean and Wheat Stem Rusts, and Corn Viruses. The emergence and spread of any of these plant diseases poses a severe problem that, if unchecked, could devastate U.S. agriculture. Since 2000, Stripe Rust has caused hundreds of millions of dollars in loses to wheat growers. ARS will expand its research into new pest/disease management technologies, such as host plant resistance, biological control, and cultural control. Also, the agency will identify new or unknown pests,

determine their geographic origin, and biologically characterize them, which is critically important in their management and control.

- Applied Genomics to Enhance Livestock Production -- $1,843,000

  The productivity of the American livestock industry is largely the result of long-term research on genetic improvement conducted over the past 75 years. While significant genetic change has been achieved in output measures, such as growth rates, meat yields, and meat quality, little change has been achieved in traits directly impacting animal well-being, disease resistance, and the cost of production. Providing feed nutrients makes up a majority of the total cost of livestock and poultry production. For example, in beef production, less than 20 percent of the consumed nutrients are converted into desired products. This incomplete and inefficient utilization of nutrients has adverse effects on production efficiency and accelerates environmental degradation. Until the past decade it was almost impossible to directly study the genes responsible for variations in economically important traits. The relatively new field of molecular genetics and genomics has expanded opportunities to meet this challenge. ARS' research will provide cattle, swine, and sheep germplasm that is more nutritionally efficient. The research will also result in enhanced disease resistance and animal well-being.

- Crop Genetic Improvement -- $1,677,000

  Production of specialty crops is closely linked to the future profitability of U.S. agriculture. These crops are also vital to the optimal diet, health, and well-being of U.S. consumers. U.S. specialty crop producers and processors need more genetic resources and new varieties in order to respond to foreign competition, consumer health, product quality concerns, rapidly shifting market factors, and escalating production costs. ARS will expand its specialty crop genetics and genomics research. Higher quality, more nutritious specialty crops will be bred with greater resistance to pests and diseases.

- Colony Collapse Disorder of Honey Bees -- $780,000

  Honey bees are essential to the pollination of our Nation's fruits, nuts, berries, and vegetables, adding over $15 billion in farm gate value. The beekeeping industry, and growers that depend on the honey bee for pollination are facing a crisis because of Colony Collapse Disorder (CCD), a new syndrome that appeared throughout the country in late 2006, killing 30 percent of hives nationally and 80 to 100 percent of hives in some apiaries. Mitigation will depend on determining the causes of the syndrome and finding practical, cost effective solutions. ARS will expand its research to determine the causes of CCD and develop the means for mitigating its impact. Current hypotheses for

the causes of CCD include: a new pathogen, a new pest, or a change in the way bees are managed.

- Water Reuse in Agricultural Systems -- $7,779,000

  Agriculture is the largest consumer of fresh water in the United States. For example, fruit and vegetable processors in California alone use over 62,000 acre feet of water per year in their operations. That accounts for a significant amount of the total water consumed annually in the Nation. The recent droughts across the United States and the increasing conflicts over the allocation of the limited fresh water supplies underscore the need for a better understanding of how to effectively and safely reuse water within agricultural systems. Agricultural producers, processors, and water suppliers need a well coordinated approach to detect, monitor, quantify, and predict water available for reuse. ARS will develop technologies and management systems for reusing waste water and low quality water for agriculture.

- Improvement and Expansion of the National Agricultural Library (NAL) Products and Services -- $1,000,000

  NAL's collection of more than five million items and its staff of experts constitute the Nation's fundamental base of agricultural knowledge and institutional history. NAL is leading the development of a National Digital Library for Agriculture. AGRICOLA is the

> premier free-of-charge finding tool for agricultural information with over 4.5 million items cited and many thousands of links to online full-text. Customers worldwide include researchers, educators, policymakers, information providers, agricultural producers, students, and the general public. NAL will improve its products and services to include a new Web portal to serve the information needs of veterinary medicine practitioners, and expansion of its digital information collections.

Due to the need to allocate resources to the highest priority needs, and to operate ARS' programs as efficiently and effectively as possible to accomplish the agency's research needs, it is necessary to recommend significant program and resource reallocations and reductions. Included is the closure of 11 research locations and worksites at: Grand Forks, North Dakota; Lane, Oklahoma; Weslaco, Texas; Coshocton, Ohio; Watkinsville, Georgia; East Lansing, Michigan; Morris, Minnesota; University Park, Pennsylvania; Laramie, Wyoming; Brooksville, Florida; and Brawley, California. In addition, nine laboratory/management units and selected program activities as well as 48 research projects classified as earmarks in FY 2008 are proposed for termination. Decisions as to the programs and locations to be proposed for redirection, termination, and closure were difficult, but necessary, given the need to support higher priority research initiatives and curtail Federal spending. The programs were reviewed for relevance, quality, impact, and cost-effectiveness.

ARS is proposing an increase of $13,220,000 under its Buildings and Facilities account to complete the planning and design funding requirements for a new Biocontainment Laboratory and Consolidated Poultry Research Facility in Athens, Georgia. The new, modernized facility will replace existing research facilities and house poultry research carried out at the Southeast Poultry Research Laboratory in Athens, Georgia. Current research facilities are inadequate for responding to the highly virulent poultry diseases that require increased biocontainment capabilities and state-of-the-art facilities. The estimated cost for construction of the new facility is $207 million.

The FY 2009 budget also proposes a rescission of $67,180,000 under the Buildings and Facilities account. Under this request, unallocated appropriations from partially funded earmarked construction projects, and funds from unobligated balances of completed facilities are to be cancelled and returned to the Treasury. Limited budgetary resources should be allocated to fund a critical facility, such as the Athens Biocontainment Laboratory and Consolidated Poultry Research Facility, rather than spread among multiple projects of less critical need.

Madam Chairwoman, this concludes my statement of ARS' budget recommendations for FY 2009. I will be happy to answer any questions that the Subcommittee may have.

COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE

Statement of
Dr. Colien Hefferan, Administrator
Before the
Subcommittee on Agriculture, Rural Development,
Food and Drug Administration, and Related Agencies

Madam Chairwoman and Members of the Subcommittee, I appreciate the opportunity to present the President's fiscal year (FY) 2009 budget for the Cooperative State Research, Education, and Extension Service (CSREES), one of the four agencies in the Research, Education, and Economics (REE) mission area of the United States Department of Agriculture (USDA).

The CSREES FY 2009 budget proposal is just over $1 billion. CSREES, in concert with the Secretary of Agriculture and the intent of Congress, works in partnership with the land-grant university system, other colleges and universities, and public and private research and education organizations to initiate and develop agricultural research, extension, higher education, and related international activities to advance knowledge for agriculture, the environment, human health and well-being, and communities. In addition, CSREES implements grants for organizations to better reach and assist disadvantaged farmers and ranchers in accessing programs of USDA. These partnerships result in a breadth of expertise that is ready to quickly and efficiently deliver critical knowledge through innovative systems. The world looks to USDA's partnership with the land-grant university system and other institutions as a model for developing and using knowledge in an effective and expeditious way to address the challenges facing the food, agricultural, and human sciences.

The FY 2009 CSREES budget request continues to align funding and performance objectives with the USDA strategic goals. CSREES manages its many budget elements in support of research, education, extension, and outreach programs as part of a cohesive whole supporting all six of the Department's strategic goals. The agency defines distinct performance criteria, including strategic objectives and key outcomes, with identified annual targets. As part of an integrated budget and performance process, CSREES conducts periodic portfolio reviews by external experts. An external review of all major programs has been completed. Using the Office of Management and Budget's Program Assessment Rating Tool, the programs received an "effective" or "moderately effective" score. CSREES is working to implement the recommendations of the reviews in planning and managing its programs, and will continue to conduct external reviews on a rotating basis.

The President's FY 2009 budget proposes to expand and continuously recompete the Hatch Act multi-State/multi-institutional allocations, and establish a similar, separately authorized, program for McIntire-Stennis Cooperative Forestry (McIntire-Stennis) funds. This initiative for multi-State/multi-institutional programming sustains the matching requirements and the leveraging of Federal funds, and allows institutions to focus on program strengths they identify and sustain through linking local issues to broad national goals. To ensure the continuity of projects, the program is designed to allow five year projects, including the orderly completion of current multi-State projects. This will support the important goal of targeting research to the highest quality projects to meet critical national and regional needs.

CSREES will continue to distribute a portion of the Hatch Act and McIntire-Stennis funds on the basis of the formula. The requested $139 million of Hatch Act funding will support research at the State Agricultural Experiment Stations related to producing, marketing, distributing, and utilizing crops and resources; enhancing nutrition; and improving rural living conditions. In addition, funds will support other research topics such as water and other natural resources, crop

and animal resources, people and communities, and competition and trade. The $19 million of McIntire-Stennis program funding will support forestry, natural resources, and ecosystem management related research at State designated college and university forestry programs.

CSREES proposes to eliminate funding for the Animal Health and Disease Research Program. Alternative funding from the National Research Initiative (NRI) program could be used to support aspects of this program. For example, three major projects addressing animal diseases, Avian Influenza, Johne's, and Porcine Reproductive and Respiratory Syndrome, as well as new, multi-institutional work to develop veterinary reagents have been funded under the NRI. In addition, under the President's Food and Agriculture Defense Initiative, funding is being used to expand the veterinary diagnostic system to include university-based laboratories, to work in collaboration with national laboratories to survey, monitor, and respond to outbreaks of animal diseases.

Through the NRI program, CSREES continues to support research, education, extension, and integrated activities that address key problems of national, regional, and multi-State importance in biological, environmental, physical, and social sciences relevant to agriculture, food, the environment, and communities. To address these problems, the NRI program will offer new opportunities such as efforts in bioenergy/biofuels development, disaster resilience, and the long term integrated project in agroecosystems. The FY 2009 budget requests $256.5 million for the NRI program.

CSREES is committed to supporting the development of bioenergy/ biobased fuels and processes to efficiently convert renewable plant products to fuel in an economically, socially, and environmentally sustainable manner. Recent NRI supported research efforts in renewable energy

holds great promise for discovering domestic and sustainable alternatives. For example, through the establishment of the Oklahoma State University, University of Oklahoma, and Mississippi State University Consortium, an ethanol gasification-bioconversion process that utilizes all of the plant biomass, including lignin, is being developed. It is expected that this method will be more cost efficient than other methods of ethanol production, because the process uses all portions of a variety of biomass and feedstock material that includes grasses, crop residues, and processing plant by-products. In another example, researchers at Purdue University in Indiana are mixing soybean methyl esters (i.e. biodiesel fuel) with jet fuel, quantifying the physical properties and measuring turbine jet engine combustion performance and emissions. The project has developed a fractionation technology that removes the saturated components to produce workable fuel blends with existing jet fuels.

In 2009, in support of the Bioenergy Initiative, NRI funding in the amount of $19.2 million is requested to support interdisciplinary research projects that include genomics and genetics, basic and applied plant sciences, novel methods of biological and chemical conversion of biomass, social and economic impacts on rural communities, as well as education and extension. New research will be solicited to: develop new and sustainable agricultural feedstocks; improve biocatalysts for biomass conversion; improve the understanding of the impact of the biofuel production on the agricultural ecosystem components including soil fertility and water use; determine the impact of a renewable fuels industry on the economic and social dynamics of rural communities; and reduce the overall cost of converting agricultural feedstocks to biofuels through the development of valuable co-products from the bioenergy process. CSREES will continue to leverage its bioenergy effort through coordination with key interagency committees and collaborations such as those with the Department of Energy, National Science Foundation, National Aeronautics and Space Administration, Environmental Protection Agency, and the National Institutes of Health.

Under the NRI, funding will be used to identify factors that enhance the resiliency of rural communities and families impacted by disasters. Activities include studies on the effects of communication networks, economic structure, governance, and family systems on the survival and the speed of recovery from disasters. Research conducted will address economic and social consequences of alternative disaster recovery approaches; identify cost-effective communication methods to alert and educate people; and be used to prepare communities for emergency response and disaster recovery.

The NRI will support efforts to study, design, manage, and optimize long-term agroecosystems using an integrated approach. The supported long term integrated project in agroecosystems will examine agriculture as a part of an interactive system that provides food security, economic viability, ecological goods and services, resource conservation, and increased production. Long-term systems-level analyses will identify strategies to increase the economic success and environmental sustainability of agriculture.

CSREES proposes $45.13 million for integrated research, education, and extension activities for programs that focus on water quality, food safety, organic transition, and pest management programs (which includes the pest related programs and methyl bromide) and that these programs be administered through the NRI rather than the current 406 authority.

Within the integrated activities, CSREES requests funding for the National Integrated Pest Management Initiative to broaden the program beyond food cropping systems to include forest, urban (ornamentals and turf) and livestock pest management and production issues related to ecosystem management. Additionally, funding support is requested for priorities within the National Integrated Water Program to support projects that address water and wastewater reuse, conservation, as well as water quality for agriculture, rural, and urbanizing watersheds. Also, CSREES partnering with the Food Safety and Inspection Service and the Food and Drug

Administration will support the Integrated Food Safety Initiative to provide the public with access to resources, information, training, and education designed to meet the public health needs as related to food safety issues.

CSREES, through cooperative efforts with the Animal and Plant Health Inspection Service, is expanding its efforts for agricultural security utilizing a unified Federal-State network of public agricultural institutions. The 19 key animal and plant laboratories, strategically located in States around the country including New York, Louisiana, Georgia, Texas, Wisconsin, Iowa, Colorado, California, Washington, Arizona, Florida, Michigan, North Carolina, Indiana, and Kansas are identifying and responding to high risk biological pathogens in the food and agricultural system. The FY 2009 budget requests $14.3 million in support of the Food and Agriculture Defense Initiative. This request includes $2.3 million to address the Asian Soybean Rust Pest Information Platform for Education and Extension. Funding will be used to maintain and enhance pest risk management tools for Asian Soybean Rust and other pathogens of legumes.

CSREES proposes $2 million for the Agrosecurity Education Program to help universities to develop and deliver programs that address agro- and bio-security issues. The program will develop and promote curricula for undergraduate and graduate level higher education programs that support the protection of animals, plants, and public health. The program is designed to support cross-disciplinary degree programs that combine training in food sciences, agricultural sciences, medicine, veterinary medicine, epidemiology, microbiology, chemistry, engineering, and mathematics (statistical modeling) to prepare food system defense professionals.

The CSREES higher education programs contribute to the development of human capacity and respond to the need for a highly trained cadre of quality scientists, engineers, managers, and technical specialists in the food and fiber system. CSREES requests $6.7 million for the Institution Challenge Grants Program. The increase of $1.3 million will be used to establish a

Biobased Products and Bioenergy Academic Center of Excellence. The center will create and deliver multidisciplinary undergraduate and graduate level education, research, and extension programs and curricula that will address issues relevant to the national bio-economy. The FY 2009 budget sustains support for most of the other higher education programs.

To build on specific international initiatives, and in support of the Administration's commitment to the U.S./India Agricultural Knowledge Initiative, CSREES proposes $2 million for the International Science and Education program. CSREES believes it is positioned to play a central role in expanding partnerships with scientists in India. Other higher education programs will provide important and unique support to Tribal Colleges, the 1890 Land-Grant Colleges and Universities, and the 1862 Land-Grant Universities as they pilot important new approaches to expand their programs.

CSREES proposes $62.3 million for the Expanded Food and Nutrition Education Program (EFNEP) which uses experiential learning to improve the diets of low-income families and youth to reduce their risk of obesity and other nutritional problems. The FY 2009 budget maintains the current general provision which provides that each institution eligible for EFNEP funds will receive at least $100,000 for program activities.

CSREES continues to expand diversity and opportunity with activities under 1890 base and educational programs, and 1994, insular areas, and Hispanic-Serving Institutions educational programs. In FY 2009, the budget requests funds totaling $72.4 million for both the research and extension 1890 base programs. Funding for our 1890 base programs provides a stable level of support for the implementation of research and extension programming that is responsive to emerging agricultural issues. Funding for the 1994 Institutions strengthens the capacity of the Tribal Colleges to more firmly establish themselves as partners in the food and agricultural science and education system through expanding their linkages with 1862 and 1890 Institutions.

CSREES also will continue to effectively reach underserved communities through increased support for the Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers (OASDFR) Program. CSREES will fund competitive multi-year projects to support outreach to disadvantaged farmers and ranchers by providing grants to educational institutions and community-based organizations to support these groups. Funds for the OASDFR program will encourage and assist socially disadvantaged farmers and ranchers in their efforts to become or remain owners and operators by providing technical assistance, outreach, and education to promote fuller participation in all USDA programs. CSREES requests $7 million for the OASDFR program.

CSREES is requesting funds to support eXtension through the New Technologies for Agricultural Extension (NTAE). The NTAE will expand access, understanding, and usefulness of the valuable information and education that Cooperative Extension has to offer in order to meet the changing needs of the Nation. With financial and personnel support from the System, complemented by Federal funds, we will be able to expand deployment of Communities of Practice (composed of experts from the land-grant universities and their partners) to develop high quality content for eXtension. The FY 2009 budget proposal includes $3 million for the NTAE Program.

To ensure the highest quality research that addresses national needs within available funding, the FY 2009 budget proposes to eliminate earmarked projects. By allocating funding to a predetermined list of projects, earmarks reduce the ability of program administrators to allocate funding based on merit. Peer-reviewed competitive programs that meet national needs are a more effective use of Federal taxpayer dollars than earmarks that are provided to a specific recipient for needs that may not be national. Based upon its broad scope, including the expanded

integrated authority, and proposed funding increase, alternative funding from the NRI could be used to provide a peer-reviewed forum for seeking and assessing much of the work funded through earmarks.

The FY 2009 budget proposes changes in the general provisions including increasing the amount provided from the NRI that may be used for competitively-awarded, integrated grants from "up to 26 percent" to "up to 30 percent". Also proposed is the elimination of the cap on indirect costs for competitively awarded grants. In the past indirect cost rate caps have resulted in recipients' inability to recover legitimate indirect costs. The proposed elimination allows full indirect cost recovery under competitive awards and places CSREES competitive programs on an equal footing with other Federal assistance programs, so that top scientists will continue to apply for CSREES grant programs. This is especially important in implementing the growing number of jointly funded programs CSREES supports with other Federal science agencies.

CSREES, in collaboration with university and other partners nationwide, seeks to provide innovative and timely responses to critical agricultural issues. This proposal provides support for research, extension, higher education, and outreach and assistance activities in the food, agricultural, and human sciences that can make a difference in solving emerging problems facing the Nation.

Madam Chairwoman, this concludes my statement. I will be glad to answer any questions the Committee may have.

For release only by the
House Committee on
Appropriations

ECONOMIC RESEARCH SERVICE

Statement of
Dr. Katherine Smith, Administrator
Before the
Subcommittee on Agriculture, Rural Development,
Food and Drug Administration, and Related Agencies

Madam Chairwoman and Members of the Subcommittee, I appreciate the opportunity to present the President's fiscal year (FY) 2009 budget for the Economic Research Service (ERS), one of the four agencies in the Research, Education, and Economics (REE) mission area of the United States Department of Agriculture (USDA).

The ERS FY 2009 budget proposal is $82.1 million. ERS informs and enhances public and private decision making on economic and policy issues related to agriculture, food, the environment, and rural development. The FY 2009 ERS budget request aligns funding and performance with the USDA strategic goals. ERS manages its budget for research and analysis that supports all six of the Department's strategic goals. The agency defines distinct performance criteria, including strategic objectives and key outcomes with identified annual targets. In FY 2005, ERS was reviewed via OMB's Program Assessment Rating Tool, and received an "Effective" score. External peer reviews of all research programs have also been completed and found ERS' research program "Excellent." ERS is working to implement the recommendations of the reviews in planning and managing its programs, and will continue to conduct external reviews on a rotating basis.

The President's FY 2009 budget proposes an increase of $3,523,000 to enhance the ERS market analysis and outlook program. This initiative will strengthen our ability to provide timely analysis

of global agricultural markets for the Department and the public. Agricultural commodity markets are experiencing rapid changes driven by external forces, including globalization, increased product differentiation, and a growing biofuels industry. The uncertainty resulting from these developments, along with the potential for significant changes in both domestic farm programs and trade policy over the next five years, means that in-depth commodity market information and analysis are even more critical to policy makers and to the private sector than in the past. In FY 2008, ERS began enhancing the existing ERS market analysis and outlook program by extending coverage of global markets and markets for differentiated products, including organics. ERS has added questions about organic costs and practices to the Agricultural Resource Management Survey (ARMS), and data collection on organic apples is currently in the field. A report on the retail and consumer demand aspects of the organic milk market was completed in 2007, and a comparison of traditional and organic milk production based on data that were collected in 2006 is being completed.

For 2008, ERS plans an update for the data series on certified organic cropland and pasture in the U.S. ERS has hired staff, acquired data and developed extramural programs to leverage USDA analysis and encourage research in support of commodity market analysis and forecasting. Additional monies through this initiative in FY 2009 will further strengthen the ERS market analysis and outlook program by further extending the coverage of global and differentiated product markets. We will sustain our new staffing plan through succession planning, appropriate recruitment, and human capital development to ensure the continuity and quality of ERS market analysis and outlook.

The President's budget for FY 2009 requests a $357,000 increase to extend its research to address the implications of increased ethanol production on U.S. agriculture and infrastructure. The requested funds will strengthen the ability of ERS to analyze the regional impacts of bioenergy production. We plan to evaluate issues related to transportation networks associated with

feedstock delivery to ethanol plants and consumers, feedstock storage, marketing channels for ethanol byproducts, and ethanol/industrial development's effect on rural economic growth. ERS will conduct spatial analysis of the shifts in crops, resource use, and potential environmental impacts.

In FY 2008, ERS strengthened research and modeling capacity in bioenergy and market impacts associated with bio-energy development. The funds are being used to strengthen existing research in emerging U.S. and international aspects of bioenergy developments. Collaborating with research partners and stakeholders, ERS is working on the determination of long-term supply and demand factors for feedstocks and ethanol, and the impacts on domestic feed and livestock industries. Modeling tools are being developed to assess the impacts of energy-induced land-use changes on conservation goals and environmental quality. In 2008, ERS will continue investment into improving the domestic and international models to evaluate bioenergy impacts on domestic markets, international food security, environmental quality, and rural development. The specific areas of ERS research are bioenergy impacts on long-term supply and demand factors, domestic feed and livestock industries, U.S. and global policies, environmental quality, rural communities, and food prices.

The President's budget for FY 2009 requests an increase of $1.1 million to fund pay costs. This increase is necessary to maintain the current ERS program and to avoid a reduction in the university cooperative research agreements program. Cooperative research agreements are critical for building links between university and ERS research, strengthening USDA land-grant partnerships, and leveraging ERS research.

I would also like to highlight key areas of ERS research, including issues covered in last year's testimony on rural development. Talent and education are key determinants of economic well-being for rural people and their communities. Education continues to be a focus of rural

development research at ERS due both to its economic importance and to the stark differences in education levels across rural areas. Local human resources are in part the outcome of local schools and graduation rates. However, rural areas often lose much of their talent as young adults leave for college, the military, and to see the world. This talent tends to return to rural settings when people start to raise families, make mid-career changes, or retire. Areas unable to attract this talent back often fail to thrive. ERS has three on-going projects relating to rural human resources.

- ***Education and earnings.*** In 2007, ERS researchers studied how differences in education levels and in monetary returns to education affected the gap in average wages between urban and rural workers. Although part of the urban-rural wage-gap can be explained by higher urban education levels, higher urban pay-off for a college degree actually plays a larger role. Research on the relationship between earnings and education will continue this year.

- ***Return migration.*** Economic success for rural communities in the U.S. often depends more on attracting new or returning residents than on retention. Return migration is a major component of in-migration to most rural communities, especially to remote areas lacking scenic amenities. ERS is conducting research to identify community characteristics that encourage return migration.

- ***Rural America in the knowledge economy.*** While some places may attract new low-skill employers such as prisons, meat-packing plants or casinos, for much of rural America, the local ability to adapt and grow depends on a combination of talent, entrepreneurship and creativity. An ERS report summarizing this research is planned for the end of 2008.

In accordance with the Consolidated Appropriations Act, 2008, ERS began research on "the economic impact of not having broadband service on rural communities and their growth, community facilities, access to healthcare, and well being." Broadband access has increased dramatically nationwide over the last few years, but is not readily accessible in all rural areas. Surveys indicate that access for rural households continues to be less than for urban households. ERS is examining the economic impact of broadband service on rural communities. Through comparing rural communities with low access to otherwise similar communities that have had access, ERS researchers are investigating how access to broadband affects various rural businesses, households, and community facilities, such as health clinics, schools, and libraries. The findings are expected to provide a framework for better evaluating policy options for expanding broadband access to nonmetropolitan America.

ERS analysis shows that poor rural counties generally receive more grants and fewer guaranteed loans than rural counties in general. Poor communities often lack the ability to repay loans given their limited tax base, and this problem is exacerbated in small communities, where the per-person costs of providing public services are high. Consequently, the recent shift from rural development grants to direct or guaranteed loans may make it more difficult for lower-income rural communities (and lightly populated areas) to finance local environmental infrastructure (water supply and treatment), telecommunications services (broadband and distance learning), and community facilities (libraries, schools, etc.). ERS is currently examining the geographic distribution of Federal programs of importance to rural development using data provided annually by U.S. Census Bureau. The information will show how much each State or region received from specific programs by type of assistance, such as grants, direct loans, and loan guarantees. A report is planned for FY 2009 that will examine the geographic distribution of Federal programs,

with particular focus on how these programs are targeted with respect to measures of rurality, poverty, and population decline.

Farmers in the U.S. produce a wide variety of commodities for food and fiber. They also produce a variety of non-commodity outputs, or "ecosystem services." These services can include such things as improved water quality, carbon sequestration, wildlife, recreation, and open space. Each of these has value, but it is typically difficult for farm operators to benefit financially from providing ecosystem services, so these services tend to be underprovided. ERS is currently examining different mechanisms for providing ecosystem services that could potentially provide additional income to farmers. This research assesses factors thought to be important in preventing farmers from benefiting from these markets, such as high transactions costs and uncertainty. Markets being studied include water quality trading, wetland mitigation, fee hunting, greenhouse gas reduction, eco-labeling, and agritourism.

Agritourism provided income to about 52,000 farms (2.5 percent of all farms) in 2004 according to a 2007 ERS report. ERS is conducting research on the characteristics of farmers who participate in farm recreation businesses, and on factors determining how much income can be gained from agritourism. This provides an alternative source of farm income for farm operators, and also a way for rural communities to diversify and stimulate their economies. The work on agritourism complements ERS research aimed at better understanding the complex interrelationships existing between the farm and the rural community.

Congress provides ERS with funds specifically to study and evaluate the USDA's food and nutrition assistance programs. ERS uses these funds to supplement its internal research base with strong extramural research collaborations. This year marks the 10th anniversary of the extramural

program—the Food Assistance and Nutrition Research Program (FANRP)—at ERS.

Some key findings from FANRP studies include the following:

- Food Stamp Program expenditures provide a stimulus to the economy. ERS research has found that an increase in Food Stamp Program benefits increases aggregate production and income in the economy by 1.8 times more than the direct benefits provided.

- Income volatility causes low-income households to cycle in and out of eligibility for nutrition assistance and may affect food insufficiency. Food stamps reduce the effects of income volatility on the household and stabilize food consumption.

- In 2006 eleven percent of all U.S. households were food insecure, including 30 percent of all households headed by single women with children. The finding comes from the most recent annual report *Household Food Security in the United States.* FANRP sponsors the annual food security survey on which the annual reports are based.

- A number of FANRP studies have examined factors associated with childhood obesity, especially those within parents' control. Other studies have highlighted the linkages between obesity and the consumption of certain types of food and beverages. These studies have found no evidence that participation in food assistance programs substantially increases childhood obesity.

Fiscal year 2009 kicks off the second decade of FANRP research. Among the key issues we expect to address in the coming year are the affordability of healthful food and factors influencing the rising cost of infant formula to the WIC Program.

In 2007, The Senate Appropriations Committee in its report accompanying the annual appropriations bill (S. Report-110-134, pg. 17) requested that "The Economic Research Service prepare and publish a report regarding consumer perceptions and consumption of canned fruits and vegetables." ERS has completed a draft report which examines trends in fruit and vegetable consumption, including the consumption of canned fruits and vegetables, using data from ERS's Food Availability Data System. The report also presents analysis of the determinants of demand for canned fruits and vegetables and consumption along income and demographic factors. The report is currently under review.

ERS received funding in fiscal years 2005 through 2008 to develop a consumer data and information program. ERS has used micro-level household and store scanner food sales data obtained under this program to conduct research on consumer and market reactions to food safety concerns, such as Mad Cow Disease and Avian Influenza. A recent ERS report using this data showed that after the discovery of Mad Cow Disease in the U.S. in December 2003, consumers may have purchased less beef in the week or two after the announcement, but that it was a short-lived response. This year, we will use these food sales data to examine consumer reactions to highly-publicized outbreaks of foodborne illness caused by microbial contamination in fresh produce.

ERS is collaborating with the National Center for Health Statistics to field a Flexible Consumer Behavior Survey (FCBS) as a supplement to the National Health and Nutrition Examination Survey. The FCBS collects additional information to explain consumer dietary behavior and assess the impact of USDA's nutrition assistance and education programs. Currently, the 2008 data are being collected. In FY 2009, ERS will begin using this data to conduct research on changes in dietary behavior, including changes in the use of food labels, changes in consumer nutrition knowledge and attitudes, and the association between these changes and changes in diet quality and obesity.

In FY 2008, ERS collaborated with the National Institutes of Health, National Cancer Institute, to collect information on how Americans spend their time on shopping, preparing, and eating food. These data are being collected using a Bureau of Labor Statistics' American Time Use Survey module. In FY 2009, data collected during 2007 will be analyzed to examine various socioeconomic factors associated with differences in time use for food preparation and eating across individuals, particularly income levels, and the relationship between time use for eating and obesity.

U.S. exports of agricultural products have increased dramatically in recent years. A forthcoming report builds on earlier ERS analysis of the factors affecting growing food demand in middle income countries to look in more detail at changing global markets. Using food expenditures and food sales data over 1990-2004 the report, *Convergence in Food Demand and Delivery: Do Middle-Income Countries Follow High-Income Trends?*, examines whether food consumption and delivery trends are converging across 47 high- and middle-income countries. Middle-income countries, such as China and Mexico, appear to be following trends in high-income countries, measured across several dimensions of food system growth and change. Convergence is apparent in most important food expenditure categories, and in indicators of food system modernization such as supermarket and fast-food sales. Convergence is an important source of increased export demand for agricultural products and high value processed foods.

ERS is also examining the impact of higher food prices in global markets. A recent ERS article "Rising Food Prices Intensify Food Insecurity in Developing Countries", reported on initial research on the impact of higher food prices in food insecure developing countries. ERS plans to continue this work with more detailed analysis of the impact of higher prices on consumers, local producers and trade in selected sub-Saharan African countries.

It is the intent of ERS to look beyond the immediate horizon to conduct anticipatory research, the findings of which will be available when a topic "heats up." In that regard, issues arising from debate and deliberation on new farm and energy bills have led us to initiate research projects in 2008 that will:

- Study the impacts of local food sourcing on rural communities and urban and rural consumers. The research will examine a wide range of potential costs and benefits, including those associated with potential environmental and nutritional changes due to increased reliance on local food production.

- Evaluate the potential roles of agriculture as a producer of offsets in proposed national carbon markets. This analysis will consider interactions with USDA Conservation Programs, as well as alternative proposals for design of the carbon market.

- Study farmland values and ownership, utilizing a range of Geographic Information System -based information being assembled in the agency's data lab. Focusing on general patterns of changing land values and the ownership of farmland will allow us to identify who stands to gain from recent increases in agricultural land values and some of the consequences if agricultural land values decline. This study will also examine how changing land-use patterns affect the viability of local communities and conversely how agricultural viability affects land use patterns.

- Evaluate the impact of alternative definitions of a farm or an active farmer. The present definition of a farm ($1,000 of agricultural commodities that were sold or normally would have been sold in a year) is quite inclusive, and captures many operations with very little production. Definitions of active farmers vary across programs, but are also generally

quite inclusive. ARMS data will be used to summarize how many current farms, and how much production, farmland, farm expenses, and government payments, would still be captured by alternative definitions. The research shall also evaluate the impact of alternative definitions of family farms.

- Report on the current economic organization of contract broiler producers, using data from ARMS survey of broiler operations in 2006. Research will be initiated on the impacts of farm size, farm age, adoption of technologies, location, operator characteristics and contract terms on the efficiency and financial performance of contract broiler operations.

ERS shapes its program and products principally to serve key decision-makers who routinely make or influence public policy and program decisions. This clientele includes White House and USDA policy officials and program administrators/managers; the U.S. Congress; other Federal agencies, and State and local government officials; and domestic and international environmental, consumer, and other public organizations, including farm and industry groups interested in public policy issues.

Madam Chairwoman, this concludes my statement. I will be glad to answer any questions the Committee may have.

For release only by the
House
Committee on Appropriations

NATIONAL AGRICULTURAL STATISTICS SERVICE

Statement of
Joseph T. Reilly, Acting Administrator
Before the
Subcommittee on Agriculture, Rural Development,
Food and Drug Administration and Related Agencies

Madam Chairwoman and members of the Subcommittee, I appreciate the opportunity to submit a statement for this Subcommittee's consideration in support of the fiscal year (FY) 2009 budget request for the National Agricultural Statistics Service (NASS). This agency administers the U.S. agricultural statistics program, which began at the United States Department of Agriculture (USDA) in 1863. NASS also conducts the quinquennial U.S. Census of Agriculture, first collected by the Department of Commerce in 1840. Both programs are aligned with the basic mission of NASS to provide timely, accurate, and useful statistics in service to U.S. agriculture.

FY 2009 Budget

The agency's FY 2009 budget request is $153.5 million. The FY 2009 budget proposes redirecting funds to improve quality of existing higher priority annual surveys in the agency's Agricultural Estimates program; seeks new funds to implement an annual renewable energy program to monitor agricultural production and utilization of energy inputs; uses Census of Agriculture funds to finalize processing and publish the 2007 Census of Agriculture and conduct

Census of Agriculture follow-on studies focused on farm and ranch irrigation and on-farm energy production; and provides partial pay costs.

Agricultural Estimates

NASS's annual agricultural estimates reports are critically important to assess the current supply and demand in agricultural commodities. They are extremely valuable to producers, agribusinesses, farm organizations, commodity groups, economists, public officials, and others who use the data for decision-making. The statistics disseminated by NASS support fairness in markets ensuring buyers and sellers have access to the same official statistics at the same pre-announced time. This prevents markets from being unduly influenced by "inside" information, which might unfairly affect market prices for the gain of an individual market participant. The efficiency of commodity markets is enhanced by the free flow of information, which minimizes price fluctuations for U.S. producers. Statistical measures help the competitiveness of our Nation's agricultural industry and have become increasingly important as producers rely more on world markets for their sales.

The U.S. food and agricultural sector relies on reliable statistical information. The USDA-NASS statistical program serves most U.S. agricultural commodity data needs and supplies important economic, environmental, and demographic data that informs policy decisions that impact the livelihood and quality of life of rural residents.

The proposed FY 2009 budget redirects funding from lower priority data series to continue a multi-year effort to improve the statistical precision of existing agricultural data series in the agency's Agricultural Estimates Program. This will allow us to maintain the improved statistical precision gained through the FY 2004 through FY 2006 increases. Beginning in FY 2007, NASS greatly curtailed its Chemical Use Program after careful review of the entire NASS program based on the need for market sensitive information, data needed to implement USDA programs, and the availability of other similar data series. The FY 2009 budget request will continue to redirect funds from reports such as the quarterly *Agricultural Labor* report, the *July Cattle* report, the *July Sheep and Goats* report, and the Aquaculture Survey Program in order to maintain and improve the quality of other annual programs.

The FY 2009 President's budget also includes funding for NASS to respond to the need for better agricultural data on the production and utilization of energy crops. Based on meetings with industry and Department stakeholders, NASS has identified several key areas of interest where data collection could benefit and provide information for program development and future research in bioenergy. These include, but are not limited to: production and utilization of biomass materials; transportation grids for commodities to ethanol plants; and the availability and use of co-products, such as dried distillers grain.

Census of Agriculture

NASS is currently conducting the 2007 Census of Agriculture. The initial mail out to the Nation's farmers and ranchers was in December 2007. The Census of Agriculture is taken every

5 years and provides comprehensive data at the national, State, and county level on the agricultural sector. The Census of Agriculture is the only source for this information on a local level and is extremely important to the agricultural community. These data were used extensively by USDA to help answer both internal and Congressional questions during the current Farm Bill debate. Detailed information at the county level helps agricultural organizations, suppliers, handlers, processors, and wholesalers and retailers better plan their operations. Demographic information supplied by the Census of Agriculture also provides a very valuable database for developing public policy for rural areas. In addition to the 50 States, the Census of Agriculture programs are conducted in Puerto Rico, Guam, and the Commonwealth of the Northern Mariana Islands. Results from all of the censuses are made available on the NASS website.

The budget request includes an increase of $1.2 million to allow NASS to transition the Census of Agriculture budget from cyclical funding to a flat-line funding concept for each of the 4 years leading up to the data collection year for the quinquennial census. This flat-line concept results in a total FY 2009 Census of Agriculture budget of $39.4 million, $12.5 million below the FY 2008 appropriations. FY 2009 is the fifth year of the 2007 Census of Agriculture cycle and includes data summarization and publication, scheduled for February 2009. Additional funds are required to prepare and conduct long standing follow-on surveys. Included in the funding are activities associated with final preparation and conducting the Farm and Ranch Irrigation Survey (FRIS) and a new on-farm energy production follow-on study. The feasibility of updating the FRIS to evaluate current access to reuse water, quantities of water used, and cost associated with various water delivery systems is being explored.

The Census of Agriculture funding has historically been on a five-year cycle, keyed to the funding needs for each of the 5 years of the census cycle. The FY 2009 budget proposes a one time adjustment following the peak data collection year for the 2007 Census of Agriculture. This will allow NASS to maintain a flat budget during FY 2009 through FY 2012. The only increases to the Census of Agriculture during the 4 year period will be for pay costs and new initiatives proposed during the cycle. FY 2013 is the data collection year for the 2012 Census of Agriculture and will include an increase for data collection and processing activities. A new base will then be established for FY 2014 through FY 2017.

The authority to conduct the Census of Agriculture was transferred to USDA in 1997. During the past 11 years, NASS has made significant strides to continually improve this vital data series. For the first time in history, respondents had the option of reporting electronically through the Internet on the 2007 Census of Agriculture. NASS also targeted improved coverage for the 2007 Census of Agriculture by working closely with Community Based Organizations and American Indians tribes and reservations to increase awareness of the importance of being represented. Finally, NASS continues to listen to Congress and industry on the ever expanding need for additional agricultural statistics. For example, the 2007 Census of Agriculture includes an entire section on organic agriculture. This will allow the most comprehensive look ever of organic agriculture production in the United States. NASS will also publish, for the first time, a report by watershed using data from the 2007 Census of Agriculture. These are just a few of the improvements and successes achieved over the first decade of the Census of Agriculture at USDA.

Major Activities of the National Agricultural Statistics Service (NASS)

The ongoing expansion of global markets for U.S. goods and services continues to increase the need for modern and reliable statistical information. The surveys and censuses conducted by NASS contribute significantly to economic decisions made by policymakers, agricultural producers, lenders, transporters, processors, wholesalers, retailers and, ultimately, consumers. Lack of relevant, timely, and accurate data contributes to wasteful inefficiencies throughout the entire production and marketing system. An example of one of the many important surveys conducted by NASS is the Agricultural Resource Management Survey. This survey is conducted in cooperation with the USDA's Economic Research Service and is the primary input in developing the Nation's farm income statements used as one of the Nation's principal economic indicators.

The need for timely, accurate, and useful statistics on U.S. agriculture continues to be emphasized throughout the sector. A few examples highlight the importance these data have on the market place and agricultural producers ability to manage their operations. The importance of accurate agricultural data can be demonstrated through the ever expanding use of the NASS county estimates for administering farmer safety nets. Specifically, NASS county estimates impact billions of dollars insured through the Risk Management Agency's Group Risk Program and Group Risk Income Program. The difference of one bushel in an average county yield estimate may result in the incorrect decision on indemnity payments. Farmers trust and demand that these data be an accurate gauge for administering these very important safety nets.

NASS works cooperatively with each State Department of Agriculture throughout the year to provide commodity, environmental, economic, and demographic statistics for agriculture. This cooperative program, which began in 1917, has served the agricultural industry well and is recognized as an excellent model of successful State-Federal cooperation. Approximately sixty percent of the NASS staff is located in its 46 field offices; 21 of these offices are collocated with State Departments of Agriculture or land-grant universities. Working together helps meet both State and national data needs while minimizing overall costs by consolidating staff and resources, eliminating duplication of effort, and reducing the reporting burden on the Nation's farm and ranch operators. The forty-six field offices in NASS, covering all fifty States and Puerto Rico, provide statistical information that serves national, State, and local data needs.

NASS has been a leader among Federal agencies in providing electronic access to information. All reports issued by NASS's Agricultural Statistics Board are made available to the public at a previously announced release time to ensure that everyone is given equal access to the information. All national statistical reports and data products, including graphics, are available on the Internet, as well as in printed form, at the time they are released. Customers are able to electronically subscribe to NASS reports and can download any of these reports in an easily accessible format using standard software. NASS also provides free Rich Site Summary and Podcast feeds to interested data users. This technology sends an alert or audio clip directly to data users when content of interest is posted to the NASS Web site. A summary of NASS and other USDA statistical data are produced annually in USDA's *Agricultural Statistics*, available on the Internet through the NASS home page, on CD-ROM disc, or in hard copy. All forty-six

NASS field offices have home pages on the Internet that provide access to special statistical reports and information on current local commodity conditions and production.

The primary activity of NASS is to provide reliable data for decision-making based on unbiased surveys each year, and the Census of Agriculture every five years, to meet the current data needs of the agricultural industry. Farmers, ranchers, and agribusinesses voluntarily respond to a series of nationwide surveys about crops, livestock, prices, chemical use and other agricultural activities each year. Surveys are conducted during the growing season to measure the impact of weather, pests, and other factors on crop production. Many crop surveys are supplemented by actual field observations in which various plant counts and measurements are made. Administrative data from other State and USDA agencies, as well as data on imports and exports, are thoroughly analyzed and utilized by the agency to supplement survey data. NASS prepares estimates for over 120 crops and 45 livestock items which are published annually in more than 500 separate reports.

NASS's Statistical Research Program is conducted to improve methods and techniques used for collecting, processing, and disseminating agricultural data. This research is directed toward achieving higher quality census and survey data with less burden on respondents, producing more accurate and timely statistics for data users, and increasing the efficiency of the entire process. Graphical products simultaneously displaying progress and condition were developed to make it easier for data users and analysts to see the effects of conditions on the crop. Research has also allowed NASS to utilize real-time acreage and yield indications based on remote sensing methodology to assist in estimating acreage and production for select major corn

and soybean States. This adds another objective measure to aid in accurately forecasting current year crop production. The growing diversity and specialization of the Nation's farm operations have greatly complicated procedures for producing accurate agricultural statistics. Developing new sampling and survey methodology, expanding modes of data collection, including electronic data reporting, and exploiting computer intensive processing technology enables NASS to keep pace with an increasingly complex agricultural industry.

NASS conducts a number of special surveys, as well as provides consulting services for many USDA agencies, other Federal or State agencies, universities, and agricultural organizations on a cost-reimbursable basis. Consulting services include assistance with survey methodology, questionnaire and sample design, information resource management, and statistical analysis. NASS has been very active in assisting USDA agencies in programs that monitor nutrition, food safety, environmental quality, and customer satisfaction. In cooperation with State Departments of Agriculture, land-grant universities, and industry groups, NASS conducted over 200 special surveys in FY 2007 covering a wide range of issues such as farm injury, nursery and horticulture, farm finance, fruits and nuts, vegetables, and cropping practices. All results from these reimbursable efforts are made publicly available.

NASS provides technical assistance and training to improve agricultural survey programs in other countries in cooperation with other government agencies on a cost-reimbursable basis. The NASS international program focuses on the developing and emerging market countries in Asia, Central and South America, and Eastern Europe. Accurate foreign country information is essential for the orderly marketing of U.S. farm products throughout the world. NASS works

directly with countries by assisting in the application of modern statistical methodology, including sample survey techniques. This past year, NASS provided assistance to Argentina, Armenia, Brazil, China, El Salvador, Georgia, Madagascar, Mexico, Mongolia, Russia, and the Ukraine. In addition, NASS conducted training programs in the U.S. for 119 visitors representing 15 countries. These assistance and training activities promote better U.S. access to quality data from other countries.

NASS annually seeks input on improvements and priorities from the public through the Secretary of Agriculture's Advisory Committee on Agriculture Statistics, interaction with producers at major commodity meetings, data user meetings with representatives from agribusinesses and commodity groups, special briefings for agricultural leaders during the release of major reports, and numerous individual contacts. As a result of these activities, the agency has made adjustments to its statistics program, published reports, and expanded electronic access capabilities to better meet the statistical needs of customers and stakeholders.

This concludes my statement, Madam Chairwoman. Thank you for the opportunity to submit this statement for the record.

FOOD SAFETY INCREASE

Ms. DELAURO. Thank you very much, Dr. Buchanan.

You just mentioned that under food safety, the ARS budget proposes an increase of $14 million. In the testimony, it says the ARS budget proposes an increase of $7 million to enhance research to safeguard the nation's food supply from foodborne pathogens. I am more excited about 14. Is it 7 or 14?

Dr. BUCHANAN. It is 14. Am I right, Dr. Knipling?

Dr. KNIPLING. That would include some of the related homeland security work that also has potential food safety implications.

Dr. BUCHANAN. And also, there is an increase in CSREES.

Ms. DELAURO. Can you just break down and get that to me, the breakdown of that $14 million, so I can see where——

Dr. BUCHANAN. We can certainly get that to you. Yes. Yes, ma'am.

[The information follows:]

The FY 2009 Budget for ARS includes a $7 million increase in food safety research for enhanced activities on management and intervention strategies to prevent pre- and post-harvest pathogen contamination of produce. In addition, $7 million of ARS food safety research projects funded in FY 2008 have been reclassified in support of Homeland Security. This reclassification, of existing food safety projects, increases the amount of research that supports Homeland Security, but does not enhance overall food safety research activities.

Ms. DELAURO. Lovely. That is fine. Thank you.

COMMODITY SUPPLEMENTAL FOOD PROGRAM

I guess, Dr. Smith, this is about ERS, the commodities supplemental food program urban report. You have contracted with the Urban Institute to do a report on the Commodity Supplemental Food Program, CSFP, entitled, "New News about an Old Program." Now, the program is a significant source of nutritional assistance for low income seniors, and the package can be a substantial portion of seniors' monthly allowance for food.

I know the report has not been published yet, but I was wondering if you could talk a little bit about the findings in the report and, more specifically, why the CSFP participants either are ineligible or unwilling to participate in the food stamp program.

Dr. SMITH. Thank you. I would be delighted to——

Ms. DELAURO. Just pull it over towards you.

Dr. SMITH [continuing]. To speak to that. The CSFP was founded in 1969, which was before the WIC Program, and has always been for eligible individuals who are pregnant or postpartum, children under the age of 6, or seniors above the age of 60. When WIC came into being, most of the pregnant and nursing mothers went to WIC. And at the present time, 91 percent of all of the participants in CSFP are seniors. There are several reasons for——

Ms. DELAURO. Low income seniors. Correct?

Dr. SMITH. Not necessarily. Not necessarily, no. There is more flexibility in the CSFP.

Ms. DELAURO. Right.

Dr. SMITH. You can have assets that are substantial, so you can own your own home and be a senior and get benefits from that program, which is not true for food stamps. You can benefit from the food packages under the Commodity Supplemental Food Program

if you have income one-third above the poverty line without the benefits being ratcheted down, as is the case for food stamps.

And there is also some stigma in the senior group that appears not to be as significant in younger groups. And therefore, the seniors have no real incentive to go over to food stamps.

Ms. DELAURO. Say that again, that last part?

Dr. SMITH. The seniors have no real incentive to go to food stamps if they are stigmatized, if they have assets, or if they have a relatively high income. It still has to be below 130 percent of the poverty level.

Ms. DELAURO. Right. It is 130 percent of the poverty level.

Dr. SMITH. Yes.

Ms. DELAURO. But what about the findings in the report? What have you found out about this program?

Dr. SMITH. I don't have the specifics, but I will be happy to provide those to you.

Ms. DELAURO. Is the report going to be published?

Dr. SMITH. Yes, it will.

Ms. DELAURO. When?

Dr. SMITH. I am not sure. Within the next six months.

Ms. DELAURO. Well, is the report complete? Is it——

Dr. SMITH. Preliminary findings are available. I just don't have them.

Ms. DELAURO. You don't have the preliminary findings?

Dr. SMITH. Right. But I can get them to you.

Ms. DELAURO. Yes. And I would just love to see that. I mean, it seems like a program that is meeting its goals in terms of what you said, what, 90, 91 percent of seniors are participating in it.

Dr. SMITH. It has its constituents, and it is the best program for them.

[The information follows:]

Preliminary Findings of the Commodity Supplemental Food Program (CSFP):

Participation by women and children in the CSFP is low—about 7 percent of all participants. CSFP predated the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which has now superseded it as the dominant nutrition assistance program serving this category.

The overwhelming majority—93 percent of—current CSFP participants are low-income seniors. Much of the current policy debate focuses on this group, how the program serves them, and why seniors may choose that program in preference to the Food Stamp Program (FSP).

Some CSFP-eligible seniors are not eligible for FSP because of asset limitations. The CSFP does not have an asset test, whereas the FSP limits eligibility to low-income seniors with assets of $3,000 or less.

Of those who are eligible for both CSFP and FSP, many seniors believe they receive more valuable benefits from CSFP than they would receive from FSP. The CSFP provides the same food package to all participants, whereas FSP benefit levels are adjusted on the basis of household size and income. Interviews indicated many seniors were deterred from participating in FSP by the belief that they would receive only a minimum benefit.

Some seniors may prefer receiving a food package to redeeming food stamp benefits in supermarkets—particularly those with mobility or transportation problems, or living in areas not well served by retail (based on focus group interviews).

Enrollment in CSFP is simpler than in FSP and WIC. Focus group interviews suggest many participants prefer CSFP for this reason.

A few may participate in both programs. CSFP participants may legally participate in the FSP as well. Focus group interviews with CSFP participants, however, indicated low rates of participation in the FSP.

FOOD PRICES

Ms. DELAURO. Let me ask a further question. This is in the 2008 conference report: "Direct the department to provide monthly reports on the program performance and estimated funding requirements to fully fund the WIC program. The department is to consider and include in these estimates current participation trends and current Economic Research Service food cost estimates in developing updated WIC estimates."

The first report from the department was over a month late and does not include current ERS food cost estimates as required. How often is ERS updating the WIC food cost estimates?

Dr. SMITH. I am not sure about that, either. We do update our estimates of food price projections on a monthly basis, but I don't know whether that is the same as the costs that go into the WIC Program. They are probably defined more specifically. And again, I will have to find that out for you, too.

[The information follows:]

ERS monitors trends in food prices. The Consumer Price Index (CPI) for food is published by the Bureau of Labor Statistics (BLS). ERS uses food prices indices from BLS and makes one year to 18 month forecasts for overall food prices and components. These are posted on our Web site and updated if the conditions on which they are based should change significantly. ERS provides USDA's Food and Nutrition Service (FNS) with forecasts of CPI for the specific food categories that are included in the WIC package. FNS then uses the ERS-provided information to update WIC cost estimates. ERS does not estimate nor does it forecast WIC costs. The ERS forecasts of future food price changes provided to FNS are updated on a quarterly basis as market conditions change.

Ms. DELAURO. Please. Thank you. It sounds like it is from the way you have described it.

Will ERS comply with the mandate in the fiscal year 2008 conference report to provide monthly updated food cost estimates?

Dr. SMITH. Yes.

Ms. DELAURO. Can the committee expect to receive the updated WIC food cost estimates in future monthly reports from the Department?

Dr. SMITH. I can't answer for the Department, but we will certainly make sure that they are available for incorporation.

Ms. DELAURO. Let me yield to the ranking member, who has joined us, for opening comments.

Mr. KINGSTON. Well, thank you, Madam Chair. I was with the mayor of the city of Atlanta, and as you know, they are having a big drought issue. So I appreciate your courtesy in letting us use Martha's office. While I was there, I rearranged some files. I didn't know she was such a Bush supporter, by the way. [Laughter.]

Ms. DELAURO. When mayors come to town, you have to meet with them.

Mr. KINGSTON. Let me yield to Mr. Latham. I do have a number of questions, but he has been sitting here, so I wanted to—and I appreciate it. And I welcome Dr. Buchanan and all of you guys.

Ms. DELAURO. Mr. Latham.

HATCH ACT

Mr. LATHAM. Thank you very much, and welcome everyone.

It is like deja vu all over again. On research funding, your request seeks to move 42 percent of Hatch Act monies into the competitive grant category, which you have asked for previously. I guess my question would be, number one, why do you continually ask for this? It isn't going to happen.

But, I mean, don't you believe that it would certainly hurt rural areas of the country? Are you planning on changing the law? Do you have a request to change what the law says as far as Hatch Act?

Dr. BUCHANAN. I don't think so.

Mr. LATHAM. So you are not requesting any change as far as the mission of Hatch Act?

Dr. BUCHANAN. It would be in the appropriation but not——

Mr. LATHAM. But do you have any kind of feeling what you would do to ongoing research or in rural areas? Those competitive grants would probably go, as we have seen in some other——

Dr. BUCHANAN. Well, I will like to respond and ask Dr. Hefferan to respond. But clearly, the Administration feels that the process of identifying RFAs and then competing to identify the best laboratory or the best scientist to address a problem is the most effective way to go.

I have been an experiment situation director. I have been a dean. And clearly, the most important thing is to provide the availability of resources. And I see this as a very positive development.

Now, another thing is that these have been moved to what we call multi-State competitive programs, which is a way of competing, but it does involve multiple states, which encourages exactly one of the things that we try to encourage, and that is collaboration among scientists and among different institutions in different states.

So there are some real positive things that have been developed out of this concept. I would like for Dr. Hefferan to amplify on that, if she would, if I may.

Dr. HEFFERAN. Well, certainly there is a substantial cut in the formula-based programs. I will say it is not for the purposes of redirection specifically. As you noted, the request for the competitive programs this year is exactly what it was last year. There certainly are challenges——

Mr. LATHAM. Did you request this to OMB?

Dr. HEFFERAN. No. The budget process is a long and complicated——

Mr. LATHAM. That is not a hard question. Did you request this to OMB?

Dr. BUCHANAN. Yes.

Mr. LATHAM. Okay.

Dr. HEFFERAN. Essentially, what we are working to do is to rebalance the portfolio so that there is a larger proportion focused on competitive awards. We are not proposing to completely cut out the state-allocated formula funds, but to focus on this rebalance consistent with science funding across all Federal agencies. Although I certainly wouldn't characterize universities as endorsing this, I will say that they have been very——

Mr. LATHAM. You are right there.

Dr. HEFFERAN. No. No, and I wouldn't do that, obviously.

Mr. LATHAM. Perfect.

Dr. HEFFERAN. But I will say that they have been very helpful in thinking about how one would develop a program in response to a growth in funding that could be used for multi-State programs. It is challenging, in a budget that wants to focus on the highest level national programs in science, to find a way to do that. And competitively awarded programs are the gold standard for the way research is funded by the Federal government, and this budget reflects that.

Mr. LATHAM. Have you done any kind of study as to what the effect would be as far as regional-based long-term agricultural research? I mean, stuff that is in place that there is certainty out there that you can actually look 20 years down the road rather than have to look to the next appropriations bill?

Dr. HEFFERAN. Well, I will say that in the proposal that we have, we are not proposing to cut off any of the five-year projects that are currently going on, for example, under the multi-State program. Those would be completed.

Mr. LATHAM. But you wouldn't have any new five-year programs, would you?

Dr. HEFFERAN. Yes. Well, we would compete new programs, but we wouldn't discontinue anything that is currently ongoing.

Mr. LATHAM. And if you are subject to an annual appropriation, you don't know that those five-year plans are going to work, do you? You are not going to have the funding for the five-year plan if in fact the whim of the dollars aren't there?

Dr. HEFFERAN. That is true. Certainly all of our multi-year plans are subject to the availability of appropriations.

Mr. LATHAM. So for somebody to plan to hire a research scientist, there is really no certainty for them, is there?

Dr. HEFFERAN. There is no certainty. Typically, however, Federal funding for university-based science is awarded through competitive processes across government. We are trying to be consistent with the standard of science.

Mr. LATHAM. In ARS, we have the national animal disease center, obviously—I am sorry. I am out of time. Thank you, Madam Chair.

Ms. DELAURO. Mr. Farr.

Mr. FARR. Thank you very much, Madam Chair. I wish we could have this panel for about a week because I think what you are—America's seed corn for inventiveness is in your domain, Dr. Buchanan. And I always appreciate it because of all these agricultural fights we have, we have to remember that we are only going to stay ahead of the competition as long as we are smarter and can get a better bang for the buck.

And I was very pleased to see that your priority issues on food safety, obesity prevention, crop diseases, and water reuse all come together in my district. And I like to think that all agricultural politics is local, as they say around here, and everything that the USDA does, does it in someone's back yard.

My backyard is—the Census Bureau just pointed out the Monterey County was the highest farm income county in the United States. And people don't think of coastal crops as being that, but we grow 85 different crops. And one of the things that I would kind

of like to get into is that your research initiatives certainly the *E. coli* breakout last year with spinach and found it in fresh lettuce, and the impact it had on the market, you know, we never got any help for all those voluntary recalls. And I do appreciate the emphasis in food safety and the new money in there on *E. coli* research.

BIOENERGY

I am also interested in your bioenergy and bioproducts. What I missed in your document, I guess I have the testimony of Dr. Knipling's before the subcommittee, the authorizing subcommittee, but there was no mention of biodiesel. And I wondered whether that is part of your research as well. We have the only certified biodiesel production plant in California in our district.

Maybe you can just answer: Is that going to be part of your energy research?

Dr. KNIPLING. Yes, very much so. In addition to the budget proposals for fiscal 2009, ARS has a substantial base research program ongoing, approximately $20 million of what we would classify as renewable energy research. And that does include a portfolio of activities, including biodiesel, particularly from soybeans, but from other oil seed crops as well. And in fact, the proposed initiative for next year does include some enhancement of and reallocation of money now associated with peanut research, but to explore the use of peanuts as a biodiesel feed stock.

Mr. FARR. Well, I am keen on biodiesel. Why? Because every tractor out there is running on diesel. So why not just keep it in the same genre of fuels? And I think there is a great potential here of having a switchover right away with—I mean, this guy in our district does it all with local products; I don't think he has to import anything.

NUTRITION PROGRAMS

A big concern to this committee, and high on your priority list, is obesity prevention. And I think, and I want to know if perhaps Dr. Smith could do this: We have a hunger caucus in my district that is all the feeding programs, from WIC to Meals on Wheels to Second Harvest to food banks, you name it. And every time I meet with them, they are all in a different silo. They can't even collaborate.

And I wondered whether your research could help us see how we could get a better bang for the buck of just pulling together all these different agencies who are interested in feeding and nutritional food. And certainly, I mean, if Marcy Kaptur were here, one of the things that we are really keen on is promoting these farmer markets.

But in these farmer markets, we are finding that people don't have—some of them, but most of them don't have any way of accepting food stamps or accepting WIC vouchers. And it seems to me that is just one of those easy things to do. I mean, cab drivers can accept your credit card, so I don't know why vendors can't accept those vouchers. And perhaps you could look into that.

But the biggest problem I have, and I hope you will really look into it, is that when we buy material for the school lunch and school breakfast program, we buy it through the military depot in

Philadelphia. And they are buying all the commodity crop. This is a big problem because commodity crops, you know, you could store them and pack them and send them around easily.

Now that we are field to fork fresh food, and the packaging of that food has gotten very good, why don't we try to get more of those fresh vegetables? I mean, it is a disaster when you look at what we procedure in the Department of Agriculture for those programs and we give out, where a lot of it is peanut butter and wheat products and so on.

And you are about to redo your Dietary Guidelines. I don't think it is a lack of reading the guidelines. It is a lack of getting food on the plate. And there is just logistics that could easily be changed to do that.

Did my time go that fast? You don't get any brownie points for getting here before anybody else, huh? [Laughter.]

Ms. DELAURO. Mr. Kingston.

Mr. KINGSTON. You have got to say the chairwoman is very generous of letting us get a lot of questions in. And I am with you. I think we could keep this panel for a week.

WATKINSVILLE RESEARCH LABORATORY

Dr. Buchanan, I have to pick on you as a friend of mine and as a fellow Athenian. You know, the ARS lab in Watkinsville, which I believe you have received a letter from Senators Isakson and Chambliss about your decision to close it or the Secretary's decision to close it, among other things, this is what that lab does.

Develop soil management practices that increase infiltration of rainfall and irrigation to help mitigate Georgia's water crisis. They work on increased adoption of conservation tillage in Georgia's row crops; doing so could conserve 110 days equivalent of the State's annual water use. Particularly with Atlanta having a drought, that is of great relevance.

They work with poultry litter applications for crop and pastures, and develop soil management practices of all sorts. And it appears to me what their research is in terms of not just the national picture but the immediate backyard picture in the State of Georgia with the drought, it seems odd that that lab is slated to be closed.

Dr. BUCHANAN. Well, let me comment first, Congressman, and then I will ask Dr. Knipling to provide input. I am personally knowledgeable of that laboratory, having been Dean at University of Georgia and had many collaborative relationships with——

Mr. KINGSTON. I knew you were, and I know you are probably in a little bit of a jam on this one. That is why I didn't ask Dr. Knipling. [Laughter.]

Dr. BUCHANAN. But really, we had to make hard decisions. And I would say that every laboratory we are proposing to close is doing good work. It is not a matter of not being effective. It is just a matter of having to make tough choices in order to meet our budget.

And much of the work—and I am going to ask Dr. Knipling to talk about where we are going to do other work. But we are going to continue some of that work at other locations. But you are right in that it has played a key role and it has made a lot of contributions.

But we believe that the reasons that we propose to close it are sound. They fit the criteria that we established to make closures. And we will continue some of that work at other places.

Mr. KINGSTON. Well, our office was kind of going through the motions on this one. And then last Friday I had a staffer go down and spend a half day there, and we were a lot more impressed after the tour with what they were doing. And again, it is relevant to what is going on in Georgia right now. And that is why we really have a little bit more intensity, and join the Senators on this one.

LABORATORY CLOSURES

Dr. BUCHANAN. Well, we certainly had a very established list of criteria that we use to make closures. And Dr. Knipling, do you want to amplify on that?

Dr. KNIPLING. Yes. There are several specific reasons and criteria associated with the Watkinsville lab. But I would just emphasize, as Dr. Buchanan did, in the context of our total budget allowances and the difficult choices that we had to make, some 20 laboratories and locations across all of ARS are affected, and Watkinsville is one of those.

There are programmatic criteria and resource management criteria. For the most part, the Watkinsville program is a very mature program. That lab has been there for over 70 years. And in the grand scheme of things, we consider its activities, missions, largely accomplished.

We are doing that work or have the capability to do that work elsewhere, including in the Southeast, in Georgia at Tifton, at Florence, South Carolina, and a number of other soil and water conservation labs throughout the United States, where we have a coordinated program.

Resource management-wise, that program is of marginal variability. We have actually had to reduce staff in the past few years to maintain satisfactory resources for those that are remaining. So it is really not a sustainable, viable program in that sense.

There are also infrastructure costs, facility maintenance. And this is a form of cost-avoidance, if you will, for future out-year liabilities for facility modernization.

Mr. KINGSTON. Well, now that I have chastised you for that, I have got to go down the road a few miles and praise you for the Southeast poultry lab. You have great wisdom on that. [Laughter.]

I want to close on Watkinsville lab. We have been working with Congressman Brown's office on this, and we will continue to stay in touch with you.

SOUTHEAST POULTRY LABORATORY

But on the Southeast poultry lab, one of my questions is: Does the $13.2 million in the budget take care of it? Because I know that as you look at the history of these labs through the design phase, and then the longer the lag is between the design and the construction, the bigger the cost. And this thing has kind of been out there for a while. I have been a big proponent of it.

Dr. KNIPLING. As you know, we have been working on this concept for several years and had several previous conversations with you. The total construction project is targeted at $207 million. The

first phase is the architectural and engineering design, and this committee provided, this fiscal year, 2008, $2.8 million toward that.

So our request in 2009, the $13.2 million, brings us up to a total of $16 million. And that is sufficient to get the architectural and design activity underway, and that is a normal part of the process. That would be completed in approximately 15 to 18 months after the monies are received, and then we would be seeking full construction funding in out-year budgets.

Mr. KINGSTON. How much money does it save if you are doing it lump sum? And that is my last question.

Dr. KNIPLING. If we were to phase it in, say, two phases, it would be at least 10 percent higher cost. And then if it were more than two phases over a number of years, we can probably, as a rule of thumb, probably add a 10 percent additional cost every year that it is phased or delayed.

Mr. KINGSTON. Thank you.

Ms. DELAURO. Thank you, Mr. Kingston.

FOOD SAFETY RESEARCH

I want to ask about food safety research, Dr. Buchanan, because I was interested in the proposal for an increase of more than $7 million for research into food safety issues and its relation to fresh fruits and vegetables. You spoke about 14, but I must tell you that the budget justification here says an increase of $7 million for food safety research. I will wait to see what else has been lumped into food safety research, but I am troubled about that.

Let me ask—I will give you a chance to answer—but the budget justification talks a lot about E. coli and salmonella. Would your work focus primarily on those pathogens? What about other pathogens?

Dr. BUCHANAN. First let me say that our commitment to food safety research in 2008 is some $130 million. And of course, we are proposing a substantial increase, particularly in CSREES. Dr. Hefferan?

Ms. DELAURO. We are talking about ARS at the moment. Correct?

Dr. BUCHANAN. ARS is almost flat. But we have replaced—eliminated some earmarks. Dr. Knipling, do you want to comment on that, the earmark situation?

Dr. KNIPLING. Well, I think we are kind of mixing up different categories of numbers here. But——

Ms. DELAURO. We are. But when Dr. Buchanan spoke about food safety research in his opening remarks, he talked about $14 million. We have a budget document here that says we have got $7 million for food safety research. And I will tell you further, I see you are only showing a net increase in 2009 for food safety research of $1.267 million rather than the $7 million that you are requesting.

So if you can, I really would like you to explain to me what we are spending for food safety research. And then I would like to get to the questions on what are you going to spend that on in terms of the pathogen.

Dr. KNIPLING. With respect to ARS, we have an ongoing base program across the United States of about $85 million in food safe-

ty, all aspects of food safety—meat, poultry, produce, pre-harvest, post-harvest, a whole array of different pathogens.

With respect to the fiscal 2009 budget request, the ARS proposal does call for a $7 million enhancement. That is in fact a reallocation of existing food safety research from lower priorities to the higher priorities and in fact would address those issues you mentioned—E. coli, pre-harvest——

E. COLI AND SALMONELLA

Ms. DELAURO. Are you going to focus primarily on E. coli and salmonella?

Dr. KNIPLING. Those would be the principal pathogens, particularly E. coli as it affects produce, to address both pre- and post-harvest. There is a portion of that $7 million, roughly $1 million, that would deal with the so-called antimicrobial resistance that is developing in swine and dairy from the use of antibiotics.

Back to the $14 million. That broadly lumps some enhancements in support of homeland security research. In terms of pathogen reduction, it would be $7 million.

Ms. DELAURO. Now, was your research proposal developed in consultation with the FDA?

Dr. KNIPLING. Yes. Very much so. We have worked very close with FDA for the—well, over many years, but certainly in the last two years with respect to the spinach and lettuce issues. FDA, as you know, has regulatory responsibility over produce.

Ms. DELAURO. Yes, I do. Right.

HUMAN NUTRITION RESEARCH

Let me also talk about research at ARS. I was glad to see nutrition research, an increase for nutrition research. It is a little bit disturbing to see that most of the increase would go to research after the fact, and this is the effectiveness of the Dietary Guidelines for Americans, also known as My Pyramid, which were released in 2005.

Just cart before the horse here: Shouldn't this work have been done before the guidelines were issued?

Dr. KNIPLING. It is an ongoing process. Of course, the guidelines have been issued every five years since 1990, the last set in 2005 and the next revision in 2010. So the guidelines continue to use the latest scientific understandings and advancements. So it is a rolling process.

Our proposal for 2009 is in fact to do several things. One is to verify and validate the guidelines that are out there now, but also provide a foundation for updating the guidelines in 2010. But even then that will be a continuing process for future ones.

One of the primary concerns with the guidelines is that many Americans are not following the guidelines and that would be a part of the study as well, to understand some of the behavioral patterns as to why Americans are not following the guidelines, and to develop a cross-sectional study among all population groups.

Ms. DELAURO. My time is up, but let me just make these couple of points which I think are important.

Last year ARS proposed an increase of $6.9 million for this same work on dietary guidelines. The 2008 budget justification said,

"The guidelines"—this is the quote—"have never been tested to assess if the expected health benefits accrue."

You proposed an increase of $6.9 million last year for the same research. This year you are requesting $9.7 million for the same work. I will hold the question of why the cost has gone up so much because I am mindful of my colleagues. But also just let me note that the 2009 and the 2008 budget justification contained word for word the same description of what you would do with the increase.

So I am laying the question out. I am not going to ask you to answer it now, but I will ask you: We have gone from $6.9 million to $9.7 million for exactly the same thing. Why has it gone up?

And I yield now to Mr. Latham.

Mr. LATHAM. Thank you, Madam Chairwoman.

NATIONAL VETERINARY MEDICAL SERVICES ACT

Dr. Buchanan, Congress has given you about $2 million to develop a loan repayment program for veterinary student graduates who get their degrees and agree to practice in underserved areas, especially large animals. And you have transferred some of those dollars to FSIS, but you haven't yet created the program that was intended under Congress's mandate with the appropriation.

I just wondered where you are. Are you going to ask FSIS to pay back money that was never, ever meant to just be transferred out of the department without actually establishing a program?

Dr. BUCHANAN. Well, first, as you know, we have had a number of meetings. In fact, we had a hearing on this just the other day. And——

Mr. LATHAM. Where was that? In the ag committee? Authorizing committee?

Dr. BUCHANAN. The Ag. Subcommittee on Livestock, I believe. And there of course is perhaps a bit of a misunderstanding, but when we developed that approach, the original legislation, I think, provided for three different categories: for veterinarians in rural areas; it also provided for veterinarians for underserved areas of veterinary science, such as in food safety and health and that area; but also in underserved areas in the Federal Government.

In trying to identify what was the most effective way that we could allocate funds, we chose the route that we did have the mechanism to use. We identified these areas, and of course the proposal that we had would cover two of those. It would cover food safety; it would also cover underserved areas in the Federal Government. We thought that that would certainly be a way because we don't have mechanisms within any of our agencies for loan repayment programs. This is a system we would have to develop.

But the upshot of it, after the hearing the other day, is we agreed that our staff would work with your staff to identify the best way to move forward. And I made a commitment that certainly we would try to find a way to accomplish the objectives that you have laid out in the future.

I have gotten information that of the money that has been identified for FSIS, only $150,000 of that has been committed for five vets over the next five years, and those are food safety inspectors at FSIS. And they are to be identified for use in areas that are in rural parts of the country.

Mr. LATHAM. If I could—are you paying off student loans with those vets, or are you just hiring more vets?

Dr. BUCHANAN. No. These are students who were hired by FSIS.

Mr. LATHAM. I know. But are you paying off their student loans?

Dr. BUCHANAN. Yes. Yes.

Mr. LATHAM. To go and work in FSIS? Okay. You understand the purpose of the money was to go into underserved areas, and no one—the intent that I have ever heard of wasn't to give more money to FSIS to hire.

Dr. BUCHANAN. But we are not going to give any more, because we are now trying to identify what is the best way, working with the staff, to see what is the best way to accomplish the objectives that Congress wants us to do.

Mr. LATHAM. This has been going on—what, this is the third, fourth year now?

Dr. HEFFERAN. This is the third year.

Mr. LATHAM. The third year, and we still don't have a clue as to what we are doing. Is that correct?

Dr. BUCHANAN. Well, no. I would say that we are making progress and that we have finally identified that you are most interested in the rural areas, not necessarily the other two areas that were identified in the original legislation. So we are making progress, I think, Congressman.

Mr. LATHAM. Do you know how frustrated—I mean, really, it is very clear, the intent——

Dr. BUCHANAN. I understand, sir.

Mr. LATHAM [continuing]. Of what we are trying to do. Everybody in vets today want to do small animal practice. That is where the money is. It is very difficult, and the growth we have in livestock today, to get them out into rural areas.

Dr. BUCHANAN. Of course, as you know, we had proposed different proposals to try and accomplish that. And I think you are right in that there will be a challenge to get people that have interest in small animal companion pets to really work on hogs and cows. I understand that.

Mr. LATHAM. That is why we did it. Right.

EQUIPMENT FOR THE NATIONAL ANIMAL DISEASE CENTER

I guess one other—a lot of areas to go. But on the National Animal Disease Center at Ames, there was a request in the 2008 submission for funding for equipment at the lab there, which was not funded. There is no request this year for equipment. Is there a reason for that? Somehow did we find equipment there that was funded, or what?

Dr. KNIPLING. No. We did not get that funding, as you said, and we don't have the equipment, either. Of course, our budget guidelines for 2009 was different than they were, so it is a different situation. So we had to respond to the situation as it now exists for next year. So that equipment need for both ARS and AFIS is still a need.

Mr. LATHAM. So the fact of the matter is we have spent $462 million on that facility in the past to modernize the whole facility, but we can't get a small amount of money, or no request for a small amount of money, to put the equipment in for them to do their job?

Dr. KNIPLING. We will have to use existing resources, to the extent they are available at the location, to do that piecemeal. Yes.

Mr. LATHAM. Thank you, Madam Chairwoman.

Ms. DELAURO. Thank you. Mr. Bishop.

1890 RESEARCH AND EXTENSION

Mr. BISHOP. Thank you very much. Let me welcome the panel, especially my friend, Dr. Buchanan. I have got a couple of areas of inquiry. I am going to do the one that is closest to my heart first, and then I want to go to the second one. And that has to do with the 1890s extension and research.

The President's budget for the 1890s extension is down from $35,205,000 in fiscal year 2008 to a requested amount of $34,073,000 in 2009. Can you kind of explain to me the justification for the decrease? I don't understand why we are decreasing extension activities for the 1890s land grant institutions when these schools have historically had problems competing in the extension arena because of a lack of—the disparity in allocation of resources. And we have been trying to correct that to catch up.

The President's budget also includes a decrease for the Evans Allen program, I think for $38,331,000, down from $41,051,000. Why are we decreasing funding for these institutions when they have historically been shortchanged and we are trying to bring them up to par?

Dr. BUCHANAN. Well, first, Congressman, thank you for your question. And certainly I agree the 1890s play a very vital role in the agricultural research, education, and extension process in this country.

And I am going to ask Dr. Hefferan to explain exactly the numbers. But clearly, there are a number of categories in which we have strengthened the 1890 programs. But the specific numbers for the decrease, Dr. Hefferan, do you want to comment on that?

Dr. HEFFERAN. Yes. The numbers that are requested in this year's President's budget are the same as requested in last year's President's budget. Of course, there has subsequently been an appropriation action that increased those allocations. And the difference that you are citing is the difference between the final 2008 appropriations and what we are requesting for 2009. And those essentially in the President's budget are flatlined from the previous President's budget.

We have of course been working very hard with the 1890s to expand their participation in a number of programs, and again are seeking funding for the—sorry, funding allocations from the EFNEP, the Expanded Food and Nutrition Education Program, to include the participation of the 1890 institutions.

And just yesterday and today we are meeting with 160 researchers from the 1890 community in Memphis to talk about the keys to success in our competitive grants programs. We found that when the 1890 institutions choose to compete in the National Research Initiative and in other competitive programs, they are as successful as other institutions. And we really want to encourage their growth and competition in those programs.

Mr. BISHOP. Thank you. I appreciate that. But I do want to let you know that I and I know Mr. Jackson and others in the Con-

gress have a very, very keen interest in the well-being and the growth of the 1890s institutions. And we would like to see an equally keen interest on the part of the department.

ARS WATKINSVILLE LABORATORY

My second question has to do with the ARS facility in Watkinsville, Georgia. That facility is slated for closure in the President's proposal, and the reduction in operating expenditures will certainly save some money. Is USDA going to consider moving the professional scientists and their teams to another ARS facility in the state as a unit to continue the research that they are doing?

And also the farm there has been used for ag research, and of course the University of Georgia College of Agricultural and Environmental Sciences has partnered with ARS on projects in the past, and it has an adjoining farm next to that ARS facility that is slated for closure. Is the USDA going to consider, ARS going to consider, the farm being used by the University of Georgia for continuing that research?

I would hate to see the property lost to development so that we got mansions being built out there when available agricultural research land is really dwindling because of the development. Now, probably more than ever, we really need to have that agricultural land and we need to preserve it.

Dr. BUCHANAN. Well, let me make a general comment and then I will ask Dr. Knipling to provide more detail.

But clearly there are established procedures when we do close facilities that we follow. And when we have property that is no longer needed, we have specific procedures that have to be followed for disposal of government-owned land. So Ed, do you want to amplify on that?

Dr. KNIPLING. With respect to your first question, the staff at Watkinsville, we do not have a plan to relocate them intact as a unit. But we systematically look at programs elsewhere in the agency that are not impacted by the budget process where we have vacancies that fit the qualifications of those staff, and we would give priority placement to those employees, scientists and support personnel alike, in other programs.

If we are not able to place them, again we go through prescribed sequential procedures to offer incentive programs—early out retirement, buyout, and so forth. Certainly the last resort would be separation.

Regarding the facilities, as Dr. Buchanan said, we go through prescribed procedures. We actually turn the Federal properties over to the General Services Administration, and generally speaking, they would offer it to another Federal agency if there was a need for it; if there is no interest there, State agencies, and I presume that could include the university; and then our local government agencies. But that is the prescribed procedure. I believe we have roughly 1,200 acres of land there on that site.

Mr. BISHOP. I mean, you don't have to pay taxes on the land. You don't have to do anything to maintain it. Could you lease it, have a low-cost lease on it, which wouldn't be a strain on the government, on your budget, would it?

Dr. KNIPLING. Again, those procedures would be up to GSA to prescribe. But I doubt if there would be a lease, but I am not sure about that.

Ms. DELAURO. Mr. Kingston.

NAFTA

Mr. KINGSTON. Thank you. Dr. Buchanan, there has been a lot of talk about NAFTA and kind of revisiting it. Can you tell me what benefits to the farmer NAFTA has brought?

Dr. BUCHANAN. Well, first, again let me make a general comment, and I would like Dr. Smith to amplify on it.

Clearly, exports are an important part of the agricultural portfolio in this country. In fact, I heard yesterday our exports are over $100 billion for this coming year, which is very substantial. And certainly anything that enhances, supports, and encourages exports is extremely important. And you want to give us some details about it, Kitty.

Dr. SMITH. Sure. NAFTA is directly responsible for increasing agricultural exports from the U.S., unequivocally. Thirty-seven percent of the increase in agricultural exports from 1993 to the present has been due to Canada and Mexico importing more U.S. products.

The trade is complementary. It benefits the partners as well as it does the United States, so that, because we have different products to produce. They are different, so we trade with each other and both benefit. And agricultural trade with NAFTA countries has stimulated positive, although fairly modest, employment growth in the U.S.

Mr. KINGSTON. So should we modify NAFTA or is—you say it has been very good for agriculture, 37 percent increase.

Dr. SMITH. Should we modify it?

Mr. KINGSTON. Well, there has been a lot of discussion of—people say, let's fix NAFTA.

Dr. SMITH. It certainly would depend on the modifications. But there isn't a problem identified that would warrant it. Even the environmental benefits are positive, as we had feared would be negative. They are not. They are positive.

Mr. KINGSTON. So the case for NAFTA and its positive impact on agriculture is there?

Dr. SMITH. It is.

Mr. KINGSTON. For the consumer as well as for the producer?

Dr. SMITH. Yes. Oh, yes, because they are getting cheaper imported food from those trading partners in NAFTA.

BIOFUELS AND AGRICULTURE

Mr. KINGSTON. Let me ask you something. This committee is a great supporter of alternative fuel, but there has been a real pushback of corn ethanol being such a big mandate. And where should we go on that?

And I will have my friend from Iowa who may have a dog in that fight; I don't know—but there is concern of getting fuel from your food source, and also the fact that corn, for example, uses a tremendous amount of energy, nitrogen and so forth.

And I was just—have we set too high of a mandate to use corn? And I am an alternative fuels guy with this committee, but this is not—it would be good to kind of have a discussion here.

Dr. SMITH. I think the jury is out on what the long run implications are going to be. Certainly the switch to producing fuel has some impacts on food prices, though not——

Mr. KINGSTON. Some impacts? Didn't groceries go up about 5 percent last year?

Dr. SMITH. They did, and we are projecting them——

Mr. KINGSTON. And how much of that was because of fuel?

Dr. SMITH. How much I can't tell you exactly. But a lot of it, the majority, was probably due to droughts in Australia and New Zealand, and weather patterns worldwide.

Mr. KINGSTON. I think that is Iowa. They have put those droughts over there.

Dr. SMITH. But we are projecting another 4 percent increase.

Mr. KINGSTON. Now, we see articles that say relying so much on corn as a fuel source is really irresponsible. Just tell me if that is right or wrong. I am not trying to put you against somebody from Iowa, but I just really—I am genuinely interested in this, as I think all of us are.

I have noticed no one else on the panel is volunteering to answer the question. You all are just going to let her dangle out there, aren't you?

Dr. BUCHANAN. All right. Let me take a stab. I am convinced that we have entered into a new paradigm in agriculture. That means that in the past we thought of agriculture as food, feed, fiber, and flowers. Today agriculture is food, feed, fiber, flowers, and fuel or energy. And I don't think we are ever going back to where we were five years ago. I think we are simply going to look to the future as energy is a part of the portfolio of agriculture.

Another point is I don't think we are ever going to see cheap oil again. And if all of those facts are true, then clearly we have the importance of agriculture being involved in the energy picture. Corn was the first choice, and I have read all the articles, just as all of you have, about the negative side of using a food crop for fuel. But this is what we could do.

And this is the first step. I don't think anybody really believes that this is going to be the final step. I think corn is what we are using now, but there is a lot of work going on in a lot of parts of the Federal government, and every university that I know of is also working, looking at trying to develop cellulosic ethanol. And that certainly would take some pressure off of the emphasis of a food crop.

But Congressman, I think we are just beginning. And this is why it is such a high priority in our mission area as well as in other parts of the Federal government to find other ways to make ethanol or biofuels, I should say. The question a while ago about biodiesel is very relevant and very important.

But I think that the important point is that we have to look at all opportunities to develop the—to address the energy security picture. It is going to take ethanol. It is going to take biodiesel. It is going to take conservation. It is going to take everything you can think of, as well as all aspects of renewable energy.

The conference that was held here in D.C. last week was a tremendous event, and there was a number of good presentations about the whole spectrum of the energy picture. This is why a year ago we started in our mission area to identify what is the plan for our mission area. And we started by holding a conference and inviting representatives of all of our agencies, as well as universities from around the county, to develop a strategic plan to develop the energy picture from our perspective.

And I am pleased to say that that plan is essentially finished. It is in final review now and should be issued within the next few days. It lays out our goals as to what we want to try to do to help address the President's initiative of achieving energy security.

So the questions you ask, I think every part of the country is going to have a role to play. Right now Iowa and the Midwest is in the driver's seat because they produce corn. But I am going to tell you, they don't produce many pine trees in Iowa. We produce a lot of pine trees in the Southeast. We produce other things. The Southwest has potentials that we don't have.

So I think every part of the country is going to be involved in the energy picture, and I am getting on a soapbox. I will get off of it.

Mr. KINGSTON. Thank you.

STAFFING REDUCTIONS

Ms. DELAURO. Dr. Buchanan, let me ask a question about staffing cuts. The budget shows 211 fewer staff years in 2009 than in 2007 and 2008. It also says that 700 employees would be affected by the proposed lab and facility closures. It estimates the cost for their relocations and terminations, and for disposal of assets at ARS sites, to be about $30- to $50 million.

You say you would need reprogramming or a supplemental to cover those costs. I must say, and I know that this was probably not your doing, that the budget should have shown those costs. Let me just give you a for instance.

In the final 2007 bill, we had no earmark. And this meant that some accounts in the NRCS—this is not your jurisdiction—they were zeroed out, just as the administration had proposed. But the agency was shocked, had to scramble to be able to cope with this effort. And when we asked why, they said they never expected anyone to actually do what they proposed.

Do you have a plan to carry out what you propose?

Dr. KNIPLING. Yes. The proposed budget reductions and terminations in ARS do affect approximately 700 positions and employees. Perhaps a few of those are actually vacant at this time, but it is still close to 700.

We really don't know for sure at this point how many of that staff would be relocated because of some of those other procedures I spoke about earlier that would offer other opportunities.

But yes, the estimated cost, if all of them were to sever or relocate, as the case might be, is in the $30- to $50 million range. And no, we have not requested that in this budget. We would have to deal with that at the time, and perhaps request reprogramming authority from this committee to use other agency existing resources to do that.

Ms. DELAURO. Don't you think that the budget should have reflected those costs so that we have an accurate picture of what is happening here? Or do we just say, well, it is not going to happen and therefore we shouldn't have to worry about it now?

It is a little bit like a campaign I was once involved in. We said, we are going to jump off that bridge when we get there. Literally, it was a campaign slogan in a campaign I was involved in many, many years ago. And we are going to jump off that bridge when we get there.

Dr. KNIPLING. Well, we did make specific mention of this issue and the estimate of costs in the explanatory note so it would be visible. But no, we did not request those funds in the budget.

Ms. DELAURO. And we have no plan. We have no plan for how to deal with these 700 employees.

Dr. KNIPLING. Well, the plan would be to use existing agency resources. We would perhaps have to assess all of our other programs and seek reprogramming authority to use existing resources to do that once we knew the exact amount that would be involved.

Ms. DELAURO. And then we will cut those programs. So that is what we have going on here.

BROADBAND

Let me try to ask a couple of quick questions in my remaining time. This is ERS on broadband. Fiscal year 2008, the conference report provided $250,000 to research, deployment of broadband service to households with no or limited broadband access. Can you provide us with a summary of what you are finding on the economic impact of broadband service on rural communities?

Dr. SMITH. We have initiated the most comprehensive national study ever on who is using broadband services and how. And we are doing this in cooperation with the National Ag. Statistics Service. Following the collection of up-to-date data, then we will be able to determine the effect on services. We are going to compare similar counties that are similar in all ways except that and then be able to distinguish how it affects investment and development.

Ms. DELAURO. When do you expect to finalize this report to help the Congress better evaluate policy options for being able to expand broadband and its access to rural areas and underserved areas?

Dr. SMITH. We should have a report about this time next year. But preliminary results will be available this fall.

Ms. DELAURO. Thank you.

Mr. Latham.

ETHANOL

Mr. LATHAM. Thank you. Mr. Kingston and I have got the ethanol thing all figured out, so we are in total agreement. Right, Jack? Anyway, no, I just think——

Mr. KINGSTON. We decided corn liquor is better yet [Laughter.]

Mr. LATHAM. No. I think it is an unbelievable opportunity for places like Georgia, and with the cellulose part of it. But the one drawback is the lack of research to efficiently convert those wood chips and cellulose into ethanol.

But I take strong opposition to any idea that it affects the price of food just because we don't lose any protein. I mean, food is pro-

tein. We don't lose the protein in converting corn into ethanol. We take the starch out. Anyway, we won't get into all that, Jack.

A couple of things. Number one, and you probably don't need to elaborate too much. But there is a proposal to close the swine odor and manure management lab in Ames. That proposal stinks, as far as I am concerned. [Laughter.]

And it is extremely important for livestock producers environmentally and everything else that we continue that.

IMPACT OF A CONTINUING RESOLUTION

One thing that I have been asking in a lot of different subcommittees is the Senate basically has said that they might possibly do Defense appropriations, maybe Homeland Security, but there is no intention of actually doing anything else. The House will do all the appropriations bills.

You get into a CR at the end of the fiscal year. We are probably—depending on what happens in November, there is probably a very good likelihood that we don't have any bills actually until March. What does that do to you?

Dr. BUCHANAN. I would like each of the Administrators to talk about their specific agencies, and start with Ed. How would you deal with it?

Dr. KNIPLING. Well, on one hand, having a continuation of what we now is a positive. But we are one year further down the road in terms of cost escalation.

Mr. LATHAM. So you would like to see a CR?

Dr. KNIPLING. It causes us to not have Pay Act covered and increased costs. It causes us additional stress. And what we find is all of our research units, regardless of their priority, are suffering from this. And we have had those flat budgets now for three years in a row.

Dr. HEFFERAN. Well, certainly a CR is disruptive to the processes of moving money to universities and others, particularly with specialized grants. Certainly the case of earmarks is one where we don't have any basis on which to make awards, and so there can be continuity in programs that are programmatic.

I think the biggest concern that we have—two concerns—is that all changes in the budget tend to be concentrated in a short period of time; and the ability of the agency, and more importantly, the recipients, to respond to those changes is truncated by that short period of time.

And the other challenge is for all the parties involved, the ability to get the work done of actually managing the processes of moving forward with funds.

Mr. LATHAM. If we were March, we would be six months into the next fiscal year. I don't know how you——

Dr. HEFFERAN. It is very problematic.

Dr. SMITH. As Dr. Hefferan said, it takes time to spend money and the ways that you plan it. And if you don't have the full amount of time, you end up not being able to do——

Mr. LATHAM. That is a news flash around this place.

Dr. SMITH. You can't do as good a job. If you have planned from the beginning of the year to spend money in a particular way and you get it midway through, it is difficult to compensate.

Mr. REILLY. This year would have been difficult if the CR had gone a little longer for the Census of Agriculture. This is our peak data collection year, and we were very close to making a decision one way or the other at the end of December whether we had the funds to be able to do the census.

Looking ahead to next year, the census data collection will have been completed and our funds start dropping back down. So the CR won't hurt us as much.

Mr. LATHAM. Anything else? I am going to submit—I have got some people waiting—several questions to submit for the record. Thank you all very, very much, and I don't really mean to be such a bad guy with you guys. I really do appreciate what you do. But obviously, there is frustration. We want to see you do more better. Okay? Thank you very much.

Ms. DELAURO. Thank you, Mr. Latham.

Mr. Farr.

SALINAS VALLEY RESEARCH

Mr. FARR. Thank you very much.

Dr. Buchanan, I have always liked your attitude. You are a can-do guy and a thinker, and you pull it all together. And I really appreciate your prioritization coming before the committee.

But let me just put something into perspective with you. You want to put more money into food safety, and particularly E. coli research. And the ground zero for E. coli research in spinach and lettuce is in the Salinas Valley.

You are going to put money into bioenergy, and you have got some ongoing incredible—the only one in California that has been in biodiesel, and that is in the Salinas Valley.

You are going to work on obesity and getting more money into figuring out how to reduce obesity, particularly in school children. And the only state and counties that have required in state law to have a nutritional program in schools is the state of California, and Monterey County has become the model for that.

You are going to look at crop diseases, and we have not only diseases but pests that we have been battling that have been high priority—the glassy-winged sharpshooter, the LBAM, the verticillium wilt, and some other things.

And you want to go into water reuse because the best management practices and the largest reclamation project in the United States on agriculture is in the Salinas Valley.

It seems to me that all the things you want to solve are being done—and we have the largest monitoring and water quality and changing tilling practice, the best conservation, water conservation practices, and the largest organic growing area in the United States.

It seems to me that there is a jurisdiction, a locality out there, where all of the things that you will put on the front lines of your highest priorities, that there is the ability to do that somewhere, to see how they are integrated. And yet, at the end of the testimony that Mr. Knipling gave, you said, "In the fiscal year 2009 budget, we have a rescission of $67 million under the buildings and facilities account. Under this request, unallocated appropriations from partially funded earmark construction projects"—Salinas Val-

ley being one of them—"and funds from the unobligated balances of completed facilities are to be cancelled and returned to the Treasury. Limited budgeted resources should be allocated to fund a critical facility such as the Athens biocontainment laboratory and consolidated poultry research facility rather than spread them among multiple projects and less critical need."

How can there be less critical need when you have got an ARS station in Salinas that is working, now has the only organic researcher, and it has the viticulture research program, and it has the sugar beet research program, and it has the integrated pest management and methyl bromide research—I mean, all of these things seem to come to a head in one of your research stations, which is—it is World War II Quonset huts. And rather than complete that project, you want to take the money out of that and put it in Athens.

What Mr. Kingston and I—we want a win/win here. The University of California, under their new leadership, under new management, is coming in, last week was in my office, and said they are willing to put some money on the table in Salinas because they want to partner in the building. They want to partner.

Now, if you are pulling out, then what I want to do is get that research facility built. And if you are going to do all these priorities, you are going to have to go to Monterey County because they have the experiences in an awful lot of these areas that you have just said are the most important issues in the nation.

And that facility, it should be one of the exciting front line facilities. And instead, you want to cut the money out and put it all into Athens.

Dr. BUCHANAN. Let me respond, and I will let Dr. Knipling respond.

This is the frustration that we have in setting priorities. Because we set the priorities because the only real facility we have in this year's budget at ARS is the poultry lab. It is important because poultry is a critically important part of agriculture in this country. We are one of the world's leaders in poultry, if not the world's leader. We also have some real challenges.

Mr. FARR. But it is a biocontainment laboratory. So why isn't Homeland Security, why isn't the Department of Health, why aren't they all putting some money into this? It is in their interests, too. Why should it be on your back?

Dr. BUCHANAN. I can't answer that one. Can you answer it, Ed?

Dr. KNIPLING. Well, let me start with acknowledging certainly the importance of the issues you have raised. Certainly Salinas and Monterey County are a very important agricultural area. And we have many important areas across the country.

Mr. FARR. And they do without any subsidies, either, water or any kind.

Dr. KNIPLING. Yes. Regarding the facilities, over the last several years the National Centers for Animal Health at Ames that Congressman Latham spoke about earlier, has been the agency's and the department's highest priority because of the concerns of animal health and the renewed concerns of potential counterterrorism or terrorism threats since 2001.

The Athens facility, the biocontainment for avian influenza, has emerged as the second highest priority for the agency and the department. And it is clearly within ARS's mission to do——

Mr. FARR. Well, but look. There are other kinds of resources that can be pulled to that if it is as critical as you say, and I think it is. And I am not trying to degrade from the importance of those. But I do think that the only school that teaches a masters degree in homeland security and beginning to move into food safety is in Monterey, California.

So the conversions of all these issues is in an area where you are not investing in the research facility. And that is my point, is that you can't get there from here and answer the kinds of questions you want to do without modeling places that have had some experience in it.

We have those experiences. We have the program. That is ground zero. Why aren't we investing, as we did in poultry and as we did in livestock, but do it in a place where you can get a big bang for the buck?

And that is my point, and I am just really upset that you are not just championing the ARS facility in Salinas. You were supposed to be the cheerleaders for that. And in your testimony, the issues are there but not the money for the facility.

Dr. BUCHANAN. Well, we do have major commitments to that facility, as we have identified. Let me talk about one other thing, too.

Mr. FARR. Excuse me. What facility? The one in Salinas?

Dr. BUCHANAN. The research program, yes, sir. We have a number of research——

Mr. FARR. How are you going to research? They are in Quonset huts. You can't even put the equipment that they need in there because the buildings aren't electrically or otherwise can't hold the equipment.

Dr. BUCHANAN. Well, of course, the nature of facilities is you can only ask for so many. And of course, we made the priority of the Athens facility. We propose to close a lab in Michigan and consolidate all of our poultry disease work at the Athens facility, at the southeastern lab. So——

REDUCTION IN FACILITY APPROPRIATIONS

Mr. FARR. The testimony is you are giving $67 million back to the Treasury Department.

Dr. KNIPLING. Yes. This was part of the overall budget allowance. And speaking for the whole panel here and all of the department, the 2009 budget does reflect curtailed Federal spending. It does reflect returning money to the Treasury for offsets outside of agriculture, even.

The $67 million rescission is for some 17 different projects that are partially funded for which there is not sufficient money to move ahead with. And then given the new priorities of the avian influenza biocontainment——

Mr. FARR. Right. So your testimony says, "Unallocated appropriation, partially funded earmark construction projects." These aren't just research projects.

Dr. KNIPLING. That is correct. This is in the building and facilities account. We have two accounts. What we call the salary and

expenses, that supports our research programs themselves; and then a building and facilities account. So that rescission is from the building and facilities account.

Mr. FARR. I would like to know exactly how much more money you need to get finished with the ARS building that you have designed and proposed for Salinas.

Dr. KNIPLING. The total project is estimated at $68 million.

Mr. FARR. Phases. Right?

Dr. KNIPLING. I think that is for all phases, although it would be some sub-phases that would constitute that total. A total of $12 million had been appropriated over several fiscal years, and this rescission affects about half of that, about $6 million.

Mr. FARR. So you need how much for the first phase? $20 million? And you are going to rescind 12?

Dr. KNIPLING. I don't recall the actual phase amounts. But the total would be about an additional $62 million.

Mr. FARR. What are you going to tell the University of California when they walk in and say they are willing to put millions of dollars on the table to partner with you?

Dr. KNIPLING. I don't know what we would say. Right now we don't have any matching funds, and we don't have the capability to match Federal and State funds for construction projects.

Ms. DELAURO. Mr. Kingston.

PLUM ISLAND ANIMAL DISEASE CENTER

Mr. KINGSTON. Thank you, Madam Chair.

Dr. Buchanan, I am concerned about this Plum Island Animal Disease Center which the Department of Homeland Security is proposing to revamp and changing the location because there is discussion of allowing hoof and mouth research on the mainland as opposed to an island. I know that law has to be changed. Maybe it can be done through the Secretary's office. I don't—you might be able to clarify that for me.

But is the USDA working with DHS on that lab? And how much of a voice do you have? How much of a vote do you have? And then in terms of the risk between animal and human diseases regarding the CDC lab BSL–4 in Athens, Georgia, which seems to be a theme today—it has nothing to do with the other stuff we have been talking about—but how would that compare to Plum Island?

Dr. BUCHANAN. Let me make a comment, Congressman, and then again, this is an ARS issue so I will let Dr. Knipling also comment.

We have been working with Homeland Security. In fact, my counterpart, who I have met with on a number of occasions—in fact, we have been briefed. I know in the visits that they have made, we had representatives from ARS on the review panel for the sites. We also had a person from one of our mission areas, not our mission area, but another mission area in the department that was on the review committee that looked at the different sites.

And I know my counterpart at DHS has made it abundantly clear that while the facility would be their facility, we would be a prime occupant of it because much of the research that would go on there would be ARS as it is at Plum Island at the present time. Even though when it was transferred to DHS, and they assumed ownership of the facility, ARS still continued to have a major pres-

ence there. And many of the personnel—what, 65 percent, Ed— are ARS people. Do you want to——

Dr. KNIPLING. DHS will clearly have the decisionmaking authority on the site, but USDA has been very much involved with the entire process, to define the criteria and the program requirements that will have to be met by that facility to accommodate USDA programs.

Both ARS and APHIS will be primary occupants of the facility along with DHS, so although it's their decision, their decision has to meet our criteria in terms of program requirements.

Regarding the bio-safety level 4, USDA believes, Department of Homeland Security believe that a bio-containment facility that meets those standards, it is very safe to use those foreign pathogens on the mainland, and so in essence it would be the same as the bio-safety level 4 in Georgia, for human pathogens.

Mr. KINGSTON. So you guys will be in on the decision on where to locate, definitely, even though DHS might have the lead?

Dr. KNIPLING. Well, it'll be their decision, but they will seek our input. It won't be a vote.

They will make the decision based upon our input, and we've been involved all along, and in essence, the six sites that are still open for consideration have already met the USDA criteria.

But there is some ongoing environmental impact assessment activities, and so that additional information that arises from that will again be reviewed by USDA.

Mr. KINGSTON. Could you send a letter to me updating me on where that thinking is?

Because I know this is beyond the scope of this hearing, but I'd like to know more about where that decision is and what direction it's going in. I'd love to hear from you on it.

Dr. KNIPLING. Yes, we can speak to the USDA role.

FOREST SERVICE

Mr. KINGSTON. Okay. And Dr. Hefferan, I have a question for you. On the farm bill, why is it that the Forest Service is staying in the Department of the Interior?

And I hold you personally responsible. [Laughter.]

Mr. KINGSTON. I'd like to know why the Forest Service is staying in the Forest Department of the Interior, because we have the passion, we have the expertise on this committee, and Dr. Hefferan apparently is a big advocate of it.

Dr. HEFFERAN. We certainly are an advocate of forest research.

We have a substantial program through McIntire-Stennis and through our National Research Initiative.

We also have a joint program this year which we're funding with the Forest Service research programs that will focus on genomics of conifer trees.

So we have a lot of collaboration, a lot of work.

I think maybe Mr. Steele or somebody else would be best able to answer your question to the degree of why this is—why the appropriations for the Forest Service come out of the Department of the Interior much more effectively than I ever could.

Mr. KINGSTON. I would like to stump him on a question. That would be good.

Mr. STEELE. Well, I think it's a historical issue.

I think it's tradition that it has been, you know, the Forest Service has reported to the Appropriations Subcommittees, and that would take, I think, a change in Congress to make a decision as to which.

Mr. KINGSTON. Well, it would appear to me that that would be done on a farm bill.

Mr. STEELE. I don't think we would propose—I don't think the Federal Executive Branch would want to propose how Congress organizes its control over appropriations.

Mr. KINGSTON. Just can't get that guy.

Ms. DELAURO. It's always and ever about turf [Laughter.]

Mr. KINGSTON. Well, the history may have been that the Interior, with BLM or something, had more trees than cultivated land or something?

Mr. STEELE. We'd have to provide that information for the record, if we could.

[The information follows:]

FOREST SERVICE APPROPRIATIONS

The Act of February 1, 1905, established the Forest Service within the U.S. Department of Agriculture (USDA), and President Theodore Roosevelt named Gifford Pinchot the first Chief Forester. Questions soon arose regarding whether the Forest Service should be managed by USDA or by the Department of the Interior (DOI). On one occasion, Chief Pinchot offered the following explanation: "In the Department of Agriculture, where they are now, the Forest Service and the national forests are safe, and so well managed that (except for certain special interests) they have won the unanimous support of the nation. Their purpose is to grow trees, and they belong naturally in the department which has to do with growing all crops, including tree crops, from the soil. Forestry is a part of agriculture and is so recognized the world around."

A reorganization of the House Appropriations Committee in 1955 moved the responsibility for appropriating funds from the Agriculture Subcommittee to the Interior Subcommittee, starting with fiscal year 1956. According to the Congressional Record, the intent was to prevent overlap among agencies administering public lands. The Interior Subcommittee already had jurisdiction over the appropriations for the National Park Service and Bureau of Land Management. With the reorganization, the Interior Subcommittee gained the Forest Service, the Smithsonian Institution, the National Gallery of Art, and a number of commissions. However, the Subcommittee lost other responsibilities, including the Bonneville Power Administration, the Southeastern and Southwestern Power Administrations, and the Bureau of Reclamation. According to one Interior Subcommittee member, "If it were not that the Forest Service had been placed under our jurisdiction, I do not know what we would have taken care of."

Agriculture Subcommittee Chairman Sam Rayburn continually expressed concerns regarding the shift, arguing that, "This is an entering wedge to transfer the Forest Service from Agriculture to Interior. If it is, I certainly would regret it deeply, because I think this is a function of the Department of Agriculture and not a function of the Department of the Interior to look after our Forest Service." The Chairman was reassured by Committee members that the jurisdiction for the Forest Service was not placed in Interior, only the appropriations, which would show the Forest Service as a related agency to DOI. The budget request would go through the Secretary of Agriculture, and funds would go directly to the Department of Agriculture and would not be administered by the Department of the Interior. Appropriations hearings would be held by the Interior subcommittee, but the Forest Service would be represented at the hearing by an Assistant Secretary of Agriculture.

Mr. KINGSTON. Yes.

Mr. BUCHANAN. I would say one thing, that we do have a lot of collaboration with forestry, so a lot of our research programs are very much interconnected, so we talk all the time.

So we do work together, very effectively.

Mr. KINGSTON. Well, thank you.

FACILITY CLOSURES

Ms. DELAURO. Just let me see if we can get from you, in terms of the closing of the labs and facilities, if you could tell us what were the criteria on which these decisions were made to close these particular areas and where, in terms of the criteria, where these various facilities and laboratories fit, in terms of, you know, in your decisionmaking process.

It also would be helpful, as a separate item, to Mr. Farr, that, as well the criteria on these construction areas, as well. That would be helpful to us.

[The information from USDA follows:]

Criteria for Proposed ARS Base Program Reductions and Redirections: (One or more apply to each location, program, and/or activity identified for closure or redirection.)

- Marginal or below threshold funding for leveraging program viability and sustainability.
- Programs are mature and objectives mainly accomplished, diminishing returns and impacts from continued research.
- Lower priority research; have not been priority-funded initiatives by either Administration or Congress.
- Disproportionally high and/or inefficient operating costs when considered in context of value and priority of research.
- Redundant or duplicative capacity; research is also underway and/or can be done effectively and efficiently elsewhere in ARS.
- Facilities inadequate and/or modernization/maintenance costs are prohibitive and involve out-year cost liabilities (a cost avoidance criterion).
- Programs are not mainly research and therefore are outside or tangential to ARS core mission and program responsibility.
- Low customer and stakeholder interest and support.

VETERINARIAN SHORTAGE

The other thing, I would like unanimous consent to enter into the record this newspaper article which has— references what Mr. Latham was talking about.

It's an article from the New Haven Register, Sunday, March 9, 2008: "Food Experts Worry as Demand Grows for Livestock Vets." A very appropriate article, given the nature of the discourse.

[The information follows:]

Food experts worry as demand grows for livestock vets

Sunday, March 9, 2008

By Associated Press

CONNELL, Wash. Bill Bennett has spent 45 years feeding and herding 2,500 cattle on his rolling eastern Washington ranch. He's also had to act as a doctor because he's unable to find a veterinarian who will come to his rural spread.

He's not alone, as farmers and ranchers across the country complain of a shortage of large-animal veterinarians. A federal program created in 2003 to help the situation sits dormant while the U.S. Department of Agriculture writes rules.

In addition to caring for livestock and pets, veterinarians monitor and inspect a large portion of the food supply and work as disease researchers. Food safety experts fear that public health is being endangered by the shortage.

Many states recognize the critical need and are approving or considering bills to provide tuition reimbursement or scholarships to veterinarians who agree to work in underserved areas. Those states include Washington, where Bennett has been championing rural veterinary care for years.

I can't get a vet to save my life. I've tried for years to get one to move in here and start a practice and they don't want to do it. They want to do bigger cities and small animals, Bennett said. I complain about them spending all our money educating dog and cat doctors.

Recent studies for the American Veterinary Medical Association indicate that demand for veterinarians nationally will increase by as much as 14 percent by 2016 but the shortfall will remain 4 to 5 percent annually. The nation's 28 veterinary schools graduate about 2,500 veterinarians annually, a number that hasn't grown for at least a couple of decades.

The seriousness of the shortage was highlighted with the recent recall of 143 million pounds of beef from a Chino, Calif., slaughterhouse. The recall launched a series of congressional hearings and close scrutiny of the USDA's meat and poultry inspection system.

The USDA has said it is short about 500 inspectors.

Considering the huge amount of the food supply that veterinarians monitor, it's not like the remaining veterinarians can pick up the slack, said David Kirkpatrick, spokesman for the

American Veterinary Medical Association at Schaumburg, Ill. We're seeing more and more states taking steps to address the situation.

According to the National Conference of State Legislatures, eight states have implemented loan forgiveness programs for veterinarians who agree to work in underserved areas, and eight others are considering similar programs.

URL: http://www.nhregister.com/articles/2008/03/09/past_stories/19923228.prt

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Ms. DELAURO. Thank you, Dr. Smith, on the broadband effort, because I think that is going to be a very, very helpful document.

It looks like it's a very expansive study, and in depth, so I think we look forward to that.

TOBACCO RESEARCH

Let me move to some questions with regard to that, and this is another ARS question, that I understand the ARS recently stopped gathering, updating, and disseminating key information on tobacco, tobacco products, tobacco use.

This information was provided in the past, it was important for Congress researchers, policy analysts, and others who are trying to understand the tobacco industry, the tobacco use in the U.S., or trying to develop effective ways to prevent and reduce tobacco use and its many harms.

Of course, much of the information simply is not publicly available from any other source, much less in any convenient, readily accessible form.

For a few examples, no one other than USDA's ARS service has in the past publicly provided comprehensive information on the consumption of cigarettes and other tobacco products in the U.S. along with information on amounts manufactured, exported, imported, and taxed, that on such things as the average prices charged for cigarettes, the amount of U.S. versus foreign grown tobacco in American made cigarettes, and where each dollar spent on tobacco products goes.

From what we understand, neither USDA nor any other government agency is working to ensure that this information, important information will continue to be collected, analyzed, and made publicly available in a readily accessible form.

Given, in my view, its critical importance and the small related costs, I want the department to go back to collecting, developing, and disseminating this information.

Can you give us your commitment today that the USDA will go back to doing this important work and making important information publicly available?

Dr. SMITH. It will be difficult to do that.

The outlook program for tobacco was set up in order to serve the needs of the tobacco program, which of course has ended, and much of the primary data, especially that collected by the Foreign Agricultural Service, for foreign production and consumption, ceased, because they stopped collecting it after the tobacco program was eliminated.

And furthermore, it's hard to find good ready-made tobacco analysts. Ours went to the legislative branch.

And it would at least take a few years to train somebody to understand a very complex market, and we had no backup for that one analyst.

But I'll certainly think about it.

Ms. DELAURO. Well, I'd love to pursue that with you, because the data is important, just, you know, because of—you know, for all kinds of public health reasons, that is still ongoing. That's a dynamic situation.

We may have ended, you know, that we've had the buy-up, but the need for the data and the information as we look to issues of public health are, I believe, critical, and this was, it looks like, the only source of data that exists.

And so I would like to pursue that with you, to see what our opportunities are there.

Dr. SMITH. Okay.

RURAL DEVELOPMENT

Ms. DELAURO. Let me try to see if I can get in, as I say, a quick question here.

Rural development followup, Dr. Smith.

You came up here, we talked about rural development, the conditions and trends and rural communities.

I asked at that time to get your view of the movement in rural development, the evolution from grants and direct loans to loan guarantees, to get your view as to what that process and its effect on community facilities, on housing, on utilities, and on business development, the rural development budget.

Again, we're looking at a budget that's come up here proposing to eliminate most of the grant programs and some of the direct loan programs in favor of guaranteed loan programs.

What research has ERS done on this issue since the hearing, and are lower income rural communities able to repay loans to finance local environmental infrastructure, telecommunications services, and community facilities?

Dr. SMITH. Since those hearings, we have investigated the capacity of smaller communities to repay loans.

It is the smaller and more isolated communities that have difficulty repaying the loans, and therefore, have depended on grants.

We are following up to get some more specifics on the actual effects on infrastructure within those communities and their development potential.

But the general conclusion is there is a large number of communities that can't guarantee that they can pay back even guaranteed loans.

Ms. DELAURO. Dr. Smith, this is very relevant information as to how we move forward with this appropriations cycle, given, again, the scale of the elimination of the grant programs, the direct loan programs.

So I would like to have the information that you currently have and know what is still missing, et cetera, but this is the kind of very valuable information that helps us to make informed policy decisions that are not based anecdotally, but on substance and fact, so that we can really, truly have public policy that is assisting those communities that we are charged with trying to assist.

Dr. SMITH. I can get you a summary.

[The information follows:]

Since the hearing in the spring of 2007, ERS has committed to obtaining Bureau of the Census Consolidated Federal Funds Report data and assigning staff to summarize the data, update the information annually, and make the findings available on the ERS Web site. ERS will aggregate the data to reveal the urban-rural distribution of Federal fundings, and summarize the information by selected characteristics of counties, program function, and type of payment. Preliminary findings indi-

cate that poor rural (nonmetro) counties generally receive more grants and direct loans, and fewer guaranteed loans than rural counties in general.

Ms. DELAURO. Thank you very, very much.

Mr. KINGSTON.

OBESITY PREVENTION RESEARCH

Mr. KINGSTON. Thank you.

Dr. Knipling, question in terms of PE for life, which has broad bipartisan support around here.

It's about, you know, physical fitness programs in schools and getting kids to basically commit, to understand that exercise and eating right is a lifetime commitment.

The ARS has $12 million for obesity prevention, but don't we already understand what's making kids obese?

And isn't it time maybe to quit studying it and do something more than what we're doing about it?

And it almost seems like we're spinning our wheels here. We've identified a problem and we're pointing it out and we're trying to educate people, but I don't know if we're getting anywhere with it.

Dr. KNIPLING. There are so many variables, and in fact, I'm not sure we always understand the dynamics of food consumption and weight gain among different population groups, age groups, income groups, and so forth.

Some of it's certainly behavioral research, along with biological research.

We need to get that sound base of information for policy making, and to develop the appropriate guidelines and interventions.

And so that's what this $12 million enhancement for obesity prevention, and it goes back to what we talked about earlier, validating, verifying the guidelines as they're now used by different groups, and a basis for improving the guidelines, but then also improve those interventions, so to speak.

There will also be one component of that that does address the relationships between nutrition, eating, and exercise.

Mr. KINGSTON. Can you tell me some success stories here?

I mean, it just really sounds like, yeah, we're going to study obesity, because that's a safe thing to say you're going to spend money on.

But do you have any success stories where you can say—I mean, we've been studying obesity for years.

Do you have any success stories to say this particular pilot program in this particular area has really shown some good results?

Dr. KNIPLING. I'm not sure I do have a good example.

We have worked in the Mississippi Delta with a program in Arkansas, Louisiana, and Mississippi, through an intervention program, and that in fact has not yielded the response that we had hoped for. That's been going on for 10 years.

And in fact, that program, although it will continue, will in fact kind of go back to some of these basics, to understand what in fact Americans are eating in these different groups, to get that fundamental understanding.

Mr. KINGSTON. We've been studying this for years, though.

I mean, it just seems to me like at this point you would say, hey, you know, we've gone as far as we can go, maybe USDA ought to

get out of it and let the Department of Education do it, maybe it should be all done through state grants, maybe it's only education, not research, maybe it's all research and not education, maybe we should be pursuing some magic pill.

It seems to me at this point USDA ought to be able to say, here is what we're finding to be effective.

Dr. KNIPLING. Well, the obesity part of our program, prevention part of our program is, in fact, a relatively new dimension to our human nutrition research, and we have not focused on that in the past.

And we do not believe, do not agree that we know everything we need to know. We in fact need to know much more about——

Mr. KINGSTON. We know enough.

Dr. KNIPLING [continuing]. Behavior.

Mr. KINGSTON. We know enough to get somewhere, should we as a society choose to.

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

Mr. BUCHANAN. Let me comment, too.

We have programs as to research and education. The EFNEP program by Dr. Hefferan is one that really works with a group of people that really need help, and how do they use the food they have in a more efficient way.

So it's like many things in research. We know a great deal about the whole area of obesity as well as human nutrition, but there's new things that's found every day.

I was up at our nutrition lab in Boston, what's the name of the place—and saw where they were doing work on finding more effective ways of things that blueberries do for human nutrition.

So while there's a lot known about obesity, there's a lot known about nutrition, there's still a lot more yet to be learned.

But I'd like Dr. Hefferan to comment on the EFNEP and how it impacts on this whole issue.

Dr. HEFFERAN. Well, certainly the Expanded Food and Nutrition Education Program, which is almost 40 years old, has been one of the most effective intensive nutrition education programs, and I'll give you one example.

In a study of the long-term impact of the program, participants in the program showed an increase of more than one-and-a-half servings of fruits and vegetables per day, probably the best bellwether for diet improvement of any measure we have.

I will also say that the cooperative extension system between the U.S. government, and the universities, and local levels supports and implements the Food Stamp Nutrition Education Program through agreements with the Food and Nutrition Service as well as EFNEP, as well as a variety of other programs that involve partnerships with organizations such as the Walk Across a State movement, Walk Across Kansas, Walk Across Connecticut, walk across your State, and other physical fitness programs, because clearly the research that the universities have supported and certainly ARS shows that long-term nutritional health is a combination of good eating patterns and physical activity.

OBESITY

Mr. KINGSTON. Do you have any idea of the percentage of people who are on food stamps who are obese?

You don't have any numbers on that?

Dr. HEFFERAN. I don't know.

I believe the Food and Nutrition Service would have that information, and certainly the ARS has.

Mr. KINGSTON. Do you know what they are offhand? Could you provide that to me?

Why should food stamps have on its allowed list junk food?

Dr. HEFFERAN. Well, I certainly can't answer that question, but I will tell you that there have been some recent analyses that have shown that the incidence of obesity is not coincident with food stamp receipt.

There may be other corollary factors, but receiving food stamps does not lead to obesity. There's no causal effect.

It may well be an education issue, it may be.

Mr. KINGSTON. Well, that's what I'm getting at, if there's an education opportunity that we're not taking advantage of by allowing, say, potato chips, or a particular product, maybe not potato chips——maybe, maybe not—that have no nutritional value, and we're allowing it to be something that on food stamps people can have, you're not using that opportunity to educate people.

Dr. HEFFERAN. Well, again, the Food and Nutrition Service can address this more effectively than I can, but I will say, while the Food Stamp Program allows recipients to purchase a very broad range of foods, programs that are focused on women, children, and infants and children have a particular market basket of foods which emphasizes the kinds of nutritional products that are needed to promote growth and development.

And so the design of the programs does vary. Their purposes vary.

And we certainly have found that, in all of these programs, having substantial educational components can have an effect on what people actually choose to eat in the programs, and then coupling that with education that links together physical.——

Mr. KINGSTON. Are we missing that opportunity, though, on food stamps?

Dr. HEFFERAN. Well, there is a Food Stamp Nutrition Education Program where there is a set-aside that's ranged from 100 to 200 million dollars a year that is provided to contractors, the majority of whom are state extension programs, to provide that nutrition education.

So there is an educational component, as well as other program.

Mr. KINGSTON. And has that shown where that money is, has it shown to be effective and helpful?

Dr. HEFFERAN. It's shown to be effective.

I agree with the premise of your question, though. These programs are challenging.

It's obviously a continuing need for research, a continuing need to evaluate what is effective in influencing what children eat.

I think it's the reason that experiments such as the movement of healthy snacks, fruit and vegetable snacks, into schools have

been so exciting for people, because they have shown that they change behavioral patterns.

Basically, I think our message is that you need to work in partnerships with lots of public health and other citizen groups to be effective in nutrition education, and it does, there is great value in having that education research base.

Ms. SMITH. Mr. Kingston, a quick clarification for the record.

What we have is the information on the probability that food stamp recipients are obese, based on sample data, so we don't have——

Mr. KINGSTON. Well, I can see the cause and effect is not there, but what I'm just curious about is if you have an ongoing customer, so to speak, for example, and I know I'm out of time, but nowadays when you fly on an airline, they try to sell you a credit card.

And, you know, it's not a bad marketing idea. You are a truly captive audience. So why not try to get everybody signed up for a credit card?

And it would appear to me that if you have people on the food stamp program, you have an opportunity to educate them on nutrition and a need there, and maybe we're not capitalizing on that.

Ms. DELAURO. Important to note that EFNEP, the 2009 budget will be cut by $3.2 million.

Mr. FARR.

INTEGRATED FOOD SAFETY RESEARCH

Mr. FARR. I want to comment, I think, Mr. Kingston.

And Ms. DeLauro said that the frustration that we have is we have a panel like yours for the entire department of all the different agencies, and with the Food and Drug Administration, but where I find the frustration is that we have created all these stovepipes.

One, the old issue about, you know, how the forestry department got into the Department of Agriculture, is one of those old stovepipes.

But these stovepipes just don't, in the modern era, seem to want to get together to apply what we've—it's not so much that we need more money. We need to apply what we've learned and coordinate it better.

And I'm very pleased with the Integrated Food Safety Initiative that you've put together, and bringing together in CSREES, the Food Safety and Inspection Service and the Food and Drug Administration.

But I wonder if you've got other efforts going on, because when I go home, what I run into is programs that are receiving some federal funds but on the other hand, a lot of the federal folks don't even know what happens when they hit the ground, because they haven't gone out there and seen how to have them applied.

And so what other efforts with state, and state universities that are doing research, particularly in the food safety research related and fresh produce?

Have you got other entities that are tying into the integrated food safety initiative, or are they just federal agencies?

Dr. HEFFERAN. Well, we have a number of activities supporting food safety, the integrated program which does link together a variety of programs.

Through the National Research Initiative, we have two major programs in food safety, one on microbial contamination that looks at what we've talked about, as well as campylobacter and other kinds of microbial contaminants, and it is through that program that we have funded jointly research between the University of California at Davis and the ARS in California to look actually in advance of the most recent concerns about spinach contamination, have had work going on in advance of that.

We also have a program that links together food safety issues with epidemiology, which has been very critical to helping us understand——

Mr. FARR. Could you give me a list of the other——

Dr. HEFFERAN. We will be pleased to give you a list of the other programs, and even some samples of the awards and the work that's being done, that is being done with the universities, and often in collaboration with ARS and with the Food and Drug Administration.

[The information follows:]

Examples of Collaborative Food Safety Research:

1. One of the most difficult issues to solve in food safety research, particularly produce, is the detection of pathogens in complex matrices, e.g. fecal matter or cantaloupe. Numerous agencies are pursuing this research. In a collaborative effort, CSREES partnered with the Department of Homeland Security and the Food and Drug Administration to hold two workshops on the current methods and activities. These workshops involved industry, Federal agencies and laboratories, and academia to develop future research directions with the goal to leverage resources and expertise.

2. Several *Salmonella* foodborne outbreaks occurred and were traced to tomatoes. At the request of the Center for Food Safety and Nutrition (FDA) and the Centers for Disease Control and Prevention, the Food Safety Coordinated Agricultural Program (FSCAP) initiated several small field studies. The Coordinated Agricultural Program is a consortium of universities with expertise in microbiology and epidemiology which was created by CSREES to be responsive to emerging issues. These initial studies identified several potential risk factors for contamination of tomatoes, and the consortium worked with industry to implement and evaluate potential interventions. CSREES and the university's role enabled the dissemination of these results through extension and also to provide needed research to other Federal agencies.

3. The FSCAP has enabled CSREES to provide FSIS with necessary expertise for small projects, such as a facilitated peer review by external experts of on-going risk assessments. The FSCAP currently has launched a multi-region longitudinal project to evaluate pathogen load in broilers at the farm through the processing plant. This information will provide FSIS with needed baseline data and will help identify potential interventions.

4. The grant programs within CSREES have provided several grants to ARS researchers that are collaborating with academia, as well as universities that are working with FDA researchers. The topics include oysters and noroviruses and several major produce studies. One of the major projects was the "Ecology and Epidemiology of E.coli 0157:H7 in fresh produce in the central California coast (and Salinas Valley)" (over $1.5 million total). This research was already being done at the time of the spinach outbreak and allowed CSREES and ARS to be at the cutting edge of the research and response. Research findings will be used to work with growers to prevent contamination and to educate livestock producers. This project combines epidemiologic and microbiological methods followed by outreach and educational activities.

5. CSREES awarded in 2007 a special emphasis grant of $2.5 million to Ohio State University and multi-investigators as a response to the produce research needs. This project will integrate social and biological sciences to enhance the adoption of vegetable safety behaviors from farm to table.

6. CSREES program leaders interact closely with multi-university/consortium projects as advisory members, with industry in workshops, and with numerous other Federal partners. CSREES program staff were involved significantly with the numerous produce research workshops sponsored by Federal agencies and by industry.

STAKEHOLDER INPUT ON LEAFY GREENS RESEARCH

Mr. FARR. California has created a mandate in state law that every school district, and there's 1,200 school districts in California, has to come up with a nutritional plan.

I mean, for the first time, you know, everybody has been interested in what you teach in the classroom.

Now, they're interested, parents are interested in what are you eating in the lunchroom.

And that plan is really going to radically change, I think, the feeding traditions in schools, which is where you're going to begin to fight this obesity program.

Mr. Kingston asked about the educational, the effort you're doing in food and nutrition, the food and nutrition departments doing in early childhood education.

They're getting these young kids to go in and learn the values of fruits and vegetables.

And where it is effective is the store manager in Salinas, the Safeway store manager, asked the parents, "There's something going on in your schools, because kids are coming in here making their parents buy Kiwis, and I've never had to order so many Kiwis in my life." So it has a marketplace effect.

I want to ask you, it's my understanding that CSREES, you convened a research panel and they presented a report in November from the produce industry's leading scientists, that gave you the priority of leafy green research, that would address some of the important research priorities, including intervention strategies, assessment of risk, and risk reduction, and microbial ecology of pathogens.

And I just wondered what you've done with that report, and how you've implemented it, the recommendations of that panel, of that research panel.

Dr. HEFFERAN. That's part of our ongoing efforts to listen to stakeholders, as we design our competitive programs.

And that actually is being reviewed and used right now as we're writing the request for applications for the National Research Initiative and the Integrated Food Safety Program for this coming cycle.

We've also used that in collaboration with some detailed guidance that we have from the Food and Drug Administration about their research priority.

So those are the primary inputs to the design of our food safety calls for proposals in several programs.

Mr. FARR. Have those been passed on to the Secretary and were they considered in this—in the administration's priorities for—in their budget request for these specialty crop initiatives?

Dr. HEFFERAN. Well, the Secretary's office certainly has a substantial interest in specialty crops, and food safety is one of the primary issues within that.

I guess I'm avoiding the obvious answer.

To my knowledge, we did not pass those letters on to the Secretary's office, or the results of that particular workshop, at least not in a specific sense, but it's the basis——

Mr. FARR. That means that changing that—if they recommend priorities, are those priorities getting into the ask, or the appropriations process?

Dr. HEFFERAN. I think the priorities of food safety are absolutely central to the considerations in our programs, but directly, they have an influence on how we allocate the funding that is ongoing funding in our food safety programs, both, as I say, in our integrated program, for which we're asking for a small increase, and in the National Research Initiative.

Mr. FARR. I guess that's a yes answer, but I am concerned, if you use all that brainpower and they give you some great recommendations, does it make any difference to the way we prioritize funding for the department?

I would hope the answer is yes.

Dr. HEFFERAN. The answer is yes, that it makes a tremendous difference in how we utilize the ongoing funding that we're requesting through this committee.

SALINAS VALLEY RESEARCH

Mr. FARR. I'm just going to complete my statement, is that I really, to this research station in Salinas not just because it's in my district, but because so much of what's happening in agriculture, in fresh—you know, I stated an early comment that the Census Department indicated that the largest farm income per county in the United States, the five largest counties are in California, and Monterey was the largest.

I mean, there's something very magical going on there, in the fact that, without any subsidies, just private investment, that this is the most successful agricultural county, growing all of, you know, 85 different crops—you know, all the things we're talking about, these are all fresh fruits and vegetables—that how do you distribute those? How do you get them into the feeding programs?

If you look at all the dietary recommendations, the foods that they tell you to eat are grown in that county and in other parts of California, primarily, and yet very little of, other than U.C. Davis and Riverside, very little of the department's—you know, all the things that the department does gets into California. The one area that is, is research.

And, you know, I applaud you for that, but I still think you're way behind the eight ball on trying to match up what is essentially going on in the street with what you have in resource capability here at the federal level.

And I don't know how you can do that without having—you have a station in Salinas.

It's really been one of your more important stations, because I saw the rankings in the United States, and I think it ranks 16th and five, and yet it's literally living in sheds.

And we need to fix that missing link, particularly now that you've got partners that want to come in, local partners, with the University of California and local agriculture itself.

We've got so much going on, I just hate to see that—to not have the whole gamut of where you're best, which is research, having a first-class establishment in an area that is doing so much to turn the corner on the issues that you're trying to solve.

Ms. DELAURO. Mr. Kingston.

Mr. KINGSTON. Thank you.

COLONY COLLAPSE DISORDER

Dr. Buchanan, tell me what's going on with colony collapse disorder, because I think last year you got $7 million and this year you got 800,000, so, you know, we're appreciative that you need less money, but I hope that means you found something out.

Dr. BUCHANAN. I'm not sure we found the solution, but I do know that we have certainly been active over the past year.

In fact, ARS has an active program and CSREES has a CAP grant that will be awarded sometime this spring, Dr. Hefferan?

Dr. HEFFERAN. That's right.

Dr. BUCHANAN. That involves a number of universities and a number of different scientists working, so it's one of those issues that a lot of work is going on, but we haven't solved the problem yet, Congressman.

Mr. KINGSTON. But that's a big drop in your request.

I'm right on that number, aren't I, 7 million last year and you want 800,000 this year?

Dr. BUCHANAN. I think that was additional, wasn't it?

Mr. KINGSTON. Oh, that was the increase? Okay. So you want——

Dr. BUCHANAN. I think that was the additional.

Dr. HEFFERAN. Yes.

Mr. KINGSTON. Okay. About a 10 percent increase over last year.

Mr. FARR. Will the gentleman yield?

Mr. KINGSTON. Yes.

Mr. FARR. I was in my orchard last week, and there were no bees. And all of the trees are flowering. It's tragic.

BEE POLLINATION

Mr. KINGSTON. How long could we survive without bees, if there was a serious wipeout of the bee population?

How long before it would drastically affect the food supply?

Dr. KNIPLING. We don't really know the answer to that.

There are, in addition to the honeybees, though, there are alternative pollinators, other kinds of insects though, that can——

Mr. KINGSTON. The pollinators are affected by this, also, as I understand it.

Dr. KNIPLING. We think this malady, the Colony Collapse Disorder, is just affecting the honeybee.

Mr. KINGSTON. Okay.

Dr. KNIPLING. Not the other pollinators.

But it would be a tremendous impact if we did not have honeybees.

It's hard to put a value on pollination, but there have been various estimates of at least $15 billion of, especially the horticulture specialty crops that are dependent upon pollination.

Mr. KINGSTON. If it's only affecting honeybees, that's got to be some clue in itself, right?

Dr. KNIPLING. Oh, yes.

Mr. KINGSTON. Because what would make it affect the honeybee and not a pollinating bee?

Dr. KNIPLING. Well, it would be, as you say, it would be specific to the honeybee.

We think it's a combination of things. We don't know the cause. It's probably not a single thing, but a combination of many maladies.

Mr. KINGSTON. What's the difference between one bee and the other, in terms of genetic design?

Dr. KNIPLING. Well, they're distinct species.

Many of the alternative pollinators are not social insects. They don't aggregate in hives. They're more individual insects.

And that, in itself, probably lends itself to less risk and vulnerability to a disease or some other causal factor that affects the whole colony, so to speak.

Mr. KINGSTON. So it would be maybe a behavior difference rather than a biological difference?

Dr. KNIPLING. Well, I think the behavioral difference then predisposes or lends itself to the biological.

We do believe it's biological, or perhaps nutritional, other kinds of environmental stresses. We think it's a combination of those.

And we have a number of experimental activities underway to test those theories, or to get some facts and get away from just speculation and anecdotal indicators of what's going on.

But we are—we have a—we have four honeybee research laboratories around the country that are working together in a coordinated fashion, in cooperation with the university and the industry, for that matter. And so we are——

Mr. KINGSTON. Mr. Farr and I have to ask, are any of those ARS labs slated to be closed?

Dr. KNIPLING. The honeybee laboratory at Weslaco, Texas is to be relocated and consolidated with the other three.

So we're not losing any resources on honeybees, and in fact, this budget does have a slight enhancement of the program to address this CCD problem, plus we're mobilizing, remobilizing what we already have to address this problem.

Mr. KINGSTON. All right, now, I'm going to yield back my time, but I would like to know what happens in the food chain and what happens to a society without a honeybee.

I mean, to me, I did not know that this was only for honeybees, because I thought it did affect pollinators, but I'd like to know, if you can send me, you know, what happens if your honeybee population greatly decreases.

Mr. FARR. You'd have no apples, or avocadoes.

Mr. KINGSTON. But if it's not a pollinator?

I'd like to know the answer to that, as much as possible.

Dr. BUCHANAN. We are very much aware, Congressman Farr, that almonds is the largest export crop from California, and bees are very critical for almonds.

FOOD STAMP PROGRAM

Ms. DELAURO. Let me, just a piece of information, and then I'll just have a couple of questions.

We were talking about the food stamp program before.

As I understand it, the average benefit for food stamps is about $101.53. That's for 30 days, about 90 meals. It's $1.13 per meal.

Try to buy all the healthy food that you can get—milk, cereal, fruit—for $1.13 a meal.

This tells you something about what folks are potentially forced to buy in order that they can feed their family and make that $1.13 stretch.

As my colleague Mr. Kingston leaves, I'm going to enlist your help in the farm bill, if we ever get to a farm bill, to move on the nutrition portion of the farm bill, which we did a good job of in the House, but the Senate wants to cut that back.

And part of that nutrition package is the fruit and vegetable snack program.

In addition to that, it increases the standard benefit for food stamp recipients, so that in fact they might be able to avail themselves of products that are more healthy and less destructive to their health and to the health of their children.

Mr. KINGSTON. I think we have—do we have Mrs. Johner coming up?

AGRICULTURE WATER USE

Ms. DELAURO. She's coming on Thursday.

I have a question on the water use.

Dr. Buchanan, it's an unbelievable statistic. Maybe I got it wrong.

It said, in California alone, the use of water in fruit and vegetable operations accounts for over 40 percent of total national water consumption.

Is this total water consumption for all purposes or total national agriculture water consumption? And how was the calculation made?

Dr. BUCHANAN. I'm not sure I can answer that. I can get that answer for you.

Ms. DELAURO. Okay. That's fine. Okay.

And I don't know whether or not the level has gone up or down in the past eight, ten years.

So if you can get back to me on that. I thought it was a staggering number.

Dr. BUCHANAN. I know water consumption is extremely high, but I don't know the particular. I'll have to get them back to you.

[The information follows:]

Fruit and vegetable processors in California alone use over 62,000 acre feet of water per year (55 million gallons per day) in their operations. Agriculture accounts for 43 percent of the total surface and ground water consumed annually in California.

Nationwide, agriculture is a major user of ground and surface water, accounting for 80 percent of consumptive use. Based on the data currently available, national agriculture consumption appears to have been relatively stable during the period 1985–2000. Water use data is compiled in five-year intervals by the U.S. Geological Service.

Ms. DELAURO. Let me ask you a quick question, and I'm not asking this question without my colleague from Georgia knowing that I'm asking the question. I'm not blindsiding him since he left, he left the room.

SOUTHEAST POULTRY LABORATORY

This is on the Georgia ARS facility. I understand that $16 million for planning and design of the bio-containment facility, I know it's a BSL–3 facility, 16 million for planning and design seems very high.

Why? Why does it cost so much?

How was the contract for planning and design awarded? Was it put out competitively for bid? What did you do to limit the cost as much as possible?

Dr. KNIPLING. The architectural and engineering cost phase of any construction project is generally on the order of 10 percent, and this is actually a little less than that.

So that's kind of a standard cost of any construction project, roughly 10 percent for the up-front planning and design and feasibility studies, and then 90 percent for construction.

Yes, the contract for—well, that contract has not been let yet, but it will be competitively allocated.

There was a pre-designed phase that is complete, and that actually was the basis for arriving at the cost estimates. That also was under a competitive contract.

Ms. DELAURO. That's all. That really is a serious amount of money.

And what it prompts me to do, to be very honest with you, is to look at some of these other, you know, design phases here where some of these are planning and designing this one facility, to take a look at the others, and see what the heck we're doing here, and with the cost of these efforts.

NUTRITION RESEARCH

Let me, ARS again, on nutrition assistance and education programs.

Where do you think the department should focus its resources for nutrition education?

You've studied various nutrition issues over the past two decades.

We've got just a few minutes of time here.

What have you learned, and what do we still not understand?

Dr. SMITH. I would love to be able to reply after some consideration and briefing.

Ms. DELAURO. Yeah, that's fine. That's very good. Thank you.

I have—this is—all the results of the research, we were talking about research before, how does it get out?

How does the information get out? What happens? What's the—how does it get into the public domain? What is its utilization?

What's the followup on the research? Did it make sense? Didn't it make sense?

What's the evaluation process of all of this research we're doing with the universities, with other—what happens to it all?

DISSEMINATING RESEARCH INFORMATION

Dr. BUCHANAN. All scientists publish the results of their research in respect, refereed journals.

That's the first step in the publication process, is to publish original research findings in refereed journals.

That's for ARS scientists, for university scientists, for anyone that does research.

Then there's multiple ways to go from there, and certainly, one of the ways is through the Cooperative Extension Service, which is a research-based organization in which the Extension Service takes findings from research and translates them then to applications and delivers that information to the end user, whether it's a homeowner or whether it's a farmer or whoever could use the information.

I'm pleased to report that, just two weeks ago, three weeks ago, the Cooperative State Research, Education, and Extension Service rolled out eXtension, which is a new way of using Web-based information to get information out, plus it brings together information from all over the country.

It's truly a coordinated effort to get the best information out to everybody that has access to the Web, and that's important.

ARS also has other ways of getting information out. It has, in addition to the publications, it has the tech transfer unit, in which they are very effective in getting information out.

And of course then you have all kinds of other ways, such as field days, in which we have open houses.

In fact, right here on Capitol Hill this past week, we had an opportunity, Science on the Hill. I don't know if any of you went.

But it had some tremendous displays of research from land grant universities, from ARS and others, on nutrition and food safety research.

So there's all kinds of ways of getting information out that's, I think, very effective.

Ms. DELAURO. Yes, Dr. Hefferan.

Dr. HEFFERAN. Certainly, the eXtension program is important to us, and it's not only because it's Web-based, but it's built on something called communities of practice, where experts from across the country, university and other experts review the latest research, and vet it.

I think that's one of the big problems. Certainly nutrition is a good example.

There's so much information that goes out to citizens, and they don't know what is based on many studies, what's based on an episodic study, how do you really use that information to make decisions?

So one of the qualities of eXtension is that it does that with real experts looking at information before it's made available.

We also use the Small Business Innovation Research Program to try to expedite the movement of new findings.

I know ARS has a very comprehensive program of cooperative research and development agreements with a number of private vendors to try to make sure that findings are quickly moved into the marketplace.

But I will tell you, having said all of that, it's one of our biggest concerns and the area we work on the most.

I think the one thing that USDA can take great pride in over the last several years is that we have integrated our research and our

extension programs, and even our higher education programs in a more deliberate way that has fed the use of science in the labs, and looked at what needs to be fundamental, what needs to be applied, and how quickly can you move it out. So that is a very high priority for us.

One last example I'll give is that we, of course, in our budget, support a laboratory network for diagnostics for plant and animal systems around the country.

We brought that together with ARS, with the Risk Management Agency, with APHIS and others, to work with the universities to help plot the movement of soybean rust across the country, which had the effect of giving producers information that helped them manage their work.

That was integrating all that research and a variety of systems together to solve a very real problem.

And we're looking in this budget to expand that kind of network and to really make relevant the science that we're producing.

Ms. DELAURO. Thank you. Thanks very, very much.

Mr. Farr, you have one last question?

ORGANIC RESEARCH

Mr. FARR. I do. I wanted to just hit for a moment on the organic research.

I understand that you've got a long-term dialogue with stakeholders, and ARS has developed an excellent organic research plan within ARS in the integrated agricultural systems program, and NP–216.

And I just wondered what the implementation status of this plan was, and its objectives, and what progress is being made by ARS towards redressing the historical deficit of scientific investigation of organic systems and their potential benefits.

And I also thought that, as Dr. Knipling outlined in his six priorities, of what research investments are being made in those research priorities for the potential contribution of organic systems in meeting the needs of those priorities.

Dr. KNIPLING. As you point out, the Organic Agricultural Research Program is significant and identifiable.

We did have this stakeholder meeting in 2006 to develop a set of priorities and an action plan.

We have organic agricultural research at about a dozen locations in ARS, including a significant amount at Salinas.

We classify the organic research in several different ways, but we identify roughly $15 million among these dozen locations of effort, annual effort toward organic agriculture, and about half of that is actually field-based research under organic production systems, conditions.

Then beyond that, much of our research related to pest management, genetic improvement, the specialty crop production systems, maybe not specifically organic, but it's highly relevant to organic, to develop the tools, the use of non-pesticidal tools that can be applied to organic.

So in the broadest sense, I would say we probably have on the order of 5 percent of our total ARS program directed, either directed or indirectly relevant to organic agriculture production.

Mr. FARR. [Not on microphone]—historical deficit. It's only 5 percent for scientific investigation.

Dr. KNIPLING. Well, I'm not sure I would characterize that as a deficit.

Now, that 5 percent is ARS-wide of everything we do. If we just focus on the crop science, the crop production part of that, that percentage would be a much higher amount.

Mr. FARR. Okay. Then perhaps you can submit in writing how you can address the organic potential contribution organic systems can make in meeting your priorities?

Dr. KNIPLING. Yes.

[The information follows:]

ARS organic agricultural systems research provides both organic and conventional producers with scientific information and technology to increase production efficiency and food safety, safeguard the environment, and reduce production risks and product losses. Researchers are identifying system-wide strategies to overcome soil fertility limitations to replace the need for synthetic petroleum-based fertilizers; whole-system biological-based management strategies for weed, insect pest, and disease control based on an understanding of the biological and physical properties innate to plants, soils, invertebrates, and microbes to naturally regulate pest problems; whole-farm management strategies to economically bridge the three-year period required to certify fields before selling organic products; and partnering with other agencies to help producers define new market outlets for regionally produced products. All of this research benefits not only the organic industry, but conventional producers as well, by reducing their need for increasingly more costly synthetic agricultural chemicals.

Mr. BUCHANAN. I'd like to comment that the Farm Bill proposals that were put forth by the Administration included $100 million a year for specialty crop research and education, and of course, obviously, organic would be a major part of that.

In fact, there was $10 million specifically requested for organic research.

Mr. FARR. And how much for the rest of it——

Dr. BUCHANAN. Well, this was—in the farm bill, the only two categories that was requested was for specialty crop and for bio-energy.

There was a request for $50 million a year for bio- energy research and $100 million a year for specialty crops. That was the only two categories.

Mr. FARR. Yeah, they're the new kids on the block.

And I'm just wondering, in the total picture of research, what do those $100 million represent, out of what?

Dr. BUCHANAN. Well, of course, we have a major commitment in addition to our ongoing program in specialty crops, so that would be a hard question for me to answer.

RESEARCH BUDGET

Mr. FARR. What's our total research budget?

Dr. BUCHANAN. For the four agencies, it's 2.3 billion.

Mr. FARR. 2.3 billion, and so 100 million for organic and——

Dr. BUCHANAN. Well, certainly, a good part of the rest of the programs do pertain to specialty crops.

This is not the only thing. This is just an enhancement that we requested.

Dr. KNIPLING. I could perhaps add to that, specifically for ARS, plant science/crop science is the largest part of our total program,

I would say roughly 40 percent, and for ARS, that's about $400 million.

About half of that we would classify as horticultural crops versus the other half, agronomic crops.

Now, to the extent we consider horticultural crops and specialty crops one and the same, we're close to 50 percent of our plant science/crop science effort oriented toward horticultural crops or specialty crops.

Mr. FARR. Well, I'd just like to point out in your testimony pointed out that one of the major organic research ARS stations is in Salinas, and I might add that that Salinas station is falling apart.

Ms. DELAURO. Let me say thank you to our panel, for your time, your patience, and for the work that you do, and for your candidness in our questions here this morning.

Obviously, we will be submitting questions for the record.

There were some questions asked, and we'll get more information from you, but we're appreciative of the good work that you do on a regular basis.

Thank you for being here this morning.

The hearing is adjourned.

QUESTIONS SUBMITTED BY CHAIRWOMAN DELAURO

AFLATOXIN RESEARCH

Ms.DeLauro: Please provide a brief update on some of the agency's accomplishments in aflatoxin research in fiscal years 2007 and 2008.

Response: ARS accomplishments from aflatoxin research for fiscal year 2007 include the following:

Near infrared reflectance spectra were analyzed to determine if they could be used to identify single whole white corn kernels contaminated with aflatoxin. It was found that using the wavelength pair of 500 nanometers and 1200 nanometers, approximately 87% of individual kernels having high levels of aflatoxin (>100 parts per billion) were correctly classified.

Fungi treated with antioxidant, results in the complete "turning off" of the genes that make aflatoxin. This finding is a major breakthrough in attempts to solve the aflatoxin contamination problem and is expected to lead to identification of natural compounds in crop plants that can be augmented through breeding to suppress aflatoxin production.

Commercial cottonseed crops in South Texas and Southern Arizona were sampled across vast areas over a 4-year period, and a randomized representative sample of *A. flavus* associated with the crop was subjected to vegetative compatibility analyses. The results suggested that AF36 is the atoxigenic strain best adapted to cotton production in Arizona and Texas and may be the best biocontrol agent for contamination of cottonseed in those states.

Field studies are continuing using the pin-bar inoculation technique to characterize the colonization patterns of corn by various strains of *A. flavus* including afla-guard®, K49 and CT3 as biocontrol agents. Field studies optimizing formulation for improvement of delivery of non-toxigenic *A. flavus* strains is in its second season. The potential for using the yeast, *Pichia anomala*, and two bacteria isolated from corn field soil, to control aflatoxin and fumonisin on corn have also been initiated in field studies.

An application was submitted to EPA for an experimental use permit (EUP) that would allow large-scale field testing of the aflatoxin biocontrol product, afla-guard®, to be carried out on corn grown in Texas. Although afla-guard® has been registered by the EPA for commercial use on peanuts, its efficacy in corn must be demonstrated before it can be registered for that crop. Obtaining the EUP and carrying out this large-scale study represents significant progress in having a proven biocontrol product registered for use in another aflatoxin-susceptible crop.

Studies suggest that *A. flavus* reproduces and disperses clonally in agricultural conditions and that biocontrol strains of *A. flavus* are unlikely to obtain the ability to produce aflatoxins from aflatoxin producing species.

ARS accomplishments from aflatoxin research for fiscal year 2008 are not available until after the end of fiscal year 2008.

Ms. DeLauro: By location, please provide the funds devoted to aflatoxin research in fiscal years 2006 through 2008 and proposed for fiscal year 2009.

Response: The dollars devoted to aflatoxin research are provided for the record.

Location	FY 2006	FY 2007	FY 2008	FY 2009
Maricopa, AZ	$926,200	$931,100	$924,200	$924,200
Albany, CA	2,198,700	2,240,900	2,289,200	2,289,200
Dawson, GA	891,900	1,080,800	976,200	976,200
Tifton, GA	837,800	843,000	976,900	976,900
Peoria, IL	1,135,500	1,277,600	1,325,200	1,325,200
New Orleans, LA	4,074,700	4,198,900	4,610,100	4,610,100
Miss. State, MS	1,818,100	1,826,100	1,884,600	1,884,600
Stoneville, MS	748,600	752,300	763,600	763,600
Headquarters	838,200	838,200	--	--
Total	$13,469,700	$13,988,900	$13,750,000	$13,750,000

AID AND OTHER FUNDING AND TRANSFERS

Ms. DeLauro: Please provide an update on the collaboration between ARS and the Former Soviet Union. How much funding did ARS receive from USAID or other agencies or departments in fiscal year 2007? How much do you anticipate receiving in fiscal year 2008 and 2009?

Response: ARS received $2.0 million in FY 2007 from the Department of State's Nonproliferation, Anti-terrorism, Demining and Related Programs appropriation for the ARS - Former Soviet Union (FSU) Scientific Cooperation Program. ARS expects to receive approximately the same level of funding in FY 2008 and FY 2009. The purpose of the program is to engage former Soviet chemical and biological weapons (CBW) scientists to redirect their efforts to peaceful, agricultural research and help reduce the risk of proliferation of weapons of mass destruction. Approved ARS-FSU projects involve over 1,000 FSU scientists, half of whom are former CBW scientists, in 91 approved projects (56 on-going, 21 completed, and 14 under development) in the areas of plant and animal health, food safety and natural resources. ARS collaboration with institutes in Russia, Kazakhstan, Uzbekistan and Tajikistan continues to grow, presenting an opportunity to engage many more former biological and chemical weapons institutes and scientists in agricultural research of mutual benefit. In FY 2008, ARS plans to fund its first projects in Ukraine, Kyrgyzstan and the Republic of Georgia in the area of animal health.

NON-FEDERAL FUNDING SOURCES

Ms. DeLauro: How much of your fiscal year 2007 and 2008 funding came from non-federal, miscellaneous contributions? Please list the top five sources and amounts under this category. What do you anticipate for 2009?

Response: For FY 2007, we received $12,319,012 from non-federal, miscellaneous contributions and estimate $13,244,870 for 2008 and 2009. The top five sources for miscellaneous contributions from non-federal funds are as follows:

Source	FY 2007	FY 2008
State of California	$964,459	$1,036,957
State of Washington	704,852	757,836
National Cattlemen's Beef Association	671,872	722,377
State of Florida	456,708	491,039
Mars, Incorporated	404,743	435,168

Ms. DeLauro: For what purposes does ARS receive non-federal and miscellaneous contributions?

Response: ARS receives funds from states, universities and colleges, associations, companies, organizations, and individuals for the purpose of supporting in-house research or research related services of mutual interest to the agency and the contributing party.

HOMELAND SECURITY TRANSFER

Ms. DeLauro: Does ARS plan to transfer any funds to the Department of Homeland Security in fiscal year 2008 or 2009?

Response: No funds were transferred from ARS to the Department of Homeland Security in fiscal year 2008. ARS has no plans to transfer funding to the Department of Homeland Security in fiscal year 2009. ARS has ongoing research programs that help protect the Nation's animal and plant resources. Funding for these efforts contribute to the Department's Food and Agriculture Defense Initiative (FADI). ARS research funding for Homeland Security activities in fiscal years 2007 and 2008 was $35,704,000 and $35,454,000 and funding in fiscal year 2009 is estimated at $64,346,000.

HOMELAND SECURITY: PLANT AND ANIMAL DISEASES AND PEST

Ms. DeLauro: Please update your response in last year's hearing record with respect to those plant and animal diseases and pests that are included under ARS' homeland security research programs. Provide funding levels for fiscal years 2006 through 2008, and proposed for 2009.

Response: ARS homeland security research programs include studies on the following animal diseases: Foot and Mouth Disease (FMD), Classical Swine Fever (CSF), Vesicular Stomatitis, Rift Valley Fever (RVF); Bovine Virus Diarrhea, Transmissible Spongiform Encephalopathy, Porcine Respiratory and Reproductive Syndrome (PRRS), Newcastle Disease, Avian Influenza (AI) and the following plant diseases: Soybean rust, bacterial wilt caused by *Ralstonia solanacearum*, citrus variegated chlorosis, and *Aspergillus flavus* which produces aflatoxins.

Studies are also being conducted on the bacteria *Yersinia pestis* and *Bacillus anthracis*; the bacterial neurotoxins from *Clostridium botulinum*, the superantigenic enterotoxins from *Staphylococcus aureus*; and the plant toxins ricin and abrin.

In response to Homeland Security Presidential Directive-9 (HSPD-9), signed by President Bush, ARS continues to work with Federal agencies, State and local governments, and the private sector to develop a National Plant Disease Recovery System (NPDRS) capable of responding to a high consequence

plant disease. USDA-ARS has assumed leadership of this effort in 2006 and 2007 and initiated a roadmap for implementation. NPDRS will be capable of responding to a high-consequence plant disease by implementing sufficient control measures and developing resistant seed varieties for economically important crops. ARS scientists working on crop diseases have developed rapid tests for plant threat agents. These highly sensitive and accurate tests provide diagnosticians with an accurate means to detect pathogens as part of a national surveillance system. ARS is also discovering and exploiting naturally occurring and engineered genetic mechanisms for plant pathogen control by developing germplasm with effective and durable defensive traits. These genetic resources and improved crop varieties with significantly improved disease resistance are being transferred for commercial use in the event of a devastating disease outbreak.

ARS worked on developing rapid diagnostic tests for threat agents in livestock, crop, and food. These highly sensitive and accurate tests will provide diagnosticians with an accurate means to detect pathogens.

ARS exploits naturally occurring and engineered genetic mechanisms for plant pathogen control by developing germplasm with effective and durable defensive traits. These genetic resources and improved crop varieties with significantly improved disease resistance will be transferred for commercial use in the event of a devastating disease outbreak.

The agency develops technologies capable of detecting low levels of crop pathogens in environmental samples (e.g. soil, plant debris), grain harvesting and/or transport equipment or agricultural products such as seed or processed materials. Rapid detection allows decisions to be made regarding the phytosanitary status of samples, and provides a means to identify engineered DNA marker sequences.

The Agency continues research to produce vaccines and diagnostics for threat agents including FMD, CSF, RVF, PRRS, AI and New Castle Disease. One vaccine for FMD has been provided to DHS to continue development for commercialization.

Homeland Security funding in fiscal year 2006 was $35,587,000; fiscal year 2007 was $35,704,000; fiscal year 2008 was $35,454,000; and fiscal year 2009 is estimated at $64,346,000.

AIR QUALITY RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the ARS locations involved in Air Quality research. Please briefly describe the research underway.

Response: Agriculture produces particulate matter (PM) and gases that influence air quality, while air quality can in turn impact crop and animal production. The goal of ARS air quality research is to develop management practices and technologies for measuring, controlling and predicting emission of gases and particulate matter from agricultural operations. This research will provide producers and their advisors with tools to reduce or eliminate harmful emissions from agricultural operations. The research will also provide scientific background for policy and regulatory decisions by State and Federal agencies. The emissions of interest in this program include particulate matter, ammonia, hydrogen sulfide, volatile organic compounds

(VOCs) associated with odor or ozone formation, and airborne pathogens. The ARS locations involved and their research activities are summarized below.

Beltsville, Maryland:

- Developing Tools to Predict Atmospheric Fate of VOC and Odorant Emissions From Ag Operations: Develop methodologies to characterize and to quantify VOCs and odorants emitted from agricultural operations. Develop recommendations to reduce emissions of reactive organic gases that contribute to ozone formation. Develop recommendations to reduce nuisance odorant impacts on downwind receptors.
- Atmospheric Processes of Agricultural Pollutants that Affect Air and Water Quality: Method development to improve atmospheric pollutant measurement and detection. Determine atmospheric loading of agrochemicals to sensitive ecosystems. Evaluate, modify and validate models for atmospheric transport and deposition of agrochemicals.
- Managing the Fate and Transport of Nitrogen, Carbon, and Odorants in Animal Manures to Improve Environmental Quality: Quantify ammonia losses from animal production units, manure storage areas, manure treatment processes, and land application of manures. Determine emissions reductions from management practices and control technologies.

Wooster, Ohio:

- Improve Application Technology of Pest Control and Bioregulating Agents: Develop new management practices and technologies to reduce pesticide spray drift. Develop methods to assay pesticides drift and distribution.
- Biological, Microclimate, and Transport Processes Affecting Pest Control Application Technology: Determine the effects of meteorological, sprayer and crop conditions on pesticide coverage and drift from air-assisted spraying. Assay pesticide foliar coverage, ground deposits, and airborne drift from several types of air-assisted sprayers in orchards and nurseries. Develop guidelines for reducing pesticide drift.

Peoria, Illinois:

- Anaerobic Microbiological Processes in Animal Manure Management: Develop fundamental knowledge on the microbial population of swine waste and the swine intestinal tract and use this knowledge to understand the relationship between the microbial population and the production of odorous compounds. Use the information gained to develop improved methods for reducing the production of odorous compounds.

Ames, Iowa:

- Emission and Dispersion of Air Quality Constituents from Agricultural Systems: Characterize emission and dispersion of gases, particulate matter, and pathogens from agricultural production systems. Quantify the effectiveness of management practices to reduce emissions.
- Reduction of Nutrient Losses and Aerial Emissions from Livestock Production Facilities: Manipulate swine dietary ingredients and modify microorganisms in the swine gastrointestinal tract to reduce the formation of volatile organic compounds associated with odor and ozone formation. Characterize and quantify production of impact odorants in the vapor phase and on particulates to determine how to control emission of odorants.

Ames, Iowa and Cooperators in the Space Dynamics Lab, Logan, Utah:

- Measurement, Prediction and Control of Gaseous and Particulate Matter Emissions from Agricultural Operations: Develop new methods and improve

existing methods to measure emissions of particulate matter and gases from crop production and processing operations, and animal feeding operations. Develop and determine the effectiveness of management practices and control technologies to reduce emissions. Develop tools to predict emissions and their dispersion.

Madison, Wisconsin:

- Integrated Cropping Systems and Nutrient Management on Dairy Farms: Develop integrated feeding and manure management practices at the production facility, manure storage area, and field application site to reduce ammonia emissions on dairy farms.

Marshfield, Wisconsin:

- Minimizing Environmental Threats From Dairy Production Operations: Develop and evaluate management practices and treatment technologies that reduce air emissions of ammonia at animal production operations, manure storage areas and field application sites.

Mississippi State, Mississippi:

- Safe Management and Utilization of Waste from Animal Production: Develop poultry and poultry house management practices to reduce ammonia emissions within and from poultry production facilities. Develop management practices to reduce ammonia losses from manure applied to forage and row-crop production systems.

Bowling Green, Kentucky:

- Efficient Management and Use of Animal Manure to Protect Human Health and Environmental Quality: Identify and quantify microorganisms and biological activities responsible for the production of odorous compounds. Develop improved methods to quantify VOCs and other gases. Evaluate management practices and control technologies for odor abatement.

Riverside, California:

- Minimizing Air and Water Contamination from Agricultural Operations: Quantify mechanisms and processes that affect exchange of pesticides and fumigants between soil, plants, and air. Develop and test new pesticide management practices that improve agricultural production while reducing contamination of the atmosphere. Reduce emission of VOCs that contribute to ozone formation.

Pullman, Washington:

- Air Quality and Wind Erosion Management and Technology: Develop an understanding of the mechanisms controlling particulate matter emission due to wind events and field operations. Develop control practices for PM emissions. Determine PM emission factors for dryland farming systems. Develop methods to differentiate between agricultural and urban PM.

Kimberly, Idaho:

- Assessing Nutrient Losses, Emissions and Pathogen Transport from Manure Application and Animal Production Sites in the Western U.S.: Measure control and predict ammonia emissions from dairy production operations and manure field application sites.

Clay Center, Nebraska:

- Conservation of Manure Nutrients and Odor Reduction in Swine and Cattle Confinement Facilities: Determine the influence of diet composition on odorant compound and nitrogen emissions. Determine the influence of feedlot surface conditions on microbial activities that control emissions. Develop strategies and technologies to reduce ammonia and odorant emissions.
- Management of Nutrients from Beef Feedlots to Protect the Environment: Develop technologies to determine ammonia emission flux and to identify areas contributing to gaseous emissions from cattle feedlots so control measures can be developed.

Manhattan, Kansas:

- Particulate Emissions from Wind Erosion Processes, Assessment and Control: Develop management practices to reduce emission of PM from agricultural operations. Develop a conservation management tool to select best management practices for emissions reduction. Develop/refine a model to predict particulate emission and dispersion.

Lincoln, Nebraska

- Occurrence and Dissemination of Manure-Borne Zoonotic Pathogens: Determine if atmospheric transport of pathogens is a significant loss mechanism from beef cattle operations. If this loss mechanism is significant, develop control measures.

Lubbock, Texas:

- Generation and Mitigation of Particulate Emissions from Wind Erosion: Develop management practices to reduce PM emissions from agricultural operations. Documents air quality benefits of these emission reduction practices. Predict dispersion of particulates from agricultural operations and wind erosion.
- Air Quality Issues Related to Agricultural Operations and Processes: Develop more accurate methods to determine emissions, develop economically feasible options for reducing emissions, and measure and predict emission reductions from management practices and control technologies.

Las Cruces, New Mexico:

- Development of Ginning Systems and Knowledge to Enhance Value & Textile Utility of Western Cottons: Measure and predict PM emissions from cotton ginning operations. Design and test control technologies for particulate matter emissions from ginning. Develop dust abatement technology for pecan nut harvesters that can be retrofit to existing harvesters.

Bushland, Texas:

- Minimizing the Environmental Impact of Livestock Manures Using Integrated Management Regimens: Evaluate animal nutrition regimens that decrease ammonia emissions. Develop and evaluate feedyard and manure management practices that decrease ammonia emissions. Measure and control atmospheric transport of beef feedlot pathogens.

Fayetteville, Arkansas:

- Poultry Manure Management Strategies to Reduce Non-point Source Phosphorous Pollution: Determine ammonia emission rates from poultry litter and develop best management practices to control ammonia losses from poultry houses, manure storage areas and land application sites.

Athens, Georgia:

- Air Emissions from Animal Production Systems: Measure emissions from selected swine, dairy and poultry production operations. Develop management practices and technologies to reduce emissions from concentrated animal feeding operations.

Raleigh, North Carolina:

- Crop Responses to Global Change and Variations in Air Quality: Determine the impact of elevated carbon dioxide on productivity of major crops and its interaction with ozone and temperature. Determine the biochemical/physiological traits of crops that confer tolerance to ozone so ozone tolerant crops can be developed. Determine if exposure of crop plants to elevated ozone and carbon dioxide influences important crop pests.

Florence, South Carolina:

- Innovative Animal Manure Treatment Technologies for Enhanced Environmental Quality: Develop and evaluate environmentally superior technologies to prevent off-farm release of nutrients and to reduce pathogens, odorants and ammonia emissions. Develop information and technologies to enhance or retrofit existing manure treatment systems.

ANIMAL HEALTH CONSORTIUM

Ms. DeLauro: Please update your response in last year's hearing record on the research carried out by the Animal Health Consortium headquartered at Ames, Iowa.

Response: Last year a new patent application was filed on the use of a truncated protein as an immunogen against avian respiratory disease. One of the licensees of an earlier vaccine technology will introduce a new product this summer for bovine respiratory disease, a.k.a. bovine shipping fever. Other vaccine projects directed at equine inflammation and thrombosis, paratuberculosis, and leptospiria were also continued. As mentioned in last year's report both of these technologies have been licensed. The natural bactericidal protein that is effective against *E. coli 0157* and F-18, which is licensed to Ivy Animal Health, is under development as a treatment for ground beef and beef trimmings. A submission to FDA will be made for this technology. The AHC is currently reviewing proposals for new projects and the continuation of existing projects for the remainder of FY 2008 and FY 2009. The priorities will remain unchanged except for the possible addition of a swine genomics project directed at a better understanding of inflammatory disease in swine.

ANIMAL HEALTH RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the work you are doing on brucellosis, blue tongue, scrapie, and tuberculosis, and your accomplishments in 2007. In a table, provide funding resources devoted in fiscal years 2006 through 2008 and proposed for 2009, by location.

Response: Brucellosis is an infectious and contagious disease of cattle, swine, small ruminants and wildlife caused by infection with *Brucella*

abortus, B. suis, and B. mellitensis, respectively. The disease is associated with abortions and infertility in livestock and wildlife species. The disease can be transmitted to people by direct contact or consumption of nonpasturized dairy products and is considered a biological threat agent. In the United States, persistence of infection in wildlife reservoirs (bison, elk, and feral swine) is a threat for transmission to domestic livestock.

The objectives of the National Animal Disease Center (NADC) brucellosis research program in Ames, Iowa, are: 1) Vaccines: Develop vaccine strategies to prevent brucellosis in domestic livestock and free-ranging wildlife. 2) Diagnostics: Develop molecular diagnostics for epidemiologic investigations. 3) Genetic: Determine genes which contribute to immunogenicity, virulence, and pathogenicity.

Accomplishment Fiscal Year 2007: The most significant accomplishment this past year was evaluating two new brucellosis vaccines: one for bison and elk, and another for feral swine. Both vaccines were safe in targeted species. The new swine vaccine provided protection against experimental challenge with a virulent *B. suis* strain. Additionally, alternative methods of delivery, such as ballistic delivery, were evaluated for safety and efficacy as a method that may be used to deliver vaccines to free-ranging wildlife.

The funding for brucellosis research for fiscal years 2006, 2007, 2008, and 2009 is as follows:

Location	FY 2006	FY 2007	FY 2008	FY 2009
Ames, IA	$2,987,500	$2,999,800	$3,569,000	$3,569,000

The objectives of the Arthropod-Borne Animal Diseases Research Laboratory (ABADRL) bluetongue research program in Laramie, Wyoming, are to: 1) determine how bluetongue virus (BTV) binds to and enters cells and identify ways to interfere with these interactions to prevent infection; 2) develop specific, sensitive methods to detect BTV in insect and mammalian samples; 3) determine the most effective integrated pest management for bluetongue insect vectors and susceptible animals.

Accomplishment Fiscal Year 2007: The most significant accomplishments were in the area of rapid, sensitive, specific BTV diagnostic tests. A method was developed to identify BTV directly from insect cells without additional steps that were previously required (http://www.ars.usda.gov/IS/np/ha/han33.htm), and a field deployable assay that can identify all 24 serotypes of BTV and differentiate them from closely related viruses. These tests will be valuable tools for laboratory and field diagnosis of BTV in insect vectors and livestock in the United States.

The funding for bluetongue research for fiscal years 2006, 2007, 2008, and 2009 is as follows:

Location	FY 2006	FY 2007	FY 2008	FY 2009
Laramie, WY	$1,434,900	$1,441,500	$1,431,400	0
Ames, IA	0	0	0	$1,431,400
Total	$1,434,900	$1,441,500	$1,431,400	$1,431,400

Scrapie is a fatal neurodegenerative disease of sheep and goats that was first recognized in the United Kingdom over 250 years ago. The disease did not appear in the U.S. until 1947 in a Michigan flock. The flock owner

had imported sheep of British origin through Canada for several years. From this first case in 1947 to 2001, scrapie has been diagnosed in more than 1,000 flocks and is considered endemic in the U.S. The primary mode of transmission is through exposure of young sheep to placenta from affected ewes.

ARS conducts scrapie research at three locations: Albany, California; Ames, Iowa; and Pullman, Washington.

Scrapie research at the Western Regional Research Center in Albany, California, is focused on environmental decontamination of prions and increased sensitivity in detection.

Accomplishment Fiscal Year 2007: ARS scientists have developed a new, and more sensitive method to detect transmissible spongiform encephalopathy (TSE) diseases using mass spectroscopy. Existing diagnostic tests are unable to detect the disease agent at infectious levels and the mass spectroscopy method may be useful for detection of scrapie, chronic wasting disease (CWD), and bovine spongiform encephalopathy (BSE) in live animals.

The objectives of the scrapie research program at NADC, Ames, Iowa, are to assess the cross-species transmissibility of transmissible spongiform encephalopathies (TSEs) in livestock and wildlife and to investigate the pathobiology of TSEs in natural and secondary hosts. The program strives to improve existing methods and develop new, more sensitive methods to diagnose scrapie and to develop new methods for extraction and detection of the prion protein from infected animals.

Accomplishment Fiscal Year 2007: Methodology allowing use of paraffin embedded formalin-fixed tissues for Western blot analysis of the prion protein has been developed that eliminates the current necessity of having both frozen and formalin fixed tissue from samples submitted to diagnostic labs. This affords diagnostic laboratories to perform immunohistochemistry (IHC) and Western blot diagnostic tests using a single identically treated sample to ensure the accuracy of testing and eliminates errors caused by inappropriate sample collection in the field. Moreover, genotype analysis can be performed with the same tissue. Another substantial accomplishment has been made that may lead to the development of a live animal diagnostic for scrapie. In this work, it was first demonstrated that specific cell types found in the retina of scrapie affected sheep show altered properties and subsequently it was shown that sheep clinically affected with scrapie likewise exhibit altered retinal function. A patent was recently submitted for this invention. Retinal function is readily assessable in living animals using non-invasive procedures. Additional research will be needed to adapt the research tools into practical diagnostic instruments for use on farms.

The objectives of the scrapie research program at the Animal Diseases Research Unit (ADRU) at Pullman, Washington, are to develop a practical live animal diagnostic test for sheep and goat scrapie and to understand the biology of genetic resistance to scrapie in sheep and goats.

Accomplishment Fiscal Year 2007: ARS has reported the distribution of haplotypes (genetic sequences that are transmitted together on the same chromosome) of the goat prion gene and will be reporting on the novel distribution patterns of prions in naturally infected goats. The study includes a description of prion accumulation in the placenta and in tissues used for live animal testing. These findings are important for designing

diagnostic test protocols and post-exposure surveillance programs for scrapie in goats.

The funding for scrapie research for fiscal years 2006, 2007, 2008, and 2009 is as follows:

Location	FY 2006	FY 2007	FY 2008	FY 2009
Albany, CA	$1,088,000	$1,112,200	$1,104,400	$1,104,400
Ames, IA	806,600	810,000	804,300	804,300
Pullman, WA	262,300	263,700	261,900	261,900
Total	$2,156,900	$2,185,900	$2,170,600	$2,170,600

Bovine tuberculosis (TB) is an economically important disease in cattle and as a zoonotic disease (diseases transmitted from animals to people), a public health concern. USDA began a bovine TB eradication effort in 1917 that continues today. Although progress has been made over the last 10 years, some states have recently lost their TB free status due to cattle exposure to TB infected wildlife and importation of TB-infected cattle from Mexico.

The objectives of the NADC tuberculosis program in Ames, Iowa, are to: (1) Characterize the immunopathogenesis of *Mycobacterium bovis* infection in domestic livestock and wildlife. (2) Develop and evaluate improved tests for diagnosis of *M. bovis* infection in different animal species. (3) Identify vaccine strategies to elicit protective immunity in cattle and relevant wildlife species.

Accomplishment Fiscal Year 2007: The most significant accomplishment was the demonstration that vaccination of white-tailed deer with an attenuated live vaccine, *M. bovis* bacille Calmette Guerin, is efficacious in limiting disease and potential transmission of TB upon challenge with the pathogen. Additionally, these studies have demonstrated that the vaccine strain persists in deer and may be transmitted to cohorts, highlighting a potential safety concern for use in the field. On-going collaborative studies with collaborators at Howard Hughes Medical Institute, Albert Einstein College of Medicine are aimed at discovery of improved TB vaccines with limited ability to replicate for enhanced safety.

The funding for tuberculosis research for fiscal years 2006, 2007, 2008, and 2009 is as follows:

Location	FY 2006	FY 2007	FY 2008	FY 2009
Ames, IA	$2,003,200	$2,011,900	$2,454,000	$2,454,000

AQUACULTURE RESEARCH

Ms. DeLauro: Please provide an update on the research you are doing in connection with aquaculture research, specifically 2006 through 2008 accomplishments, and plans for research in fiscal year 2009. By location, what is the funding and staff for aquaculture research for fiscal years 2007, 2008 and 2009?

Response: ARS research on aquaculture is conducted at the following locations:

Fairbanks, AK - Improve use of fish processing wastes in feed and new uses.

Auburn, AL - Diagnosis and control of diseases and parasites of cultured fish.
Pine Bluff, AR - Aquaculture production and processing technology.
Stuttgart, AR - Research on therapeutics evaluation, health management and culture systems for farm-raised fish.
Fort Collins, CO - National Aquaculture Germplasm Program.
Hilo, HI - Oceanic Institute - Development of Tropical aquaculture feeds and culture technology (extramural).
Aberdeen, ID - Genetic improvement and nutrition to improve efficiency for rainbow trout and small grains.
New Orleans, LA - Improve flavor quality of farm-raised catfish.
Beltsville, MD - Utilization of the national fish parasite collection.
Beltsville, MD (NAL) - Aquaculture Information Program provides the public with information on all aspects of aquaculture.
Orono, ME - Cold water marine aquaculture research.
Oxford, MS - Improve water quality and control problem algae with natural products.
Stoneville, MS - Improve production efficiency, including breeding, genetics, nutrition, health, harvesting, and product quality of catfish.
Corvallis, OR (Newport, OR Worksite) - Research on shellfish genetics and shellfish ecology.
Wyndmoor, PA - Conversion of proteinaceous rendering by-products into marketable materials.
Wyndmoor, PA (Dover, DE Worksite) - Food safety of farm-raised fish.
Leetown, WV - Cool and cold water aquaculture research.
Madison, WI (Milwaukee, WI Worksite) - Great Lakes aquaculture.
Mississippi State University/Center for Food Safety and Post-Harvest Technology - Product quality and safety of processed warm water fish.

Selected fiscal year 2006 accomplishments in aquaculture are:

Breeding catfish and rainbow trout to increase disease resistance. ARS scientists at the Catfish Genetic Research Unit, Stoneville, Mississippi and National Cool and Cold Water Aquaculture Center, Leetown, West Virginia discovered genetic components of resistance to *Edwardsiella ictaluri* in catfish and to *Flavobacterium psychrophilum* in rainbow trout. The high variation in breeding values for resistance to these two major diseases in these aquatic animals holds promise for breeding fish with greater resistance to these major diseases. Field evaluation is underway for improved strains of catfish and rainbow trout.

Genetic map constructed for rainbow trout. A genetic linkage map for rainbow trout composed of over 1000 microsatellite DNA markers was constructed by ARS scientists at the National Center for Cool and Cold Water Aquaculture, Leetown, West Virginia. These data will be useful in all trout populations for identifying genes that affect aquaculture production efficiency.

New vaccines developed to protect fish from Streptococcal diseases. ARS scientists at the Aquatic Animal Health Research Unit, Auburn, Alabama, developed novel vaccines to control the bacterial pathogens, *Streptococcus agalactiae* and *Streptococcus iniae* in fish. Streptococcal disease results in more than $100 million in losses annually in cultured fish. Immunization is estimated to profit the farmer by $100 to $300 more per acre because fish eat more feed, grow faster and suffer less mortality. A Cooperative Research and Development Agreement was established with a major pharmaceutical manufacturer to commercialize these vaccines for a world-wide market.

Catfish survival improved in hatcheries. Mortality of catfish eggs and fry in commercial hatcheries ranges from 10 to 30%. ARS scientists at the Catfish Genetics Research Unit, Stoneville, Mississippi, and collaborators at Mississippi State University Extension Service determined oxygen requirements of catfish eggs and fry. Recommendations were developed for hatchery managers and are now in use that could result in a 10-20% increase in fry production by the catfish industry.

Revised pond fertilization recommendation improves catfish fry production. Nursery pond fertilization is an important practice to enhance production of phytoplankton and zooplankton needed for development of fry. ARS partners at the Mississippi Agricultural and Forestry Experiment Station, Stoneville, Mississippi, found ponds are nitrogen, and not phosphorus, limited as previously believed. New fertilization recommendations developed from this research are being quickly adopted by catfish farmers for more consistent and economical fry production.

Application of behavior to handling fish. Handling and moving of fish is stressful to the fish and results in injuries and mortalities. ARS partners at the Conservation Fund Freshwater Institute, Shepherdstown, West Virginia, developed technology based upon rainbow trout's ability to sense and avoid carbon dioxide dissolved at elevated levels in water to move rainbow trout from tank to tank for management purposes or harvesting. This technique is inexpensive, safe, and humane for transferring fish in circular aquaculture tanks.

Selected fiscal year 2007 accomplishments in aquaculture are:

Genotype x environment interactions in rainbow trout. Genotype x environment interactions are an important consideration for selective breeding improvement. Results from a large study, ~100 families, suggest that genetic x diet interactions could be significant when comparing diets containing plant protein/oil versus diets with only fish protein/oil.

Genetic characterization of farm-raised catfish. A study compared production traits of several cross types of channel catfish and channel catfish x blue catfish hybrids. Hybrids had the best fingerling performance of all groups. The same crosses are being evaluated for foodfish production and processing traits. Initial results indicate crossbreeding and hybridization could enhance catfish production.

Selective breeding for farm-raised catfish. Selective breeding for increased meat yield will lead to the development of catfish germplasm with higher meat yield and increased economic value. After selective breeding, meat yield was measured in offspring from more than 200 channel catfish families, and there was a significant improvement in meat yield.

Developed an *in ovo*, hyperosmotic immersion, oral route of vaccine administration and cohabitation immersion vaccine methods. The modified live *Edwardsiella ictulari* vaccine against enteric septicemia of catfish (ESC) and a combination vaccine of Aquavac-ESC and Aquavac-COL to prevent ESC and columnaris diseases were tested on channel catfish eyed eggs. A significant proportion of fingerlings hatched from eyed catfish eggs immunized by bath immersion with either the *E. ictaluri* vaccine or the combination vaccine were protected against ESC and columnaris. This is among the first examples of successful immunization of fish eggs and another means of mass immunization of fish that is not stressful and is cost effective.

Gene expression research identifies important immune response genes in catfish. Gene expression of channel catfish infected with *Edwardsiella ictaluri* was evaluated. Novel and important gene transcripts associated with innate immune response of channel catfish were discovered. These new gene sequences have been deposited in the National Centers for Biotechnology Information (NCBI) database.

Rainbow trout immune gene identification and selection of bacterial coldwater disease resistant trout. A comprehensive analysis of the TNF superfamily of immune related genes in teleost fish was completed. Forty-two novel genes were identified from database searches and sequencing efforts. Expression of many of these genes was characterized. This work furthers the understanding of the fish inflammatory response and how vaccines elicit protective immunity.

New protein sources for catfish diets (5). Cottonseed meal and distillers dried grains with solubles (DDGS) are being evaluated as protein sources for catfish diets. Results show that high levels of incorporation of cottonseed meal and supplemental lysine in channel catfish diets did not affect fish performance. DDGS can be used in channel catfish diets up to at least 30% of the diet when the diet is supplemented with lysine. Use of DDGS in the diet appears to improve feed efficiency.

Genetic tools for improving barley and oats for aquafeeds. Significant progress has been made in molecular genetics and molecular biology of the low phytic acid trait in barley. Low phytic acid content is a very important nutritional trait in crop seeds because of decreased environmental pollution and increased availability of minerals for animals. Increase in inorganic phosphorus and decrease of ground water pollution make low phytic acid barley a good candidate component for aquafeed utilization.

Methods to increase nutritional value of plant products for rainbow trout. Co-production of protein concentrates and carbohydrates from grains used to produce ethanol is an approach that would benefit both products. By separating protein from the carbohydrates before fermentation, protein quality remains high, making it more valuable and the ethanol less expensive. Barley protein was concentrated from 14% to over 50% on a dry matter basis. Barley has a balanced amino acid pattern and is devoid of known anti-nutritional factors.

Bacteria to remove off-flavor compounds from catfish ponds. Bacteria that degrade the off flavor compounds 2-methylisoborneol (MIB) and geosmin are being isolated and characterized for use in eliminating MIB and geosmin in catfish ponds as they are formed. Bacteria able to convert MIB to a compound that lacks the earthy taste and odor of MIB have been identified and represent a significant step toward controlling MIB in aquaculture.

Accomplishments for fiscal year 2008 will not be available until after then end of the fiscal year.

Plans for research in fiscal year 2009 include:

Genetic Improvement: a) Significant field trial work to evaluate genetic lines of catfish (selected for growth, fillet yield, and resistance to enteric septicemia of catfish) and rainbow trout (selected for growth and resistance to bacterial cold-water disease) will continue with commercial collaborators. b) Selective breeding for Atlantic salmon, channel catfish,

rainbow trout, and Pacific oysters will continue, focusing on growth and disease resistance. c) Genetic linkage mapping of channel catfish and rainbow trout will continue, improving the map densities and beginning to work with single nucleotide polymorphisms(SNPs), the next generation of genetic markers. d) Candidate genes for disease resistance and muscle development will continue to be developed.

Health: a) Development of assays for rapid detection of fish pathogens. b) Methods to study the effects of simultaneous multiple pathogens will be developed. c) Epidemiological studies of the prevalence of columnaris and enteric septicemia on catfish farms will continue. d) Characterization of the relationship between harmful algae, stress, and bacterial infections in the Chesapeake Bay will continue. e) Health/nutrition interactions will be investigated in tilapia and catfish. f) Genes responsible for attenuation of disease causing bacteria will be identified in rainbow trout and catfish models. g) Vaccine development for bacterial coldwater disease, enteric septicemia of catfish, and columnaris disease will continue. h) The use of phage for biocontrol of Y. ruckeri, the causative agent of enteric redmouth disease, will be evaluated.

Reproduction and Early Development: a) Reproductive output of normal and phase shifted Morone broodstock will be characterized for development of year round spawning. b) Evaluate the effect of growth factors on reproductive development and gamete quality. c) The effect of fish protein and fish oil replacement in diets on reproductive performance of rainbow trout will be examined. d) Spawning success of channel catfish and hormonal responsiveness will be correlated.

Growth, Development and Nutrition: a) Evaluation of the growth efficiency of rainbow trout and channel catfish. b) Identify and develop alternative sources of ingredients of economical importance to the United States to replace or reduce fish meal and fish oils in aquaculture diets. c) Establish feed manufacturing processes to improve feed palatability, pellet quality, and nutrient availability, inactivate anti-nutritional factors, and reduce environmental impacts. d) Delivery methods and optimum concentrations of nutrients/immunostimulants to enhance innate immunity and disease resistance will be identified.

Aquaculture Production Systems: a) Develop new, improve existing, or adapt alternative techniques to minimize depredation at aquaculture facilities. b) Culture of marine species in low-salinity water at inland sites.

Sustainability and Environmental Compatability of Aquaculture: a) Improve system designs and treatment technologies to improve the effluent quality of aquaculture systems. b) Develop opportunities for the reduction and reutilization of aquaculture waste products.

Quality, Safety, and Variety of Aquaculture Products: a) Methods to control biological processes resulting in off flavors. b) Discover high-value uses for fish processing coproducts for commercialization. c) Development of new product forms that use these smaller, edible portions in novel value-added products.

Location	FY 2007 Funds	FY 2007 SYs	FY 2008 Funds	FY 2008 SYs	FY 2009 Funds	FY 2009 SYs
Fairbanks, AK	$2,389,400	2.1	$2,373,000	2.1	$2,373,000	2.1
Auburn, AL	4,440,900	11.0	4,409,800	11.0	2,483,400	11.0
Pine Bluff, AR	1,048,200	2.0	553,100	1.0	--	--
Stuttgart, AR	4,732,000	11.0	5,187,500	12.0	3,486,500	12.0
Fort Collins, CO	76,300	.2	--	--	--	--
Hilo, HI Oceanic Institute	1,541,600	--	1,531,200	--	--	--
Aberdeen, ID	1,660,900	3.9	1,614,700	4.1	1,614,700	4.1
New Orleans, LA	736,900	2.1	731,700	2.1	731,700	2.1
Beltsville, MD (ANRI)	78,900	.3	92,800	.2	92,800	.2
Beltsville, MD	45,000	--	45,000	--	45,000	--
Orono, ME	730,700	1.0	724,700	1.0	724,700	1.0
Oxford, MS	374,900	1.0	372,300	1.0	372,300	1.0
Stoneville, MS Warm Water Aquaculture	9,405,300	11.2	9,339,300	11.2	9,339,300	11.2
Corvallis, OR (Newport, OR w/s)	775,000	2.1	769,600	2.1	769,600	2.1
Wyndmoor, PA (Incl Dover, DE Worksite)	569,200	1.9	862,100	1.9	862,100	1.9
Madison, WI	565,000	1.0	561,000	1.0	561,000	1.0
Leetown, WV	7,514,700	10.7	7,908,500	11.0	7,908,500	11.0
Total	$36,684,900	61.5	$37,076,300	61.7	$31,364,600	60.7

ARS BUDGET REQUEST

Ms. DeLauro: The ARS budget request contains a "base" funding component. Within that base is funding for projects that the Administration has deemed appropriate to continue to fund. How much of the base funding supports the ongoing projects?

Response: ARS' ongoing base programs impacting some 1,200 research projects totals $975 million in fiscal year 2009. This amount excludes proposed termination of $146 million in FY 2009 for unrequested projects and base reductions.

ARS-OWNED AIRCRAFT

Ms. DeLauro: Please provide a list of aircraft owned by the ARS, including where the aircraft are located, the types of aircraft, and how the aircraft were acquired. Also provide the number of flying hours for each of these aircraft during fiscal years 2007 and 2008. Why does ARS need to own aircraft? What were the fiscal year 2007 maintenance costs for each of the ARS-owned aircraft and what is the 2008 estimated cost?

Response: The Agricultural Research Service owns and operates six aircraft located at College Station and Weslaco, Texas. The information is submitted for the record.

Location	Type	Acquisition Method	FY 2007 Flying Hours	FY 2008 Flying Hours (To Date)
College Station	Cessna T188C	Purchase	7.2	1.2
	*Air Tractor 402B	Trade-In	18.9	0.8
	Cessna U206B	Excess	26.9	7.4
	**Hiller 12E	Excess	0	0
Weslaco	Cessna TU206G	Excess	35.0	22.4
	Cessna 404	Excess	26.0	15.6
Total for all aircraft			114.0	47.4

*In October 1996, ARS received a waiver from GSA to allow exchange of existing aircraft Cessna P206 for a new aircraft.

**Aerial application research was focused on applications by fixed-wing aircraft in FY2007 and FY2008. The Hiller is still needed for aerial application research on spray deposition patterns and drift from rotary wing aircraft (management of forest pests and vector insects.)

The fiscal year 2007 and 2008 maintenance costs for each of the Agricultural Research Service aircraft are:

Location	Type	FY 2007 Maintenance Costs	FY 2008 Estimated Maintenance Costs
College Station	Cessna T188C	$6,717	$6,600
	Air Tractor 402B	19,966	14,459
	Cessna U206B	8,972	7,118
	Hiller 12E	0	1,400
Weslaco	Cessna TU206G	3,873	4,334
	Cessna 404	7,700	10,135
Total for all aircraft		$47,228	$44,046

It is important for ARS to own its aircraft to effectively accomplish the research mission. ARS uses its aircraft for research purposes only. Most all ARS aircraft have been specifically modified to accommodate a variety of mounted research equipment such as digital imaging systems, aerial photographic cameras, and spray application systems. This requires drilling to the interior and exterior of the aircraft. ARS also requires the flexibility to move equipment between the various aircraft. Since the aircraft are Government aircraft, the engineers in the project have the ability to modify aircraft spray systems and guidance systems, which are crucial to the success of the project. The pilots have extensive knowledge of the research plan and overall mission. Due to the complexity of the research mission, renting or contracting aircraft from a commercial source, if at possible because of the modifications, would add to the costs of completing the research needed and would likely result in being unable to complete the research objectives. In College Station, the aircraft allow for timely application of crop protection and production material to research and commercial spray plots. In Weslaco, the aerial photography, multispectral imagery, and hyperspectral imagery taken with the aircraft are essential in the ongoing research programs and are used to detect and map various invasive weeds, diseases, and insect infestations.

ASIAN LONGHORNED BEETLE

ARS-DEL014

Ms. DeLauro: Please update your response in last year's hearing record on the research underway to control and eradicate the Asian longhorned beetle.

Response: The Asian Longhorned beetle (ALB) was first found in the United States in 1996, and is now established in New York City and Long Island, New York (1996), Chicago, Illinois (1998), Jersey City, New Jersey (2002), Toronto, Canada (2003), Carteret, New Jersey (2004), Sacramento, California (2005), Linden, New Jersey (2006), and Prall's Island and Staten Island, NY (2007). The beetle is also established in Austria (2001); France (2003); Germany (2004); Italy (2007) and the Netherlands (2007). Cargo infested by ALB have been discovered and eradicated in warehouses in at least 17 states, and in Canada, Italy, Austria, Germany, France, and Poland. ALB larvae cause severe damage to hardwood trees, particularly maples, and have the potential to alter the makeup of North American forests. Losses to lumber, maple syrup, and tourism industries could reach $670 billion. The citrus Longhorned beetle (CLB), a close relative of ALB, was found in trees imported into Washington State, Italy and the Netherlands. It has thus far infested and killed thousands of trees in Italy, particularly maples. It has also been recently discovered killing hundreds of thousands of citrus trees in south central China. Therefore, it presents a threat similar to that of ALB, if not greater, due to the much broader range of tree species at risk, particularly citrus.

In an effort led by the Animal and Plant Health Inspection Service (APHIS) to eradicate ALB, more than 42,600 high-value shade trees have been cut down in the United States, with an additional 25,000 trees in Toronto. In addition, APHIS-led efforts include the annual survey for infested trees, and the annual application of a systemic insecticide to tens of thousands of trees. Supporting this program, ARS is developing technologies that will be used by APHIS for eradication. The ARS 5-Year ALB Action Plan focuses research on ALB fundamental biology and systematics; population ecology and dispersal; detection and survey; biological control; chemical, cultural, and mechanical control; and integrated pest management.

BELTSVILLE, MARYLAND - Researchers produced a comprehensive, 37-species monograph of longhorned beetles, including ALB, which is being used by field personnel. Identification aids are being developed with Cornell University. A study of 14 additional invasive or potentially invasive and economically important longhorned beetles is also being done at the Systematic Entomology Laboratory.

Also, male-produced odors have been isolated that attract walking ALB males and females. Plant volatiles from several ALB hosts that were field-tested in China indicated that female ALB are significantly attracted to a blend of male-produced odors and plant volatiles. A patent has been granted for the use of these male-produced compounds; traps are being designed to catch beetles walking on host trees; and, negotiations are ongoing with potential licensees/CRADA partners to develop the technology. A female-produced contact sex-recognition pheromone has also been identified; a blend of five synthetic chemicals effectively mimics the cuticular extract of females that elicits male courtship. Identification of female-produced trail, oviposition, or sex pheromones is being conducted with the Forest Service in Connecticut and with Pennsylvania State University. The pheromone has

potential to induce ALB males to enter and remain in monitoring traps and to arrest ALB males on an insecticide strip or biocontrol dispenser.

NEWARK, DELAWARE - In collaboration with the Chinese Academy of Forestry in Beijing, ARS researchers have proven that the beetle disperses almost 1 mile per year, much farther than the 100-200 yards previously reported. Based upon these results, ARS developed the first dispersal model for predicting ALB population spread. Regulatory/action agencies responsible for the ALB Eradication Programs worldwide, including APHIS (United States), CDFA (California), CFIA (Canada), as well as those in Italy and France, are using this model to set survey and quarantine boundaries, and to aid in early detection of existing incipient populations and of new infestations by targeting surveys on tree species and landscapes at greatest risk of attack.

ARS developed the first degree-day model for predicting adult ALB emergence. In collaboration with the North Carolina State University APHIS Plant Pest Forecasting System (NAPPFAST), the ALB degree-day model was then linked with a historical climatological database to generate probability maps for predicting ALB emergence. The same regulatory/action agencies are using this model and maps for implementing eradication, detection, survey and control strategies for ALB.

ARS studied the reproductive potential of ALB and results are used by the same regulatory/action agencies to predict tree species at greatest risk as part of survey efforts.

In collaboration with the Canadian Forest Service (CFS) and the Canadian Food Inspection Agency (CFIA), ARS researchers developed the first ALB training guide for visual survey and detection for signs and symptoms of ALB attack, and a survey protocol: "Detecting Signs and Symptoms of Asian Longhorned Beetle Injury: A Training Guide". This training guide has significantly improved survey efficiency, precision, and accuracy for the regulatory/action agencies (APHIS, CFIA); State departments of natural resources, conservation, agriculture and forestry; city urban foresters; the green industry; university scientists and extension (horticultural, landscape and urban); Minoprio Foundation (Como, Italy); and New Zealand and Australian quarantine agencies.

In collaboration with ARS researchers in Gainesville, Florida, the unique acoustic emissions resulting from ALB larvae feeding within the tissues and tree species were characterized. Coupled with collaborations with the State University of New York and Prior Knowledge Systems, an acoustic system for detection of ALB chewing inside trees is being developed. This technology, complementing the visual survey methods, will greatly enhance early detection of infested trees and insure successful eradication of ALB. This technology will also greatly enhance detection accuracy, thereby reducing the need to remove uninfested trees. Prototype Acoustic Detection units will be field tested in 2008.

ARS has developed a novel "fingerprinting" tool that relies on analyzing ALB frass (feces or droppings), which has a genetic signature that is totally unique to ALB. This represents a potential method for detection of infested trees. ARS is also developing genetic markers to the voiced DNA. DNA may thus provide the means to detect adult ALB presence in a highly species-specific manner that will aid monitoring and treatment programs.

ARS has discovered the first highly attractive tree species in China (Acer mono: Painted Maple'), a potential breakthrough for developing effective monitoring systems for adult beetles. In collaboration with the Institute of Plant Protection (IPP), Chinese Academy of Agricultural Sciences (CAAS) in Beijing, ARS has proven that potted 3-meter tall Painted Maple trees are significantly more attractive than Norway maple (*Acer platanoides*), Ash-Leaf maple (*Acer negundo*), and Shantung maple (Purpleblow maple) (*Acer truncatum*), three maple species most commonly attacked in New York, Chicago, New Jersey, Canada, Europe, and China. Painted Maple is also capable of attracting beetles out of large infested Ash-Leaf maple and infested willow trees in urban landscapes. ARS has also proven that an encapsulated insecticide is highly effective in controlling adult beetles. Therefore, when applied to the sentinel trees, this method is an effective detection and Attract-and-Kill strategy for early detection and population suppression. Potted 3-meter Painted maple and/or Purpleblow maple sentinel trees are being used by the California Department of Food and Agriculture (CDFA) (2006 and 2007), and jointly by the Canadian Food Inspection Agency (CFIA) and Canadian Forest Service (CFS) for early detection of ALB. The New York Department of Environmental Conservation (2006-2007), City of Chicago (2007), Delaware Department of Natural Resources (2007) and the Italian regulatory agency (2007) are exploring the use of potted Painted maple trees for early detection of ALB in their eradication programs, and as landscape trees during the post-eradication phase.

In collaboration with Simon Fraser University, Burnaby, Canada, and the Canadian Forest Service, ARS is developing an artificial lure (attractant) for early detection of ALB infestations. This research has resulted in the identification of host tree produced volatiles released by Painted maple that have been shown to be attractive to adult female beetles in an olfactometer and in preliminary field studies. An effective trap for capturing adult ALB has been tested. Additional field studies are underway to identify the optimal formulation, dose and trapping density.

In collaboration with Cornell University, ARS has been developing fungal bands for control of ALB. To date, results have shown that several entomopathogenic fungi, when applied to non-woven fiber bands, effectively control adult beetles and reduce the egg-laying capacity of infected female beetles.

In collaboration with the Chinese Academy of Forestry, ARS has identified two parasitoids native to China, a wasp and a beetle, that show promise as biological control agents for ALB. Mass rearing technology is under development and non-target studies are planned for 2008.

In collaboration with the University of Illinois and the University of Vermont, ARS is searching for native natural enemies that may be effective as biological control agents for ALB. ARS discovered the first three native natural enemies of native woodborers that parasitize and complete development on ALB. Taxonomic identification of these species by the ARS Systematic Entomology Lab (SEL) is pending. Methods for disseminating the parasitoids for use by APHIS in eradication of ALB will be developed prior to technology transfer.

In collaboration with Cornell University, IPP-CAAS and Seoul National University in Seoul, South Korea, ARS is coupling molecular and GIS approaches to identify the indigenous geographic and host range of ALB in Asia. Researchers expect to find and collect natural enemies of ALB within

these areas that are highly host specific (low risk of non-target effects) and highly effective at searching for and killing the beetles within infested trees under very low ALB population levels. Regulatory/action agencies in the United States, Canada, and Europe envision using these natural enemies in their eradication programs, particularly when the last few remaining infested trees are likely impossible to detect.

In collaboration with Cornell University, CFS, CFIA, IPP-CAAS, ARS is also investigating invasion biology of the ALB. Upon completion, results from these studies will provide one of the few empirically based models on the process of invasion of non-indigenous species. The level of understanding of the invasion process resulting from this research will be far reaching, including: criteria for predicting what non-indigenous species are high-risk invasive species; criteria for predicting what landscapes within the United States are high-risk sites for invasion; and predicting the founder population level required for successful establishment. Collectively, these studies will result in development of pro-active approaches for early detection and rapid response, and for reducing the likelihood for introduction and establishment.

In collaboration with regulatory agencies in the Netherlands and Italy, and with colleagues in China, methods developed for ALB (listed above) are being implemented and evaluated for control of the Citrus Longhorned Beetle (CLB) found attacking: (1) a wide variety of deciduous tree species within urban and rural areas in Europe, and (2) citrus trees within commercial citrus groves in China where damage has exceeded 70 percent tree mortality in some areas. While an infestation of CLB was previously discovered and eradicated in Washington in 2002, these efforts represent an example of technology transfer and a proactive approach should CLB become established in citrus growing areas in the United States.

AVIAN INFLUENZA

Ms. DeLauro: Please provide an update on your research efforts and funding devoted to avian influenza and avian Newcastle disease in fiscal years 2007, 2008 and 2009.

Response: Avian Influenza (AI) presents a major disease threat to the U.S. poultry industry and may threaten human health at times as a source of epidemic or pandemic virus. The Food and Agriculture Organization of the United Nations now estimates that a deadly form of AI, H5N1 highly pathogenic avian influenza (HPAI), has affected 300 million birds worldwide. Since 2002, approximately 5 million birds have been affected in the U.S. Research on AI within USDA/ARS is critical in controlling the disease in poultry. HPAI and Virulent Newcastle Disease, caused by the Newcastle disease virus (NDV), are devastating diseases in poultry that can cause death in susceptible avian species within 48-96 hours. Both of these diseases are OIE List A diseases and are exotic or foreign animal diseases in the U.S. ARS research is critical for prevention and control of these two diseases in the U.S.

For FY 2007 and FY 2008 to date, ARS accomplished the following for avian influenza: 1) Determined that cooking poultry meat to 165 F for less than 1 minute kills all AI and Newcastle disease viruses. The current FSIS salmonella cooking standards is also effective at killing both AI and Newcastle disease viruses; 2) The transmission risk for H5N1 HPAI virus from

poultry to poultry is greater through inhalation of the virus or environmental contact than through consuming raw infected poultry meat; 3) Determined that wood ducks are highly susceptible to H5N1 HPAI virus, while mallards, northern pintails, blue-wing teals, and redheads were less sensitive to infection. The data suggests that the wood ducks would represent a sensitive indicator species for H5N1 HPAI should it enter North America; 4) Determined that many fecal samples from wild birds have inhibitors that gave false negative results for the USDA AI rapid molecular diagnostic test (RRT-PCR). To solve the problem, a positive internal control was developed to identify false positive results, which has improved the detection of AI viruses in wild bird fecal samples; 5) Developed an improved rapid method for extracting RNA from wild bird samples to remove PCR inhibitors; 6) A rapid molecular test (RRT-PCR) to detect AI virus in poultry meat was developed, validated and transferred to Food Safety and Inspection Service (FSIS). This test is now available in FSIS diagnostic laboratories to identify infected meat from suspect AI outbreak flocks; 7) New strains of H5N1 HPAI virus have emerged in Asia that are not detected by the USDA molecular diagnostic test. The primers for molecular detection in RRT-PCR test were redesigned and now can detect all the H5N1 strains in poultry in Asia; 8) Developed or tested new H7 subtyping tests that provides improved specificity over the current H7 subtype test; 9) Using molecular tools to compare two highly pathogenic H5N1 viruses determined that the nucleoprotein gene of avian influenza can be a major virulence factor for the virus; 10) Determined that several killed H5 vaccines that have been used or are commercially available were protective against new emergent strains of H5N1 HPAI virus isolated from a chicken in Hong Kong; 11) In collaboration with Mt Sinai hospital, determined two live hybrid virus vaccines provide protection against both HPAI and Newcastle disease with the advantage that they can be mass applied by spray application; 12) Demonstrated that killed H3N2 vaccines would protect U.S. egg laying turkeys from devastating egg production drops if exposed to H3N2 swine influenza viruses; 13) Demonstrated with joint research with Auburn University that an adenovirus vectored vaccine for avian influenza was protective by the in ovo route of inoculation, which provides a potential mass vaccination route of administration; 14) A new sequencing approach was developed for avian influenza viruses that allows full genome sequencing of the virus without knowing the haemagglutinin subtype (e.g., H7 or H5), including samples obtained from birds with mixed infections (i.e. more than one AI virus).

For FY 2008, ARS will perform pathogenesis studies with recombinant AI viruses in ducks and chickens in which gene segments have been interchanged to better understand disease resistance. South East Poultry Research Laboratory (SEPRL), Athens, Georgia, will conduct experiments to better understand the transmission dynamics of AI viruses in broilers and layers within and between farms to assist APHIS in risk assessments. Low and high pathogenicity AI vaccine efficacy models will be developed to better standardize methods for evaluating vaccine protection. A NDV vectored vaccine for AI will be tested for efficacy and an attenuated live AI virus vaccine will be developed and tested. Completion studies to determine the role of urban wild birds as a reservoir species and their role as a transmission host for H5N1 HPAI viruses to poultry. Comparisons of different lines of chickens for genetic resistance to avian influenza will be performed.

For FY 2007, ARS accomplished the following for the supplemental funding provided in FY 2006: 1) 12 specific cooperative agreements were developed and implemented with collaborators at universities and non-government organizations to assist in critical AI research; 2) in

collaboration with a research partner, a new poxvirus vectored AI vaccine was developed based on a gene insert from the Asian H5N1 HPAI virus and was shown to protect better than the existing vectored vaccine in chickens; 3) an improved RNA extraction procedure was developed that improved detection of AI viruses in feces of wild birds by removing PCR inhibitors; 4) 1000 AI virus isolates have been partially or completely sequenced and the data is being annotated and made available to the public through Genbank or publications; 5) in experimental studies, determined that pigs can become infected with some of the H5 and H7 mild AI viruses, but the infections do not produce severe disease; 6) demonstrated in joint studies with University of Georgia that the H5N1 HPAI viruses can persist for extended periods of time in cool fresh water, but they had shorter survival times than the natural wild bird avian influenza viruses. The viruses had shorter survival times if kept at 28C and higher concentrations of salt. This indicates that H5N1 HPAI viruses have less of chance to survive in contaminated environments and persist than the native wild bird low pathogenicity AI viruses; and 7) in a joint study with Environmental Protection Agency, demonstrated that residual chlorine levels in drinking water kill H5N1 HPAI virus; 8) Developed a microarray analysis system that evaluates 22,000 different chicken genes after challenge with avian influenza virus to identify the genes critical for differences in pathogenesis and the immune response; 9) demonstrated in joint studies with The Ohio State University that a live attenuated avian influenza virus can be used as a vaccine; 10) and demonstrated with the University of Georgia that most wild bird low pathogenic viruses replicate poorly in poultry.

For FY 2007, ARS accomplished the following for Newcastle Disease: 1) Demonstrated that the commonly used Newcastle Disease virus (NDV) vaccines used in the U.S. are not well matched to the recent virulent viruses seen in the California outbreak, and these differences result in more virus being shed in vaccinated birds that can potentially allow transmission to new flocks; 2) 300 Newcastle disease viruses collected from 1986 to 2005 from wild birds and poultry in live poultry markets were sequenced and shown to belong to 9 novel genotypes among the class I viruses and new subgroups among genotypes I and II of the class II viruses. This study is the first long term study of the diversity of NDV in North American waterfowl and identified close genetic relationship with NDV in the live bird markets; 3) Identified NDV viruses and specific sequence differences responsible for failure of the USDA rapid molecular diagnostic tests (RRT-PCR) to detect these NDV. Using sequence information, developed and validated a complementary RRT-PCR test that detects these NDV; 4) Determined that virulent Newcastle Disease viruses with the potential to cause disease in poultry were circulating in wild pigeons from Texas and Rhode Island during 2000-2005; 5) in vitro assessment assay was developed to show NDV vaccine protection without the need of live bird vaccine challenge studies; 6) The HN gene was shown to contribute the disease producing potential of virulent NDV viruses in chickens; 7) NDV was isolated from flies during a poultry outbreak in California and NDV was recovered from intestines of flies for up to 3 days after virus feeding. This indicates that flies can potentially serve in a NDV transmission role to poultry; 8) developed a new sequencing strategy to rapidly identify and characterize all NDV strains; 9) Characterized the genetic differences between the commonly used U.S. LaSota vaccine strain with the international VG/GA vaccine strain that, because of an intestinal tropism, may cause less vaccine reactions. These studies shed light on the similarities between both vaccines and may allow the acceptance of the VG/GA vaccine strain in the U.S market; and, 10) In collaboration with Mexican and The University of Georgia colleagues, demonstrated that the California 02-03 lineage of NDV continues

to circulate and change in Mexico and continues to present a threat to U.S. agriculture.

For FY 2008, ARS will determine tissue tropism of the rescued U.S. Anhinga recombinant virus and a rescued Chinese recombinant strain to determine impact of different genes on virulence. The lab will continue doing pathogenicity testing and genetic analysis of recent NDV from both domestic and international sources to evaluate the risk to U.S. poultry. Continued work on antigenic variation and its affect on vaccine protection with live vaccines will be performed. Southeastern Poultry Research Laboratory will further develop and evaluate a low virulence NDV vaccine challenge and efficacy model and develop and test a chimera vaccine strain using Anhinga strain as the vector system.

The funding for Avian Influenza and Newcastle Disease Virus (excluding supplementing funding) is provided for the record.

Avian Influenza:

Location	FY 2007	FY 2008	FY 2009
Athens, GA	$2,358,200	$2,498,600	$2,498,600

Avian New Castle Disease:

Location	FY 2007	FY 2008	FY 2009
Athens, GA	$1,328,300	$1,162,400	$1,162,400

BASE ALLOCATIONS

Ms. DeLauro: Please provide a table, by location, showing the fiscal year 2008 base allocations, fiscal year 2008 projects, and fiscal year 2008 total allocation.

Response: A table providing the fiscal year 2008 total allocation is provided for the record. No additional projects were funded in fiscal year 2008 so base and total allocations are the same amount.

[The information follows:]

FY 2008 Current Funding

Location	Total Allocation
ALABAMA, Auburn	$8,707,000
ALASKA, Fairbanks	5,419,000
ARIZONA	
Maricopa	9,474,000
Tucson	4,016,000
Total	13,490,000
ARKANSAS	
Booneville	5,030,000
Fayetteville	1,576,000
Little Rock	5,584,000
Pine Bluff	937,000
Stuttgart	7,755,000
Total	20,882,000
CALIFORNIA	
Albany	38,718,000
Davis	10,332,000
Parlier	11,415,000
Riverside	5,627,000
Salinas	4,758,000
Shafter	1,425,000
Total	72,275,000
COLORADO	
Akron	1,989,000
Fort Collins	15,339,000
Total	17,328,000
DELAWARE	
Newark	2,030,000
DISTRICT OF COLUMBIA	
National Arboretum	11,549,000
Headquarters Federal Administration	74,919,000
Total	86,468,000

FY 2008 Current Funding

Location	Total Allocation
FLORIDA	
Brooksville	1,310,000
Canal Point	2,840,000
Fort Lauderdale	2,469,000
Fort Pierce	10,830,000
Gainesville	12,995,000
Miami	4,352,000
Winter Haven	2,467,000
Total	37,263,000
GEORGIA	
Athens	27,798,000
Byron	3,581,000
Dawson	4,395,000
Griffin	2,180,000
Tifton	9,443,000
Total	47,397,000
HAWAII, Hilo	10,477,000
IDAHO	
Aberdeen	5,931,000
Boise	2,075,000
Dubois	2,104,000
Kimberly	3,502,000
Total	13,612,000
ILLINOIS	
Peoria	37,728,000
Urbana	5,236,000
Total	42,964,000
INDIANA, W. Lafayette	7,554,000
IOWA, Ames	47,873,000
KANSAS, Manhattan	10,093,000
KENTUCKY	
Bowling Green	2,553,000
Lexington	2,599,000
Total	5,152,000

FY 2008 Current Funding

Location	Total Allocation
LOUISIANA	
Baton Rouge	3,043,000
New Orleans	32,192,000
Total	35,235,000
MAINE, Orono	2,808,000
MARYLAND	
Beltsville	139,482,000
Frederick	5,302,000
Total	144,784,000
MASSACHUSETTS, Boston	15,331,000
MICHIGAN, East Lansing	4,816,000
MINNESOTA	
Morris	2,758,000
St. Paul	6,288,000
Total	9,046,000
MISSISSIPPI	
Mississippi State	9,122,000
Oxford	13,347,000
Poplarville	4,971,000
Stoneville	37,607,000
Total	65,047,000
MISSOURI, Columbia	8,622,000
MONTANA	
Miles City	3,271,000
Sidney	4,993,000
Total	8,264,000
NEBRASKA	
Clay Center	19,202,000
Lincoln	5,790,000
Total	24,992,000

FY 2008 Current Funding

Location	Total Allocation
NEW MEXICO	
Las Cruces	5,912,000
NEW YORK	
Geneva	3,525,000
Greenport	5,188,000
Ithaca	10,414,000
Total	19,127,000
NORTH CAROLINA	
Raleigh	8,613,000
NORTH DAKOTA	
Fargo	15,211,000
Grand Forks	9,139,000
Mandan	3,825,000
Total	28,175,000
OHIO	
Columbus	1,464,000
Coshocton	1,304,000
Wooster	4,942,000
Total	7,710,000
OKLAHOMA	
El Reno	5,225,000
Lane	2,053,000
Stillwater	3,811,000
Woodward	1,606,000
Total	12,695,000
OREGON	
Burns	2,531,000
Corvallis	11,312,000
Pendleton	1,918,000
Total	15,761,000

FY 2008 Current Funding

Location	Total Allocation
PENNSYLVANIA	
University Park	4,411,000
Wyndmoor	34,335,000
Total	38,746,000
SOUTH CAROLINA	
Charleston	4,340,000
Clemson	2,317,000
Florence	4,046,000
Total	10,703,000
SOUTH DAKOTA	
Brookings	3,968,000
TEXAS	
Beaumont	1,397,000
Bushland	7,284,000
College Station	15,752,000
Houston	13,750,000
Kerrville	6,157,000
Lubbock	8,733,000
Temple	3,494,000
Weslaco	10,018,000
Total	66,585,000
UTAH, Logan	8,469,000
WASHINGTON	
Prosser	3,242,000
Pullman	15,889,000
Wapato	4,344,000
Wenatchee	2,036,000
Total	25,511,000
WEST VIRGINIA	
Beaver	7,264,000
Kearneysville	6,802,000
Leetown	7,118,000
Total	21,184,000

FY 2008 Current Funding

Location	Total Allocation
WISCONSIN, Madison.....	14,017,000
WYOMING	
Cheyenne.....	2,252,000
Laramie.....	3,279,000
Total.....	5,531,000
PUERTO RICO	
Mayaguez.....	2,794,000
OTHER COUNTRIES	
Argentina,	
Buenos Aires.....	537,000
France, Montpellier.....	3,092,000
Total.....	3,629,000
Extramural and Funds	
Administered from	
Headquarters-Held Funds.....	36,050,000
Repair & Maintenance	
of Facilities.....	17,526,000
Subtotal, Available or Estimate.	1,120,635,000
Rescission.....	7,903,000
Transfer to Office of Ethics....	406,000
Total, Available or Estimate....	1,128,944,000

Ms. DeLauro: Please provide a table showing by location the estimated fiscal year 2009 base allocations, fiscal year 2009 new and expanded research, and fiscal year 2009 total allocation.

Response: A table providing the fiscal year 2009 base allocation, fiscal year 2009 new and expanded research, and fiscal year 2009 total allocation is provided for the record.

[The information follows:]

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
ALABAMA, Auburn.....	$5,734,000	0	$5,734,000
ALASKA, Fairbanks.....	5,419,000	0	5,419,000
ARIZONA			
Maricopa.....	7,581,000	$2,485,000	10,066,000
Tucson.....	4,016,000	914,000	4,930,000
Total.....	11,597,000	3,399,000	14,996,000
ARKANSAS			
Booneville.....	1,714,000	0	1,714,000
Fayetteville.....	1,576,000	0	1,576,000
Little Rock.....	5,454,000	0	5,454,000
Pine Bluff.....	440,000	0	440,000
Stuttgart.....	6,224,000	0	6,224,000
Total.....	15,408,000	0	15,408,000
CALIFORNIA			
Albany.....	37,684,000	1,093,000	38,777,000
Davis.....	10,332,000	4,245,000	14,577,000
Parlier.....	9,767,000	1,660,000	11,427,000
Riverside.....	4,454,000	876,000	5,330,000
Salinas.....	4,555,000	205,000	4,760,000
Shafter.....	1,425,000	0	1,425,000
Total.....	68,217,000	8,079,000	76,296,000
COLORADO			
Akron.....	1,302,000	0	1,302,000
Fort Collins.....	15,387,000	0	15,387,000
Total.....	16,689,000	0	16,689,000
DELAWARE			
Newark.....	2,030,000	0	2,030,000
DISTRICT OF COLUMBIA			
National Arboretum.....	9,397,000	247,000	9,644,000
Headquarters Federal Administration.....	75,035,000	0	75,035,000
Total.....	84,432,000	247,000	84,679,000

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
FLORIDA			
Brooksville.....	0	0	0
Canal Point.....	2,840,000	0	2,840,000
Fort Lauderdale.....	2,469,000	0	2,469,000
Fort Pierce.....	10,530,000	302,000	10,832,000
Gainesville.....	11,363,000	206,000	11,569,000
Miami.....	2,591,000	1,198,000	3,789,000
Winter Haven.....	2,467,000	0	2,467,000
Total.....	32,260,000	1,706,000	33,966,000
GEORGIA			
Athens.....	23,926,000	0	23,926,000
Byron.....	3,581,000	0	3,581,000
Dawson.....	3,268,000	500,000	3,768,000
Griffin.....	2,180,000	0	2,180,000
Tifton.....	9,443,000	575,000	10,018,000
Total.....	42,398,000	1,075,000	43,473,000
HAWAII, Hilo.....	9,443,000	0	9,443,000
IDAHO			
Aberdeen.....	5,587,000	0	5,587,000
Boise.....	2,075,000	0	2,075,000
Dubois.....	2,104,000	0	2,104,000
Kimberly.....	3,502,000	0	3,502,000
Total.....	13,268,000	0	13,268,000
ILLINOIS			
Peoria.....	34,270,000	0	34,270,000
Urbana.....	2,349,000	1,831,000	4,180,000
Total.....	36,619,000	1,831,000	38,450,000
INDIANA, W. Lafayette.....	7,554,000	0	7,554,000
IOWA, Ames.....	45,371,000	3,302,000	48,673,000
KANSAS, Manhattan.....	9,606,000	0	9,606,000
KENTUCKY			
Bowling Green.....	2,553,000	0	2,553,000
Lexington.....	2,599,000	0	2,599,000
Total.....	5,152,000	0	5,152,000
LOUISIANA			
Baton Rouge.....	2,061,000	268,000	2,329,000
New Orleans.....	23,879,000	989,000	24,868,000
Total.....	25,940,000	1,257,000	27,197,000

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
MAINE, Orono.....	652,000	0	652,000
MARYLAND			
Beltsville.....	120,575,000	11,480,000	132,055,000
Frederick.....	5,302,000	0	5,302,000
Total.....	125,877,000	11,480,000	137,357,000
MASSACHUSETTS, Boston.....	15,331,000	0	15,331,000
MICHIGAN, East Lansing.....	0	0	0
MINNESOTA			
Morris.....	0	0	0
St. Paul.....	5,720,000	0	5,720,000
Total.....	5,720,000	0	5,720,000
MISSISSIPPI			
Mississippi State.....	7,109,000	0	7,109,000
Oxford.....	12,922,000	0	12,922,000
Poplarville.....	4,971,000	0	4,971,000
Stoneville.....	37,644,000	0	37,644,000
Total.....	62,646,000	0	62,646,000
MISSOURI, Columbia.....	8,003,000	0	8,003,000
MONTANA			
Miles City.....	3,271,000	0	3,271,000
Sidney.....	4,993,000	0	4,993,000
Total.....	8,264,000	0	8,264,000
NEBRASKA			
Clay Center.....	16,509,000	4,074,000	20,583,000
Lincoln.....	4,960,000	0	4,960,000
Total.....	21,469,000	4,074,000	25,543,000
NEW MEXICO			
Las Cruces.....	5,912,000	0	5,912,000
NEW YORK			
Geneva.....	3,525,000	0	3,525,000
Greenport.....	3,733,000	0	3,733,000
Ithaca.....	10,414,000	0	10,414,000
Total.....	17,672,000	0	17,672,000

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
NORTH CAROLINA			
Raleigh.....	8,613,000	0	8,613,000
NORTH DAKOTA			
Fargo.....	15,211,000	0	15,211,000
Grand Forks.....	0	0	0
Mandan.....	3,336,000	0	3,336,000
Total.....	18,547,000	0	18,547,000
OHIO			
Columbus.....	794,000	0	794,000
Coshocton.....	0	0	0
Wooster.....	4,023,000	0	4,023,000
Total.....	4,817,000	0	4,817,000
OKLAHOMA			
El Reno.....	5,225,000	0	5,225,000
Lane.....	0	0	0
Stillwater.....	3,811,000	0	3,811,000
Woodward.....	1,606,000	0	1,606,000
Total.....	10,642,000	0	10,642,000
OREGON			
Burns.....	2,531,000	0	2,531,000
Corvallis.....	11,312,000	0	11,312,000
Pendleton.....	369,000	1,560,000	1,929,000
Total.....	14,212,000	1,560,000	15,772,000
PENNSYLVANIA			
University Park.....	0	0	0
Wyndmoor.....	32,485,000	1,863,000	34,348,000
Total.....	32,485,000	1,863,000	34,348,000
SOUTH CAROLINA			
Charleston.....	3,685,000	659,000	4,344,000
Clemson.....	2,317,000	0	2,317,000
Florence.....	4,046,000	0	4,046,000
Total.....	10,048,000	659,000	10,707,000
SOUTH DAKOTA			
Brookings.....	2,884,000	0	2,884,000

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
TEXAS			
Beaumont.....	1,397,000	0	1,397,000
Bushland.....	5,309,000	1,553,000	6,862,000
College Station.....	15,789,000	0	15,789,000
Houston.....	13,750,000	0	13,750,000
Kerrville.....	5,486,000	836,000	6,322,000
Lubbock.....	6,497,000	829,000	7,326,000
Temple.....	3,494,000	0	3,494,000
Weslaco.....	0	0	0
Total.....	51,722,000	3,218,000	54,940,000
UTAH, Logan.....	8,469,000	0	8,469,000
WASHINGTON			
Prosser.....	3,242,000	0	3,242,000
Pullman.....	14,135,000	0	14,135,000
Wapato.....	4,344,000	0	4,344,000
Wenatchee.....	1,727,000	312,000	2,039,000
Total.....	23,448,000	312,000	23,760,000
WEST VIRGINIA			
Beaver.....	7,264,000	0	7,264,000
Kearneysville.....	6,802,000	0	6,802,000
Leetown.....	7,118,000	0	7,118,000
Total.....	21,184,000	0	21,184,000
WISCONSIN, Madison.....	14,017,000	0	14,017,000
WYOMING			
Cheyenne.....	2,252,000	0	2,252,000
Laramie.....	0	0	0
Total.....	2,252,000	0	2,252,000
PUERTO RICO			
Mayaguez.....	2,794,000	0	2,794,000
OTHER COUNTRIES			
Argentina,			
Buenos Aires.....	537,000	0	537,000
France, Montpellier.....	2,821,000	0	2,821,000
Total.....	3,358,000	0	3,358,000

FY 2009 Budget

Location	Base Allocation	Increases	Total Allocation
Extramural and Funds Administered from Headquarters-Held Funds...	19,110,000	3,018,000	22,128,000
Repair & Maintenance of Facilities.....	17,526,000	0	17,526,000
Subtotal, Available or Estimate.....	974,811,000	47,080,000	1,021,891,000
Pay Costs.....	0	15,125,000	15,125,000
Total, Available or Estimate	974,811,000	62,205,000	1,037,016,000

BIOTECHNOLOGY RESEARCH AND DEVELOPMENT CORPORATION (BRDC)

Ms. DeLauro: Please provide an update on fiscal year 2007 and 2008 work and plans for fiscal year 2009 research underway at BRDC.

Response: Work continued on the development of tools for manipulating plant genomes. Research on the fermentative production of xylitol continued including the molecular evolution of a highly specific xylose reductase that can be used to vastly improve the efficiency of the bioconversion of the sugars in hemicellulose. zuChem, the licensee of the xylitol technology, is close to finalizing joint development and marketing agreements with a large sugar company and a company that sells xylitol directly into the retail market. BRDC also remained committed to the development of the ferulic acid/natural oils conjugates as additives to cosmetic products. It has been shown that these conjugates have excellent antioxidant properties and can be used as skin protectors against UV and the natural aging processes including wrinkling. iSoy, the licensee for this technology, has demonstrated their use in facial soaps, skin oils and sunscreens and has received orders for significant amounts of product from two large cosmetic manufacturers and distributors. Funding was also continued on the natural polymer project. BRDC is anticipating adding several new projects in the last quarter of FY 2008 and FY 2009 including one that addresses the making of biodegradable films from zien, a corn protein found in waste streams. Global Proteins Inc. joined BRDC as a new shareholder and is partnering with BRDC on the zien project that will be conducted at the National Center for Agricultural Utilization Research. Other proposals are currently under review.

Ms. DeLauro: Please update the table in last year's hearing record on the contributors and funding history of the BRDC.

Response: The funding history will be provided for the record.

Biotechnology Research and Development Corporation
Calendar Year Funding History
(In millions of dollars)

Source of Funding	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008*
Federal (USDA)	$2.54	$2.54	$2.59	$2.53	$3.25	$3.23	$3.21	$3.24	$3.21	$2.41	$3.19
Federal (AARC)	0.10	0	0	0	0	0	0	0	0	0	0
State (Illinois Dept of Agriculture)	0	0	0	0	0	0	0	0	0	0	0
Corporate Participants	0.37	0.52	0.51	0.61	0.62	0.49	0.35	0.37	0.40	0.22	0.15
Royalties, Interest, Licensing, Fees	0.61	0.61	0.79	0.54	0.39	0.44	0.74	0.56	0.60	0.58	0.42
Total	3.62	3.67	3.89	3.68	4.26	4.16	4.30	4.17	4.21	3.21	3.76

* Be advised that these numbers are not for the full year and the royalty figure will increase by at least 0.2 million and the corporate by 0.05 million.

BIOTERRORISM

Ms. DeLauro: Please update your response in last year's hearing record with regard to ARS activities related to food defense/bioterrorism. Provide a table of total funding for fiscal years 2006 through 2008, and proposed funding for 2009.

Response: Counter-bioterrorism research is focused on developing a comprehensive suite of rapid-diagnostics based tests to detect and identify plant pathogens which pose the greatest threat to U.S. agriculture. ARS is utilizing commercially available, field-deployable rapid diagnostic devices for field detection and identification of plant diseases. ARS is also working on the development of disease resistant plants in the case of an outbreak affecting crops.

ARS is developing and validating various biological and non-biological based detection tests for foodborne pathogens, toxins, and chemical contaminants. In addition, new and more robust methods of inactivation are being developed that will at the same time maintain product quality.

Recent breakthroughs in the field of immunology and genomics have provided revolutionary approaches for vaccine discovery research and the potential for eliminating some of the most devastating infectious diseases affecting animals and people, including arthropod-borne diseases. With the realization of global warming, human overpopulation in environmentally sensitive geographical areas, and industrial expansion across the globe, emerging zoonotic diseases are surfacing as some of the most significant threats to public and animal health. In addition, the 21st century war on terrorism has elevated the critical need for biodefense vaccines to effectively mitigate the intentional release of biological weapons. ARS is working on advancing the discovery of new vaccines to protect people and animals. Expanded efforts are being made to develop new and improved vaccines and treatments that could be used in a foreign animal disease outbreak.

ARS research related to bioterrorism includes basic research on the biology, epidemiology, immunology, microbiology, pathology and genetic control of important foreign animal and plant disease agents. While it is expected that the new laboratory at the National Animal Disease Center in Ames, Iowa, will take a lead role in research related to many animal diseases, the Plum Island Animal Disease Center in Greenport, New York, is the primary site where ARS conducts research on foreign animal disease threats of U.S. livestock (Foot-and-Mouth Disease and Classical Swine Fever) and the Southeast Poultry Research Laboratory in Athens, Georgia, is the primary site for research on foreign animal disease threats of poultry (Avian Influenza and virulent Newcastle disease). ARS develops and tests innovative methods for disease prevention, control, and recovery, which include vaccines, drugs, microbial destruction, vector transmission interruption, detection of food product contamination, evaluation of resistant crop varieties, and integrated pest management. ARS also provides the Animal and Plant Health Inspection Service (APHIS) with scientific support for trade and quarantine issues, which play a crucial role in preventing the spread of exotic diseases across borders.

In response to Homeland Security Presidential Directive-9 (HSPD-9), signed by President Bush, ARS scientists working on crop diseases have developed rapid tests for plant threat agents. These highly sensitive and

accurate tests provide diagnosticians with an accurate means to detect pathogens as part of a national surveillance system.

ARS is working with other Federal agencies, State and local governments, and the private sector to develop a National Plant Disease Recovery System (NPDRS) capable of responding to a high consequence plant disease. ARS assumed leadership of this effort in 2007 and developed a roadmap for implementation. NPDRS will be capable of responding to a high-consequence plant disease by implementing sufficient control measures and developing resistant seed varieties for economically important crops. As part of HSPD-9, ARS is discovering and exploiting naturally occurring and engineered genetic mechanisms for plant pathogen control by developing germplasm with effective and durable defensive traits. These genetic resources and improved crop varieties with significantly improved enhanced disease resistance are being transferred for commercial use in the event of a devastating disease outbreak.

Proposed initiatives for 2009 include:

- Zoonotic disease intervention and biodefense
- Genomics - A new frontier in vaccine discovery for foreign animal diseases
- Evaluation of native biting insects as transmitters of foreign animal pathogens
- Match trapping technology with potential vectors of foreign animal pathogens
- Adapt control techniques to integrated pest management of most important potential vectors
- Develop expression and delivery systems to advance the discovery of diagnostics and vaccines specifically designed for the control and eradication of RVF or other emerging pathogens
- Determine risk, vector species, diagnostics, and integrated control methods for potentially introduced animal pathogens

ARS scientists working on crop pathogens will develop rapid diagnostic tests for threat agents such as Ug99, wheat stem rust. These highly sensitive and accurate tests will provide diagnosticians with an accurate means for detecting pathogens. The rapid test for soybean rust (SBR) played an important role in the detection of SBR and in following its spread and will be a key technology for reducing the impact of SBR.

As part of HSPD-9 in 2009, ARS will discover and exploit naturally occurring and engineered genetic mechanisms for plant pathogen control by developing germplasm with effective and durable defensive traits. These genetic resources and improved crop varieties with enhanced disease resistance will be transferred for commercial use in the event of a devastating disease outbreak, such as Ug99.

ARS will develop technologies capable of detecting low levels of crop pathogens in environmental samples (e.g. soil, plant debris), grain harvesting and/or transport equipment, or agricultural products, such as seed or processed materials. Rapid detection enables decisions to be made regarding the phytosanitary status of samples, and provides a means to identify engineered DNA marker sequences for forensic purposes.

ARS research activities related to food defense/bioterrorism funding in fiscal year 2006 was $35,587,000; fiscal year 2007 was $35,704,000; fiscal year 2008 was $35,454,000; and fiscal year 2009 is estimated at $64,346,000.

FOOD DEFENSE RESEARCH

Ms. DeLauro: Did ARS coordinate its proposed food-defense research projects with FDA, CDC, DHS, and/or other parts of USDA prior to submission of the fiscal year 2009 request? If so, how did the agency go about this coordination?

Response: ARS coordinated the fiscal year 2009 food defense funding request under the umbrella of Homeland Security with the USDA-Food Safety and Inspection Service (FSIS). Coordination was conducted through the ARS-National Program Staff, the FSIS-Office of Public Health and Science, and the FSIS-Office of Food Security and Emergency Preparedness. Both FSIS offices directly interact with DHS, DoD and other Federal agencies on their Agency needs, which are then communicated back to ARS. In addition, planning was coordinated with DHS to ensure research gaps were identified and addressed.

BIODEGRADABLE PLASTIC

Ms. DeLauro: Please update your response in last year's hearing record on the research you are doing on biodegradable plastic, by location, and provide the funding levels for such research for fiscal years 2007, 2008, and 2009, also by location.

Response: The National Center for Agricultural Utilization Research (NCAUR) in Peoria, Illinois, is focusing significant resources on the development of biodegradable plastics from starch and plant-derived proteins. NCAUR scientists are creating new materials that can be used with traditional polymer processing technologies such as extrusion, molding, film-drawing, fiber-drawing, coating and jet-cooking. NCAUR has shown that these biodegradable materials can replace the non-biodegradable plastics currently used for making products such as single-use packaging, laundry detergents, conductive films and disposable diapers. NCAUR is using plant-derived proteins to produce new fibers and composite materials that could potentially replace non-biobased plastics in applications including packaging and medical uses. In addition, NCAUR scientists are developing new, more efficient processes for the production of lactic acid from agricultural materials. Lactic acid is used to manufacture polylactic acid (PLA), another biodegradable plastic.

Scientists at the Eastern Regional Research Center (ERRC) in Wyndmoor, Pennsylvania, are conducting research to develop new biodegradable plastics for antimicrobial packaging, biomedical product gels (controlled drug delivery; bone/connective tissue repair), coatings, smart hydrogels and nanoparticles. Composites include pectin/starch/glycerol and pectin/polylactic acid (PLA). For instance, ERRC scientists developed biodegradable thermoplastic polymers that are less expensive than PLA alone, but still maintain its mechanical properties by blending byproducts from sugar beet refining with PLA. Plus, pectin makes composite gels more accessible for biological tissue regeneration compared to PLA alone. In another program at ERRC, researchers are developing microbes that can ferment fats, oils, soy molasses (a co-product of soybean processing), or glycerol (a

co-product in the production of biodiesel) to produce biodegradable polymers such as polyhydroxyalkanoate (PHA) and poly-gamma-glutamate (PGA). ERRC scientists are also investigating chemical modification of PHA to improve performance, including its ability to blend with other biodegradable polymers to make new biocomposites. In a third program at ERRC, researchers developed edible films and coatings from dairy proteins and other ingredients to serve as substitutes for petroleum - based films in packaging systems or to improve the nutrition, safety and quality of foods. Current research with collaborators is directed to testing the properties of the films during microwaving and refrigeration, for extending the shelf-life of foods, and in delivery of nutrients to a food formulation.

Researchers at the Western Regional Research Center (WRRC) in Albany, California, developed a technology, in partnership with a CRADA partner, for making biodegradable sponges and wipes from wheat and corn starches. The products fared well in consumer tests and two patents were filed as CRADA inventions. Commercial production and marketing should shortly follow which will help these starch-based products garner a share of the $1.6 billion hand-wipes market. WRRC is helping another CRADA partner use wheat starch to make biodegradable pouches and powders containing natural compounds that protect honeybees from predators. Honeybees are vital for pollinating crops valued at more than $16 billion. The recent decline in honeybee colonies has become a worldwide concern because of its impact on agriculture. WRRC researchers have teamed with ARS scientists at the Hayden Bee Research Center in developing and testing prototypes. Commercial production of the pouches is projected to begin later this year.

Scientists at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland, are developing biodegradable plastics from waste poultry feathers. U.S. Patent 7,066,995, "Compositions and films comprised of avian feather keratin" was approved in 2006. A patent is pending on the process of pelletizing keratin for use in existing plastic extrusion equipment. A CRADA is in place with the Horticultural Research Institute (HRI) to formulate and evaluate biodegradable nursery flower pots from poultry keratin. They have funded a full time research scientist for three years to conduct this research at BARC. The agreement was through the non-profit HRI to assure full access to this technology by the companies which are presently producing nursery flower pots from synthetic polymers. The CRADA has been expanded to develop other keratin based products used routinely in the nursery and other agricultural industries.

The funding devoted to biodegradable plastic research is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Albany, CA	$857,600	$1,093,900	$1,093,900
Peoria, IL	1,460,700	1,627,600	1,627,600
Wyndmoor, PA	1,391,600	881,400	881,400
Total	$3,709,900	$3,602,900	$3,602,900

BSE RESEARCH

Ms. DeLauro: What did ARS spend on BSE research in fiscal years 2006 through 2008? What is the current funding estimate for fiscal year 2009?

What research has been underway? Please update your response in last year's hearing record. Please provide an update on the status of collaborative BSE projects undertaken with scientists in the UK, Spain, and Italy.

Response: ARS spent $7,064,200 on BSE research in fiscal year 2006; $7,109,200 in 2007; $6,989,000 in 2008 and is estimated at $6,989,000 for fiscal year 2009.

The ARS BSE research plan is in response to the most critical needs of industry and regulatory agencies and consists of the following seven core projects: 1) Identify all risk materials and retrievable live animal diagnostics samples; 2) Understand whether different animal species have a role in disease transmission; 3) Identify pathways of prion replication to improve diagnostic sensitivity levels; 4) Identify methods to differentiate between TSE strains and determine correlation with virulence, disease transmission, and "atypical" cases; 5) Discover diagnostic platforms that will identify an infected animal prior to demonstrating clinical disease to improve our existing surveillance program and to effectively mitigate any recurrences; 6) Develop cost-effective methods of inactivation and determine practical methods of deactivating TSE-contaminated materials under field conditions; and 7) Identify genetic variations associated with disease susceptibility.

A cooperative research project is being conducted by USDA-ARS-National Animal Disease Center (NADC), Ames, Iowa, and the British Veterinary Laboratories Agency (VLA) to obtain material from an oral BSE pathogenesis study performed at the VLA-Weybridge in the United Kingdom. The BSE materials will be used to identify prion infected tissue distribution and prion migration in BSE infected cattle.

The most significant accomplishment this year has been identification of a heritable genetic variation in the cattle prion gene analogous to one found in humans that results in a genetic TSE in humans. Thus far, this polymorphism has been found in one cow positive for BSE (2006 Alabama cow) and in her only known offspring, a 2 year old female animal. This heifer provides the scientific community a valuable and unique research tool that will greatly enhance the understanding of the origins and pathogenesis of BSE. Another significant research accomplishment has been the development and recent submission of a patent on a live-animal diagnostic test based on abnormal retinal physiology in cattle with preclinical prion disease. This same diagnostic testing approach also identified sheep with clinical stages of scrapie. Retinal function is readily assessable in living animals using non-invasive procedures. Additional research will be needed to adapt the research tools into practical diagnostic instruments for use on farms. Another significant finding was the demonstration that prion-knockout cattle produced by a corporate partner (Hematech) are resistant to intracranial inoculation with a prion disease agent (transmissible mink encephalopathy). This is the first such demonstration in a host species with a naturally-occurring TSE disease - all previous research had utilized mice, which do not naturally have TSE disease. Other research by NADC scientists has focused on genetic resistance to BSE by investigating variable regions in the prion gene promoter region. This work has shown that atypical BSE and classical BSE progress by different routes in an affected animal. Additional accomplishments include analysis of promoter polymorphisms in cattle and studies of using an unproven technology known as Protein Misfolding Cyclic Amplification (PMCA). Our promoter polymorphism work shows that U.S. Holstein cattle are as resistant, if not more resistant, to BSE than Holstein cattle

worldwide. Our collaboration with the Italian Reference Centre for Animal TSE in Turin, Italy, has demonstrated that the diagnostic methods used in Italy and the United States are equally able to diagnose atypical forms of BSE, including the unique atypical BSE reported out of Italy that is called BASE.

In collaboration with University of Kentucky, transgenic mice expressing a novel bovine prion allele found in the Alabama BSE case from 2006 and mice expressing porcine PRNP were produced. These mice will be used in our future research to assess various research questions on BSE and interspecies TSE transmissions.

A diagnostic test has been developed in cooperation with Iowa State University that has detected evidence of subclinical disease in cattle inoculated with transmissible mink encephalopathy (TME) at least three months before evidence of clinical disease. TME is a transmissible spongiform encephalopathy (TSE) that, when transmitted to cattle, very closely mimics BSE.

A cattle inoculation study with BSE has been initiated. This study will enable the validation of antemortem BSE diagnostic testing. Moreover, several future studies by NADC scientists and ARS scientists in other locations are dependent upon the completion of this initial experiment to amplify the BSE materials for additional research.

BSE research at the Animal Disease Research Unit in Pullman, Washington, addresses the problem of understanding whether different animal species have a role in disease transmission. In collaboration with scientists at the Veterinary Laboratory Agencies in the U.K., sheep were infected with the BSE agent by the oral route and monitored annually for evidence of transmission through placental tissues. A single observation suggesting very low level of prion in one animal was reported, but the remainder of the flock has shown no evidence of prion in placental tissues. This finding is encouraging and suggests that even if sheep were infected with the BSE agent in the U.K. or other countries at high risk of BSE, the disorder may not spread among sheep.

ARS allocated one time supplemental funds in fiscal year 2004 to initiate research collaborations with European BSE expert laboratories in the U.K., Italy, and Spain. Research collaborations with European BSE expert laboratories continue.

CANOLA RESEARCH

Ms. DeLauro: Please provide an update on the work you did in fiscal year 2008 and have planned for 2009, and list the 2007 and 2008 accomplishments in canola research, by location.

Response: Canola (*Brassica campestris*) is the third most important source of vegetable oil in the world and is grown on one million acres in the United States. Current ARS research on canola focuses on new uses, product production systems, and disease resistance.

PEORIA, ILLINOIS - NUTRITIONAL VALUE. ARS researchers at Peoria evaluated the potential of canola oil to address concerns about the consumption of trans fatty acids. They synthesized a series of structured lipids by incorporating stearic acid, a saturated fat, into canola oil.

Different stearic acid:canola oil ratios were evaluated. The results indicated the most suitable ratio for developing light margarines containing canola oil with lower trans-fat content.

INDUSTRIAL PRODUCTS FROM NEW CROPS. For FY 2008 and future years, ARS researchers and collaborators at Western Illinois University will evaluate small field plots of winter canola and other brassicas for winter hardiness in central Illinois. The purpose is to evaluate the preceding species in a rotation with a full-season soybean crop, where the winter brassica crop will provide biodiesel. If the canola proves to be winter hardy, the scope of this field trial will be expanded in FY 2008 and subsequent years.

WESLACO, TEXAS - HONEY BEE RESEARCH. Canola variety trials were conducted by ARS in the Rio Grande Valley of Texas. The best varieties were identified for supporting a winter crop of honey bees used in honey production and pollination. Fifteen different canola varieties were evaluated and the most productive varieties with reduced pod shatter were determined.

ORONO, MAINE - Brassica rotation crops and green manures have the potential to control multiple soilborne diseases through biofumigation and changes in soil microbial communities. Researchers at Orono conducted on-farm field trials and showed that canola, mustard, and rapeseed green manures reduced powdery scab by 15-40 percent, and canola and rapeseed reduced black scurf by 70-80 percent. A mustard green manure also reduced common scab by 25 percent. Overall, mustard was most effective in reducing powdery and common scab diseases, and rapeseed and canola were most effective in reducing *Rhizoctonia* diseases. This ongoing research provides conventional potato growers with a viable tool for reducing soilborne disease levels without additional pesticides, and is useful to organic producers who do not use synthetic fungicides.

FARGO, NORTH DAKOTA - SCLEROTINIA DISEASES. ARS manages the Sclerotinia Initiative, which seeks to develop more effective means of managing white mold, caused by *Sclerotinia sclerotiorum*, an economically devastating disease of numerous broad leaf crops throughout the United States. Canola is one of five crops (canola, dry bean, pea and lentil, soybean, and sunflower) covered by the Initiative.

During FY 2007, ARS researchers and collaborators continued research on crop rotations for managing *Sclerotinia* in canola, so as to provide growers with options to reduce risk to *Sclerotinia* epidemics. In canola, the crop rotations evaluated were canola grown continuously for 3 years, after 1 and 2 years of wheat, and with and without a fall-planted winter rye cover crop. Planting a rye cover crop prior to canola in the third year of the studies reduced canola yield (9 to 30 percent). Results document the negative influence of a rye cover crop preceding canola, as well as the importance of rotating wheat with canola. Researchers are also developing a model of the relationship between *Sclerotinia* stem rot infection level and subsequent yield loss in canola. Disease and yield data collected from previous fungicide experiments at multiple locations continue to be analyzed to estimate the impact of *Sclerotinia* on canola yield. Also, significant interactions were observed between yield loss and cultivars, meaning that, within the range of susceptibility observed, some cultivars lost more yield than others. Subject to further refinement and validation in FY 2008 and subsequent years, the degree to which plants can still compensate for yield loss due to disease together with the cost of a fungicide application provide

key information for specific estimated thresholds for economic damage by this disease.

In FY 2007, seasonal patterns of ascospore disperal of *Sclerotinia sclerotiorum*, causal agent of *Sclerotinia* stem rot of canola, were determined. The results will contribute to the disease-warning program for *Sclerotinia* stem rot of canola. In FY 2007 and 2008, the role of leaf wetness on *Sclerotinia sclerotiorum* disease development was determined. Successful colonization of tissues by ascospores, under favorable temperature conditions, depends on the availability and duration of moisture on the leaves. Seedlings were incubated under alternating periods of wet and dry leaf conditions of varied duration. A minimum of 65 hours of cumulative moisture in a period of 6 days was necessary for 50 percent infection and the probability increased to 80 percent when cumulative moisture was 70 hours. These data will help with developing a disease-warning system for *Sclerotinia* stem rot of canola.

In FY 2007, significant progress was made in developing new DNA tools to understand how the stem rot pathogen penetrates canola leaves. Research will be expanded in FY 2008.

The research supported by the Sclerotinia Initiative has already yielded information important for improving germplasm, modifying production practices and integrating pest management strategies to reduce the impacts of *Sclerotinia* in canola.

In the coming year, the *Sclerotinia* Initiative will support canola research on fungicide alternatives for control of *Sclerotinia* stem rot, characterize the reaction of herbicide-tolerant and double haploid canola lines to *Sclerotinia sclerotiorum*, refine the disease-warning system for *Sclerotinia* stem rot, and define the environmental and biological parameters needed to develop *Sclerotinia* stem rot on canola. Future research will develop new sources of resistance to white mold in canola and related species, improve methods to identify resistant canola germplasm, identify genes that confer resistance to white mold, and accelerate the breeding and release of canola germplasm and/or improved varieties with superior host-plant resistance to white mold.

CENTERS OF EXCELLENCE

Ms. DeLauro: Please provide an update on Centers of Excellence activity, including any plans for new centers, as well as accomplishments in fiscal year 2007 and 2008, and goals for fiscal year 2009.

Response: ARS does not plan to propose any new Centers of Excellence in fiscal year 2009. Fiscal year 2008 accomplishments will not be available until after the end of the fiscal year.

Center of Excellence for Swine Research and Marketing - Alcorn State University: Purslane and waterleaf plants are excellent sources of omega-3-fatty acids, and these plants are being incorporated into swine experimental diets to investigate their effects on reduction of serum cholesterol (LDL) and triglycerides. Studies of purslane as a dietary component may reduce cholesterol in swine and be applicable to humans.

In 2007: The Center of Excellence continued to sell superior breeding stock to small, local, and limited resource producers who are seeking to improve the genetic base of their herds. Producer workshops and annual swine field days continued to be held to publicize research results and to provide instruction on semen collection, artificial insemination, castration, deworming, and other topics of interest to local swine producers.

Center of Excellence in Aquaculture - Delaware State University: Research at the Center focuses on four main objectives designed to enhance the safety of aquaculture products: a) continue to develop rapid, enzyme-based assays to detect bacterial pathogens in aquaculture products; b) identify RT-PCR inhibitors and develop real-time molecular methods to detect and quantify viral pathogens in shellfish tissues; c) investigate physical and chemical parameters influencing the efficiency of high hydrostatic pressure inactivation of hepatitis A virus, norovirus, and surrogate viruses; and d) investigate the mechanisms of enteric virus persistence within live shellfish.

Main accomplishments were isolation of a potential virulence-enhancing enzyme in Shewanella species. Shewanella include flesh-eating species that can be lethal to humans. A novel, enzyme-based test was developed to detect and quantify Shewanella species and the test was used in a two-year study of oysters and seawater in the Delaware Bay. DNA sequencing was performed on the isolates and several species of Shewanella, including the flesh-eating species, were identified for the first time in the Delaware Bay. The assay provides a novel means to quickly test aquaculture products, especially oysters, for Shewanella bacteria.

Development of a real-time molecular technique to quantify noroviruses in oysters. Noroviruses are the primary cause of food-related illness in the United States with an estimated 23 million cases occurring annually. The methods involved development of oyster processing strategies to extract the viruses from shellfish tissues and to analyze the extracts by real-time testing method. In addition, several methods containing internal controls were developed to quantify the levels of norovirus in the shellfish. Benefits of this research include the development of improved methods to monitor virus levels in naturally-contaminated oysters and to determine the effectiveness of processing interventions on the elimination of viruses in shellfish.

In FY 2009 a new objective, dependent on funding, will be to develop more effective means for decontaminating fresh and minimally processed fruits and vegetables containing human viral pathogens to ensure food safety and security by assessing the efficacy of new and/or improved intervention technologies.

Center of Excellence in Food Safety - University of Maryland, Eastern Shore: The objectives during the 2005-2010 timeframe of the project are to evaluate, validate, and where necessary, develop new innovative, robust and valid predictive models for the responses of microbial pathogens, including foodborne threat agents, in select food matrices, as a function of: temperature, food formulation, competitive microflora, physiological history, and surface transfer; and to develop novel approaches to assess model performance and robustness, leading to more efficient strategies for producing and extrapolating models to different classes of food.

The Center was instrumental in 2008 to developing a predictive model for growth of *Salmonella typhimurium dt104* from low initial and high initial

density on ground chicken with a natural microflora. In FY 2009 the Center will continue to address issues relative to salmonella contamination of processed poultry, a high priority request from the Food safety Inspection Service.

Center of Excellence in Aquaculture and Fisheries - University of Arkansas, Pine Bluff: During fiscal year 2006, a pond study was conducted to determine the effect of a mechanical horizontal discharge or up-welling vertical discharge circulator on water quality, algal biomass and composition, and channel catfish production. While mechanical circulation resulted in more-completely mixed ponds and 9% fewer hours of aeration with the horizontal discharge circulator, mechanical circulation was ineffective in impacting algal biomass or flavor score of marketable catfish at harvest.

In 2007, research led to polymerase chain reaction and quantitative polymerase chain reaction assays for Goldfish Hematopoetic Necrosis Virus (GHNV) epidemiological studies were conducted. Publication of the assay has resulted in its adoption by laboratories in the United States, and throughout the world. This will allow scientists and fish health professionals to diagnose this disease and track the geographical distribution of the disease.

In 2008 work on year-round fry production of hybrid striped bass and parameters for winter feeding of catfish started. Over the rest of FY 2008 and FY 2009 research on hybrid striped bass juvenile production in both pond and tank culture systems, and timing of pond stocking with fingerlings will allow producers to reduce the costs and increase returns related to production of hybrid striped bass. In addition, the potential for replacing menhaden fish (of the genera *Brevoortia* and *Ethmidium*) meal and oil with Alaskan Pollock (of the genera *Pollachius*) visceral meal (APVM) in diets of hybrid striped bass without lowering the long chain omega 3 fatty acids will be examined.

Grassland Center of Excellence - Langston University, Oklahoma: The purpose of this center is to assist minority and limited-resource livestock producers who own shall land holdings by developing and promoting low-input forage-livestock production systems that are more profitable in the Southern Great Plains and adjoining regions to the east. There are two ARS scientists and a support staff located at Langston University. They cooperate closely with faculty and staff of the University's Center for Outreach Programs under a Research Agreement established in 1998.

A new ARS five-year research plan for its Langston operation was approved early in 2008 following external peer review. Over the next five years, ARS scientists will continue to collaborate with the University in conducting field-scale forage production systems evaluations at Langston University's Research and Demonstration Farm at Boley, OK. The research plan for 2008-2013 focuses on the following objectives:

Objective #1: Improved knowledge and specific guidelines to provide recommendations that will enable small farmers and livestock producers to increase both the availability and quality of forage production year round and thereby reduce input costs associated with purchased feed and hay:

a. provide guidelines for the selection of the best adapted and most productive forages for improvement of degraded pastures, based upon their performance under grazing and management practices suitable for small farms with limited resources, and

b. provide guidelines for selection of the most effective low-input methods of establishing forages, with emphasis on low cost, limited requirements for equipment, and management that encourages persistence of previously-established forages.

Center of Excellence at Tennessee State University (TSU), Nursery Crop Research Station, McMinnville, Tennessee: The Tennessee State University Nursery Research Center is dedicated solely to nursery crop research. Its mission is to provide leadership in the strengthening and expansion of the nursery industry through research in the areas of genetics, breeding, horticulture, pathology, entomology, and related sciences. Cooperative research programs between ARS and TSU include: genetically-improved key woody landscape plants that better resist pests and environmental stresses; identified methods of applying pesticides that reduce environmental impact; and, provided cultural guidelines and best management practices to industry for greater profitability and environmentally friendly production of nursery plants in containers.

Funds appropriated in recent fiscal years have considerably expanded collaborative nursery plant research at TSU, the University of Tennessee-Knoxville, and ARS research units at McMinnville, Tennessee, and Poplarville, Mississippi. Particular emphases include: 1) developing new control measures for fire ants, a serious pest for nursery production, and for various root diseases caused by *Phytophthora* and other fungal pathogens at McMinnville,; 2) strengthening the cooperative woody landscape plant genetic improvement efforts at McMinnville, Poplarville, and Knoxville; and, 3) augmenting cooperative research efforts in woody landscape plant horticultural production and propagation at McMinnville and Poplarville.

Goals for FY 2009 and subsequent years include continued cooperative research on the three priorities listed above, and also extending the McMinnville nursery research program to include investigating "pesticide fate," i.e., the ultimate disposition of agricultural chemicals present in runoff from container and traditional nursery production operations.

Center of Excellence in Biological Control at Florida A&M University, Tallahassee, Florida: Florida A&M University (FAMU) and ARS have joined with USDA-APHIS in developing a Center for Biological Control (CBC)at Tallahassee, Florida. Its mission is to develop and expand collaborative partnerships with Federal and state agencies, other academic institutions, and the private sector to protect, maintain, and improve the quality of our agricultural and environmental resources through excellence in research, education, and technology transfer programs in the area of biological control. Toward this end, ARS has stationed three scientists and support staff at the CBC. In addition, five FAMU faculty members are also assigned to the CBC.

The CBC offers students a Master of Science (M.S.) degree in agriculture with an emphasis in biological control, and a Ph.D. in entomology. The CBC is one of the largest and most active graduate programs in the College of Engineering Sciences, Technology, and Agriculture at FAMU, with 4 Ph.D. and 4 M.S. students currently enrolled. In addition to the graduate program, over two dozen undergraduate students have been employed to work with the ARS scientists since the center's inception. Three undergraduates are in the USDA Student Temporary Employment Program (STEP), and 11 other undergraduates are employed in the CBC.

In future years, the CBC will continue efforts to recruit and train graduate students in the field of biological control. The CBC's director, Dr. Moses Kairo, is an expert in applied biological control and integrated pest management, and his expertise provides new collaborative research opportunities within the CBC. The CBC will continue to offer opportunities for FAMU undergraduate students to work in research projects and gain research experience.

ARS scientists at the CBC conduct research on the biological control of insect pests of vegetables and biological control of invasive plants and insects. Current research objectives include: 1) integrating weed and insect biological control to prevent the spread of disease-vectoring insects into vegetable crops (This research project addresses national concerns to reduce pesticide use, while making agricultural production more sustainable.); and 2) developing biologically-based controls to limit the spread of the invasive cactus moth (This project is at the cutting edge of research on non-target effects of biological control agents.)

A specific cooperative agreement between FAMU and ARS supports research and education programs in biological control of the invasive weed tropical soda apple. Tropical soda apple is a significant threat to the cattle industry when it overruns pastures. It is also a significant threat to vegetable producers because it is a reservoir for key insect pests and pathogens of vegetable crops.

Research findings continue to be conveyed to growers and land managers, who are rapidly adopting these new pest management techniques. Additional integrated pest management techniques for niche market crops, such as organic Oriental cabbages and hot peppers, have been developed and targeted to small, limited-resource farmers. By participating in these studies and technology transfer efforts, students in the CBC have gained valuable experience in the development and adoption of new sustainable pest management programs.

During fiscal year 2008 and subsequent years, additional studies will be conducted to refine programs to improve the sustainability of vegetable production and reduce the use of insecticides in vegetable crops. Laboratory and field research will continue on the use of parasitoids and predators to control thrips, including onion thrips, a newly emerging pest. Studies will continue to delimit the range expansion of the cactus moth and its biology in the southeastern United States. This information will contribute to management programs directed against the cactus moth, including the use of the sterile insect technique to limit its spread. Opportunities for students will continue to be provided through grants obtained by scientists with the CBC. ARS scientists continue to support student education in the CBC by advising students, hosting seminar speakers, giving guest lectures, and encouraging student participation in scientific meetings.

CITRUS CANKER

Ms. DeLauro: By location, what is the funding for citrus canker research for fiscal years 2007, 2008, and 2009 (estimated)? What 2007 and 2008 accomplishments are you able to report?

Response: Funding by location for citrus canker research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Ft. Pierce, FL	$901,200	$895,000	$895,000
Beltsville, MD	290,200	77,300	64,000
Frederick, MD	60,200	--	--
Total	$1,251,600	$972,300	$959,000

ARS scientists at Fort Pierce, Florida, conducted a post-hurricane analysis of citrus canker and subsequent disease development to formulate predictions for areas into which canker is likely to spread from known sources of infections. Results of these analyses from 2007 and 2008 were used by state and federal regulatory agencies and commercial citrus producer groups to evaluate the feasibility of canker eradication.

In FY 2007 and FY 2008, ARS scientists at Beltsville, Maryland, used herbarium samples to develop a method to extract DNA which allows us to describe the diversity of canker samples from around the world for comparative analysis to trace historical routes of dispersal of the pathogen. This information will be used to develop practical control measures for disease prevention and control.

Also in 2007 and 2008, ARS scientists at Fort Pierce and Beltsville, working collaboratively, conducted research on biocontrol of the disease to stop or slow its spread. In addition, ARS collaborating scientists developed molecular and genetic approaches for DNA-based rapid detection and to differentiate strains of the bacterium. This technology has been transferred to state regulatory officials.

In 2007 and 2008, ARS scientists at Parlier, California, examined the potential for spread of canker on commercially produced fruit from infected orchards to assess the risks associated with movement of fruit. This technology has been transferred to state and federal regulatory officials.

ARS scientists at Fort Pierce are continuing their research with state and university cooperators to test various citrus rootstock and scions for susceptibility to canker. Although incorporating resistance genes into orange or grapefruit cultivars may be a long-term approach, it is worthy of further research.

USDA Animal and Plant Health Inspection Service (APHIS) and regulatory agencies in California and Texas are concerned about canker-infected fruit as a pathway for canker infection to new citrus production areas. Survival studies with canker-infected and non-infected fruit combinations were conducted in Florida, Argentina, and Brazil, by scientists at Fort Pierce, Florida, to examine survival characteristics. In all three locations, a few bacteria were recoverable after packinghouse processing and decontamination treatment and post-processed fruit in discarded cull piles did not function as a source of infection for susceptible young grapefruit trees located one, five and 10 meters from the piles. These findings are in concurrence with the APHIS Pest Risk Assessment and Risk Management Analysis on 'Movement of Commercially Packed Citrus Fruit form Citrus Canker Disease Quarantine Areas', and thus may have impact on interstate and international shipment of citrus fruit.

CITRUS ROOT WEEVIL

Ms. DeLauro: Please provide an update on the progress you have made to help control and eradicate citrus root weevil in fiscal year 2007 and 2008 and plans for fiscal year 2009. Please update your description in last year's hearing record of funding by location, as well as resources used and laboratories involved.

Response: Since its accidental introduction to Florida in the 1960's, the Diaprepes citrus root weevil continues to be a major insect pest of citrus in the state. This species is now also established in Texas (2000) and California (2005). In August 1993, a Diaprepes Task Force was organized to help coordinate research and action to control citrus root weevil. At the request of the task force, ARS facilitated the development of a 5-year strategic and operational research plan between ARS, the University of Florida, and the grower industry at a workshop held in Winter Haven, Florida, on October 15, 1997. The plan was implemented in 1998 as a unified partnership effort. Its goal has been to develop adaptable and sustainable technologies through basic and applied research on citrus root weevil biology and ecology; sampling and surveillance; host-plant resistance; biological, cultural, and chemical control; and integrated pest management. The program is reviewed for progress by the Diaprepes Task Force Research Committee, the most recent review having been held in November 2006. The current goal is to contain the pest, minimize production losses, and mitigate the problem with an integrated management system approach. Technologies recently developed, and that are being used, include improved detection and monitoring methods with commonly used weevil traps and acoustics; management decision aids; adult weevil management with new chemical insecticides such as Admire; larval management with nematodes; biological control with egg parasitoids; egg management with oils; and enhanced horticultural practices involving weed control, fertilizer, irrigation, and resistant rootstocks.

A model was developed and published during 2007 to describe the probable spread of Diaprepes to southern U.S. states based on the insect's response to low temperatures during the egg, larval, pupal, and adult stages. Probability maps were created and published that support the monitoring and eradication programs for Arizona, California and Texas, and the maps allow those states to efficiently direct resources to susceptible areas. A second model was constructed to predict the potential for spread and establishment of egg parasitoids, thereby describing the limitations to biological control. The model predicts that egg parasitoids will only establish and persist in southern Florida, with some potential for establishment in southern Texas. The model indicates that egg parasitoids are unlikely to establish in California due to long periods of absence of prey (eggs) during the winter.

During 2007 and 2008, efforts to establish egg parasitoids in southern Florida continued. Two new species collected from the Caribbean were released, including one species, *Fidiobia dominica*, that was discovered on the island of Dominica attacking *Diaprepes doublierii*. This parasitoid thrived on eggs of *Diaprepes abbreviatus* in the laboratory and appears to be an excellent candidate for biological control. To date, five parasitoid species have been released in Florida of which two have established, one failed to establish, and two were recently released. This collaborative effort between ARS and the University of Florida was recognized by the Florida Entomological Society's 2007 Achievement Award for Team Research. Additionally in Texas, ARS coordinated releases of one egg parasitoid during 2007; its establishment will be evaluated.

Kairomones (attractive plant odors) produced by citrus plants and pheromones of Diaprepes have been isolated and identified. A patent application has been submitted describing the kairomone compounds. A highly active pheromone compound has been isolated, but not yet identified. The compound is novel and complex, possibly involving more than one isomer. Scientists in Fort Pierce, Florida, and Beltsville, Maryland, are collaborating to determine the pheromone's structure. Meanwhile, wind tunnel experiments at Ft. Pierce, Florida have provided insight into the sequence of behavioral responses that result in mate location in the field.

Model plants were transformed with a synthetic gene that expresses a bacterial toxin that confers resistance to Diaprepes. High levels of expression of this gene in the model plants (tobacco and alfalfa) were demonstrated. Roots of plants expressing the bacterial toxin gene had enhanced resistance to Diaprepes larvae. The goal now is to transform citrus rootstocks to express the toxin. ARS scientists at Ft. Pierce, Florida have begun the first set of these transformations, and young transformed plants are growing. These will be tested for expression and toxicity to larvae when they are older, perhaps in several months. A second set of transformants is being prepared.

The recent discovery of citrus greening disease in Florida citrus and the endemic citrus canker disease are over-shadowing the economic importance of the Diaprepes root weevil. However, the pest remains a devastating problem to Florida growers and may prove devastating in Texas and California.

To our knowledge, ARS is the only agency that is maintaining a strong research program on the weevil (attractants, transformed rootstocks, and in concert with one University of Florida researcher, establishment of egg parasitoids).

Citrus Root Weevil funding by location is provided for the record.

	FY 2007	FY 2008	FY 2009
Beltsville, MD	$180,200	$178,900	$178,900
Ft. Pierce, FL	660,100	655,600	655,600
Gainesville, FL	244,300	310,500	310,500
Total	$1,084,600	$1,145,000	$1,145,000

CITRUS TRISTEZA VIRUS

Ms. DeLauro: By location, provide the funding for tristeza virus research for fiscal years 2007 and 2008 and proposed for fiscal year 2009. What 2007 and 2008 accomplishments are you able to report?

Response: A table that reflects the citrus tristeza virus (CTV) research funding and where that research is being conducted is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Parlier, CA	$481,600	$239,100	$239,100
Ft. Pierce, FL	2,121,700	2,107,200	2,107,200
Beltsville, MD	258,000	77,300	64,000
Frederick, MD	175,600	174,200	174,200
Total	$3,036,900	$2,597,800	$2,584,500

In 2007, ARS researchers at Parlier, California, developed a molecular-based method (real time-PCR,) to supplement a serological test (enzyme-linked immunosorbent assay, ELISA) in assisting CTV eradication efforts by the Central California Tristeza Eradication Agency. RT-PCR identified more trees naturally infected with CTV than ELISA, enhancing the timely removal of infected trees to eradicate or suppress the disease and to protect the University of California Citrus Clonal Protection Program's budwood source block at the Lindcove Research and Education Center in Exeter, California. An unprecedented high rate of CTV spread in 2007 was documented in a navel orange grove, indicating that a significant change has occurred in the transmissibility of local CTV isolates by indigenous cotton aphids.

Also, in 2007 and 2008, ARS scientists at Parlier, determined that genotypically identical exotic and indigenous citrus tristeza virus isolates in the Central Valley of California are virulent, seedling yellows isolates of CTV. In addition, these severe isolates were differentiated from mild California CTV isolates by molecular-based methods. The exotic CTV isolate was also determined to be related to a virulent Japanese CTV isolate based on the high degree (95 percent) of homology of a portion of the genomes including the coat protein and a portion of the 5'-region.

CLASSICAL SWINE FEVER (HOG CHOLERA)

Ms. DeLauro: Please update the Committee on the research you are doing on CSF (also called "hog cholera"), including the fiscal years 2007, 2008 and 2009 funding levels, by location.

Response: All research is conducted at Plum Island Animal Disease Center (PIADC), Greenport, New York. Classical Swine Fever (CSF) or hog cholera is a highly infectious disease of swine. Morbidity and mortality rates in infected herds can be high. Infected sows can also transmit the virus to their offspring, creating asymptomatic carriers of the virus that shed virus in their feces, thereby contaminating the environment and posing risk to susceptible populations. As a foreign animal disease (FAD), an outbreak of CSF would significantly affect the U.S. pork industry and export markets. Improved CSF diagnostic tests and a marked live-attenuated CSF vaccine that allows differentiation of vaccinated versus infected animals are needed to further reduce the risk posed by this FAD. The virus is present in the Americas and the U.S. has significant feral pig populations that could act as a disease reservoir.

The objectives of the ARS CSF research program are directed at: 1) developing molecular epidemiological capabilities for CSF; 2) developing rapid field diagnostic tests for CSF; 3) developing laboratory diagnostic tests that will differentiate field from marker vaccine strains of CSF; 4) defining the pathogenesis of moderately virulent CSF viruses in pigs; 5) identifying CSF virulence and host range determinants; and 6) developing a marked-live attenuated CSF vaccine and companion diagnostic test to differentiate infected from vaccinated animals.

The rapid RT-PCR developed by ARS and validated by USDA-Animal and Plant Health Inspection Service (APHIS) has now been transferred to the National Animal Health Laboratory Network and is being used to screen for CSF infections as needed. Impact: This rapid assay for CSF virus provides a new diagnostic tool that will redefine disease management and control strategies for this highly significant FAD.

Engineering new marked live-attenuated CSF vaccines requires knowledge of viral virulence and host range determinants. Currently, little is known about CSF in this regard. ARS scientists have identified a region of the CSF virus genome that is associated with virulence. Mutant viruses with DNA changes in this region were: 1) completely attenuated in pigs; and 2) capable of inducing a protective immune response in pigs. Using this knowledge, a modified live vaccine which contains a genetic marker, was developed and tested in pigs. The vaccine provides excellent protection, and was modified further to ensure stability and efficacy and is now being tested in large scale trials in which the vaccine candidates produced are still in the experimental phase. Impact: The mapping of genetic determinants associated with viral virulence and host range represents the first step toward the rational design of improved marked live-attenuated CSF vaccines. This research will result in the first rapidly acting, marked emergency CSF vaccine.

Scientists are still working on delivery techniques that will work with various ages of swine and still produce protection against infection. It is expected that with support from DHS, a commercial vaccine could be available to be manufactured and placed in the U.S. National Veterinary Stockpile.

The funding for Hog Cholera research for fiscal years 2007, 2008 and 2009 is provided for the record.

	FY 2007	FY 2008	FY 2009
Greenport, NY	$466,900	$463,200	$463,200

COLONY COLLAPSE DISORDER (CCD)

Ms. DeLauro: Please discuss in some detail the work done in 2008 and planned for 2009 on CCD, including the requested increase for 2009, funding levels by location and goals of the research.

Response: REE has assumed a leadership role in the effort to address CCD and advance goals set forth in the CCD Action Plan (http://www.ars.usda.gov/is/br/ccd/ccd_actionplan.pdf).

Several research and mitigative efforts have occurred during the past year that will place beekeepers in a better position to ensure the health of their bees in the coming year. For example, ARS has implemented an aggressive research program over a wide area of the United States that promises to help demonstrate and validate a combination of technologies to produce strong bee colonies capable of withstanding stresses associated with CCD. This program focuses on resistant bees, management of varroa mites with bee-friendly miticides, means to reduce pesticide and pathogen loads in beeswax combs, and supplemental protein and sugar feeding of bees to sustain overwintering populations and build up populations in the early spring.

In addition, research objectives for the next 5 years at the ARS Bee Research Units include:

1) Developing molecular and chemical tools to determine the physiological basis of bee responses to stressors;
2) Determining the influence of nutrition on varroa infestation levels in worker and drone cells and the impact on bee health and longevity as adults;

3) Identifying and evaluating traits, genes, and markers associated with bee resistance to mites and pathogens, possibly including agents discovered to cause colony collapse disorder;
4) Measuring the individual and synergistic impacts of key honey bee disease agents including varroa, viruses, nosema, and the American foulbrood bacterium under field, cage, and laboratory conditions;
5) Defining the resistance mechanisms of bees toward pathogens, especially bacteria and viruses, focusing on individual and group defenses as a means of providing candidate traits for breeding programs; and
6) Determining if there are genetic components to emerging problems (such as colony collapse disorder) once syndromes and causes for those problems are identified.

Funding devoted to bee research related to CCD by location, including the FY 2009 budget research request, is provided for the record.

	FY 2007	FY 2008	FY 2009
Tucson, AZ	$1,130,700	$1,122,800	$2,137,900
Gainesville, FL	209,700	208,200	208,200
Baton Rouge, LA	2,306,100	2,290,100	2,588,200
Beltsville, MD	2,072,600	2,057,700	3,401,800
Fargo, ND	65,000	64,500	64,500
Weslaco, TX	1,890,500	1,877,300	--
Montpellier, France	--	177,400	177,400
Total	$7,674,600	$7,798,000	$8,578,000

CWD AND TSEs

Ms. DeLauro: Discuss the funding available for research on Chronic Wasting Disease (CWD) and Transmissible Spongiform Encephalopathies (TSE) and the problems that were targeted in research in fiscal year 2008 and proposed in fiscal year 2009. What was the base funding for each of these areas in fiscal years 2007 and 2008? How much is requested in 2009 for each?

Response: The ARS TSE research program is currently being implemented at the following locations: Ames, Iowa; Pullman, Washington; and Albany, California. The objectives of the ARS TSE research program are: 1) understand the pathogenesis of TSEs; 2) discover and understand methods of transmission; 3) discover innovative diagnostic platforms that will detect diseased animals before they enter and contaminate the Nation's food supply; and 4) identify intervention strategies to control and eradicate TSE from domestic livestock and wildlife. These studies will focus on the four animal TSE agents found in the United States: bovine spongiform encephalopathy (BSE); scrapie of sheep and goats; chronic wasting disease (CWD) of deer, elk, and moose; and transmissible mink encephalopathy (TME). These agents will be tested for cross-species transmissibility into various livestock and cervid species using both oral and intracerebral inoculation. Sites of accumulation, routes of infection, methods of isolate differentiation, and ante-mortem diagnostics, will be investigated.

As part of the ARS TSE Research Program, the objectives of National Animal Disease Center (NADC)in Ames, Iowa, are to: 1)assess the cross-species transmissibility of TSEs in livestock and wildlife; 2) investigate the pathobiology of TSEs in natural and secondary hosts; 3) investigate pathogenesis and live animal detection of BSE; 4) develop a method to detect

Central Nervous System (CNS) tissue contamination on carcasses; and 5) conduct research with a goal to discover effective methods to inactivate TSE agents in agricultural settings. Existing technology developed at the NADC and used in the meat packing industry for the detection of fecal contamination on carcasses will be adapted to detect CNS tissue contamination on carcasses. Methods of TSE inactivation will be evaluated for efficacy in agricultural settings. While scrapie will serve as a model for many of the initial inactivation studies, any positive outcomes will be evaluated with CWD and eventually BSE.

NADC studied transmissibility of CWD in fallow deer; preliminary findings demonstrate that it is possible to transmit CWD to fallow deer by intracerebral inoculation; however, the disease is different from CWD in white-tail deer, elk, or mule deer in that there is no detectable abnormal prion in lymphnodes and the central nervous system lesions in fallow deer are very subtle. These findings predict a low probability for oral transmission of CWD to this deer species. This study provides important information for the alternative livestock industries and wildlife agencies. In a study of possible differences in transmission of CWD derived from elk, mule deer, or white tail deer into white tail deer, we found no appreciable difference in clinical signs, pathology, immunohistochemistry, and Western Blot findings between the three groups of deer inoculated with the different inocula. This indicates there is not a detectable difference among the types of CWD derived from different hosts when transmitted to white tail deer. In collaboration with APHIS and ADRU, we reported that elk lacking the predisposing 132-methionine prion allele develop chronic wasting disease after a long incubation period and display a novel PrPd folding pattern.

Scientists at the Animal Disease Research Unit (ADRU), Pullman, Washington, target research on the following problems: 1) the genetic and conformational correlates of strain variation; 2) genetic factors associated with high rates of horizontal transmission of CWD and scrapie strains; 3) the influence of genetics, strain, and multiple births on placental scrapie transmission; and 4) methods for reducing persistent environmental contamination of prions.

ADRU has participated in collaborative research with Colorado State University, the National Park Service, APHIS Wildlife Services, APHIS Veterinary Services, and the Canadian Food Inspection Agency to develop a live animal test for CWD in captive elk. This test would allow the regulatory agencies to remove infected animals from herds before the risk of transmission begins to rise late in disease. In collaborative research with Colorado State University, APHIS Veterinary Services, and APHIS Wildlife Services, the relationship between mineral levels and CWD in Rocky Mountain elk was described. These advances may contribute to an integrated approach to reducing the risk of CWD in captive wildlife.

Scientists at the Food Contaminants Research Laboratory in Albany, California, will target research on the following problems: 1) identify factors associated with abnormal conformation conversion of prions and determine their suitability as surrogate markers of disease; 2) develop ultra-sensitive detection of prions in environmental samples or surrogate markers for use in antemortem diagnosis; and 3) develop methods for decontamination of meat and bone meal (MBM) and other agricultural products, and the environment.

Funding for Chronic Wasting Disease and for all TSEs is provided for the record.

	FY 2007	FY 2008	FY 2009
Chronic Wasting Disease	$2,373,900	$2,776,300	$2,776,300
All TSEs, Total	$11,669,000	$11,936,700	$11,936,700

EMERGING DISEASES AND EXOTIC PESTS

Ms. DeLauro: Please provide for fiscal years 2007, 2008, and 2009 the funding devoted to emerging diseases and exotic pests. Please update the description in last year's hearing record of emerging diseases and exotic pests and how these funds are used.

Response: Emerging diseases and exotic pests research funding for fiscal year 2007 was $233,050,000. For fiscal year 2008, funding was $234,899,000; and for fiscal year 2009 it is estimated at $219,705,000.

New pest arthropods, pathogens, and weeds enter the United States weekly, due to an increase in travel and trade opening new introduction pathways. There are more than 50,000 exotic pests in the United States at present, with an economic impact exceeding $137 billion per year.

Research and development of new disease management technologies, such as host-plant resistance, biological control, and cultural control will be expanded. Research on the integration of different control technologies into effective, economical, and sustainable integrated disease management systems must be conducted so that practical solutions can be transferred to agricultural producers, processors, and land managers.

In 2008, ARS plans research on emerging diseases to minimize or prevent the establishment of these pathogens in the United States. Commodities and crops produced in the United States will be of higher quality for domestic consumption and more marketable internationally. New, more rapid and accurate detection and identification methods for pathogen strains will provide short-term solutions. Long-term solutions will encompass deployment of resistant genes, integrated control strategies, and pathogenicity studies to determine host-range and virulence. ARS will develop resistant germplasm and more sustainable, environmentally friendly control strategies to provide practical solutions for U.S. production.

More than 300 ARS scientists provide technology to manage pest populations below economic damage thresholds by integrating environmentally compatible strategies such as biological and cultural control. These strategies are based on understanding the biology of the insect, mite, tick, weed, and pathogen pests. Components of the ARS research programs include: Exclusion; Early Detection and Rapid Response; Surveillance Technology; Identification and Classification of Pests; Biology and Physiology of Pests and Natural Enemies; Plant, Pest, and Natural Enemy Interactions and Ecology and Epidemiology; Vector-Pathogen (plant and animal) Interactions; Postharvest, Pest Exclusion, and Quarantine Treatment; Pest Control Technologies; and, Integrated Pest Management Systems and Areawide Suppression Programs.

Invasive Arthropods: Damage from arthropod pests costs the United States $46 billion annually from reduced agricultural (including loss of

pollination services) and forest production and damage to natural ecosystems. At least 40 percent of agricultural and 30 percent of forest arthropod pests are introduced invasive species. Typically, the more damaging invasive insects (e.g., Formosan subterranean termite, imported fire ant) cost U.S. agriculture $1 billion each, annually, with the glassy-winged sharpshooter and Asian longhorned beetle representing threats to crops and forests, respectively. Invasive mite, beetle, and disease pests of bees threaten, through loss of pollination, billions in fruit, nut (almond), and legume crop value.

Approximately 4,500 arthropod invasive species have become established in the United States and, with increasing travel and trade, the rate of introductions is increasing. Recent invaders include the olive fruit fly in California, which threatens the entire olive industry there ($52 million farm-gate value); onion thrips (recently invading Georgia), whose estimated cost as a vector of iris yellow spot is $75-100 million annually (farm gate); and lobate lac scale in Florida, which is a crop, ornamental, and natural area pest (e.g., it is threatening the Everglades ecosystem, whose restoration is costing $500,000 per acre). New pests such as the pigeonpea pod fly are now in Puerto Rico and threatening legumes in the continental United States; and the marmorated stink bug, a pest of ornamentals, has been recovered in Pennsylvania. Establishment of the Mediterranean fruit fly (medfly) in the United States would cost over $1 billion annually in California alone due to trade embargos, loss of jobs, and estimated pesticide use and direct crop losses. California spends $15 million annually on the prophylactic sterile medfly release program, and the Florida medlfy eradication program in 1997-1998 cost $24 million.

Major arthropod pests being addressed by ARS include (alphabetically): Asian longhorned beetle (Chicago, New York City, New Jersey, Washington, and Canada); bee pests such as Varroa and tracheal mites and small hive beetle (extensive); cereal leaf beetle (West); chili thrips (Caribbean); Chinese soybean aphid (extending its range from the Midwest); corn earworm and other caterpillars (extensive), codling moth (Northwest); corn rootworm (extensive); Diaprepes weevil (Florida); emerald ash borer (Great Lakes states); flies attacking livestock (extensive); grasshoppers (West, including Alaska); Formosan subterranean termite (New Orleans and extending throughout the South); glassy-winged sharpshooter (California); grain beetles and moths (extensive in stored product areas); gypsy moth (Northeast, expanding west and south); Hessian fly (extensive); imported fire ant (extending throughout the South); Japanese beetle (extensive); lobate lac scale (Florida); mites, particularly on horticultural crops (extensive); mosquitoes such as tiger mosquito and others (extensive); olive fruit fly (California); pink hibiscus mealybug (Florida and California); potato beetle (extensive); Russian wheat aphid (extensive, particularly the Plains states); silverleaf (particularly the Q-biotype) and other whiteflies, mealybugs, scale insects (extensive); ticks (extensive); wheat stem sawfly (West, extensive); and williwilli gall wasp (Hawaii).

During 2007 ARS undertook research in response to immediate and emerging arthropod problems:

1. Asian tiger mosquito and chikugunya viral disease: During 2007, a widespread epidemic of the debilitating chikungunya viral disease in the Indian Ocean basin leapt across geographic boundaries to Europe for the first time. The intense Italian outbreak occurred because the virus was carried there in an infected person traveling by air. The virus had mutated to a form

easily transmitted by the Asian tiger mosquito, a species now very abundant in the southern and eastern United States, following its introduction in Houston in 1986. ARS has funded an area wide integrated pest management demonstration project starting in FY 2008 and extending 5 years. The Mosquito and Fly Research Unit, Gainesville, Florida, is the principal investigator and is working with Rutgers University, private industry, and county mosquito abatement districts to show that the Asian tiger mosquito can be reduced by 95 percent in neighborhoods and farms using technology developed by ARS over the last 60 years. A successful system for control will be demonstrated nationally in year five of the project, greatly improving the nation's ability to stop an outbreak of chikungunya and improving the quality of rural and urban life in the United States.

2. Cattle fever tick and bovine babesiosis: The cattle fever tick transmits a parasite to cattle that can be 90 percent fatal. Eradicated from its range of 14 states in the 1940s, the tick re-established itself in southern Texas in 2007. The problem is caused by increasing populations of wild native deer and feral exotic ungulates, as well as by increasingly unreliable treatment methods on cattle. The ARS program has launched long and short term research programs based on acaricidal treatment of deer, anti-tick vaccination of deer, anti-parasite vaccination of cattle, and development of new treatment methods. Considering the enormous costs to the cattle industry if this tick were re-established in the United States, the nation would be well served by expanding this research program as soon as possible.

3. Biting midges and bluetongue virus: Bluetonge virus (BTV) in the United States has only affected sheep and goats, with damage to cattle only affecting their export. An epizootic of different strains of the virus began in Europe in 2006 and spread as far as the Netherlands and the United Kingdom by 2007. Among the strains newly established in Europe was BTV-8, which is pathogenic in cattle. Some of the European strains have already affected Florida, although BTV-8 has not yet been introduced. ARS has developed and distributed diagnostic tests that detect all 24 types of BTV and is developing better methods for treatment of biting midges, including treatment of animals and larval sites.

4. Deer ticks and Lyme disease: In spite of ARS development of effective methods to stop transmission of the Lyme disease bacteria by treating wild deer for the ticks that transmit the pathogen, the number of cases in the United States continues to increase. Working with Yale University, ARS is working on a new anti-tick vaccine for deer that would provide longer lasting control than current acaricidal methods. The means of delivery to wild deer is part of this effort. ARS is also going to work with industry to attempt area wide control on a small scale in Connecticut using natural acaricides acceptable to the public.

5. Native mosquitoes and Rift Valley fever virus: Rift Valley fever virus occurs naturally in sub-Saharan Africa and periodically expands into major outbreaks that affect North Africa and the Arabian Peninsula. The virus is considered one of the major threats as an exotic pathogen because of severe effects on ungulates, including cattle, and on humans. Transmission is by mosquito bite or direct contact with animal tissue. U.S. mosquitoes are capable of transmission, suggesting that the virus would become established in the United States, were it to be introduced. ARS is working with internal and DHS funding to apply predictive models, develop methods for detection of infected mosquitoes at ports and airports, reduce the extent of epidemics in the native range of the virus, develop new methods for vaccination, develop

new diagnostics, and develop emergency vector control for the floodwater mosquitoes.

Copies of specific research programs (Bee Pests; Pierce's Disease/Glassy-winged Sharpshooter) are available on the ARS Web site

Invasive Weeds: Invasive weeds cost the United States conservatively $30 billion per year. The ARS weed science program is funded at $63,070,700, and research is conducted at 50 locations. Projects focus on exclusion, early detection and rapid response, and control and management. Exclusion and early detection and rapid response research is conducted in support of action agencies such as the USDA Animal and Plant Health Inspection Service. ARS weed control and management research is biologically based whenever possible, with biological control and cultural control/re-vegetation as the base strategies, and incorporating chemical and mechanical control whenever appropriate. ARS conducts research on weeds of crops, rangelands, urban areas, and natural areas. All of the ARS weed science research is conducted closely with customers and stakeholders. A detailed accounting of the ARS weed science research is provided in ARS-DEL079.

Plant diseases, caused by viruses, bacteria, phytoplasmas, fungi, and nematodes, result in economic losses in agriculture, landscape, and forest settings by reducing yields, lowering product quality or shelf-life, decreasing aesthetic or nutritional value, and sometimes, by contaminating food and feed with toxic compounds.

Strategies for the control of exotic plant diseases include planting resistant crop varieties, changing crop cultural practices or storage conditions to those less favorable for disease development, employing biological control agents, applying chemical pesticides, and implementing integrated disease management (combining two or more of the above approaches).

Invasive Animal Pathogens: Exotic (non-native) organisms, once introduced into the United States, can escalate into an epidemic due to the absence of vaccines or effective drugs, lack of resistance in host animals and limited resources to effectively manage the spread of these pathogens. Timely and effective control strategies are needed to avoid economic disruptions and to maintain consumer confidence in the ability of the Federal and State governments to handle such emergencies. The presence of bovine spongiform encephalopathy (BSE), Avian Influenza, West Nile Virus, and Monkeypox in the United States and the recent resurgence of Foot and Mouth disease and Classical Swine Fever (hog cholera) in Europe has had a profound impact on the agricultural economy of a number of countries and has resulted in trade embargos and millions of animals having been destroyed, creating new environmental concerns about the safe disposal of diseased carcasses. The United States can ill afford an outbreak of a catastrophic disease which would disrupt our national food supply and export markets. If the United States is to keep production costs of food low, producers must be protected from the devastating economic impact that emerging pathogens cause in susceptible livestock populations.

ARS' strategy for countering invasive animal pathogens is to utilize genomic sequencing data to establish a database of pathogens, including strain typing, which can serve as information for facilitating the tracking of disease outbreaks to their point of geographic origin. The ARS Rapid Detection Initiative has developed diagnostic assays for priority animal

disease threats using commercially available rapid assay systems. This technology is undergoing initial transition to APHIS for further use as scientific validation of field use in infected animals and plants. These tests are being transferred to State diagnostic laboratories within the National Animal and Plant Health Laboratory Network. Increasing effort is being placed on the development of diagnostics for emerging animal diseases and development of vaccines and treatments for foreign animal diseases. These diagnostics and vaccines can be used in the event of an outbreak to reduce the spread of the disease.

ERGOT DISEASE

Ms. DeLauro: Please update your response in last year's hearing record on the research you are doing on ergot disease.

Response: ARS researchers at Mayaguez, Puerto Rico, and College Station, Texas, continue to screen new accessions in the U.S. sorghum collection for sources of ergot resistance. The researchers also are identifying lines with a late flowering pattern that is less vulnerable to infection. Practical solutions to the ergot problem have also been developed, which enable ARS researchers to address more urgent fungal disease problems including anthracnose and grain mold. In 2007, ARS researchers at College Station, identified fungicides are effective seed treatments for controlling downy mildew and grain mold fungi in sorghum. They also cooperated with ARS researchers in Mayaguez, to evaluate more than 50 sorghum accessions from Ethiopia, Mali, and the Sudan, and demonstrate that most of them exhibit high resistance to anthracnose. The identification of new, anthracnose-resistant sorghum germplasm can be exploited by breeders to develop new, disease-resistant sorghum varieties for U.S. farmers. The availability of disease-resistant sorghums will reduce the need for fungicide applications.

FOOD SAFETY RESEARCH

Ms. DeLauro: Please provide a table showing each location for ARS funding for food safety, breaking out pre-harvest and post-harvest and other sub-categories of this research separately, similar to the breakdown in last year's hearing record. Include what was spent in fiscal year 2007 and 2008, and what is anticipated for fiscal year 2009.

Response: The funding for food safety research is provided for the record in the attached table.

[The information follows:]

FY 2007/2008/2009 PRE-HARVEST/POST-HARVEST FOOD SAFETY RESEARCH

	FY 2007			FY 2008			FY 2009		
	Pre-Harvest	Post-Harvest	FS Total	Pre-Harvest	Post-Harvest	FS Total	Pre-Harvest	Post-Harvest	FS Total
Fayetteville, AR	$581,200	0	$581,200	$577,100	0	$577,100	$577,100	0	$577,100
Maricopa, AZ	1,285,800	0	1,285,800	1,276,300	0	1,276,300	1,276,300	0	1,276,300
Albany, CA	3,602,700	$7,850,300	11,453,000	3,643,700	$8,292,000	11,935,700	3,643,700	$8,292,000	11,935,700
Riverside, CA	633,900	0	633,900	629,400	0	629,400	629,400	0	629,400
Athens, GA	11,320,700	3,977,900	15,298,600	11,242,200	3,950,300	15,192,500	11,242,200	3,950,300	15,192,500
Dawson, GA	955,200	0	955,200	976,200	0	976,200	976,200	0	976,200
Tifton, GA	896,000	0	896,000	964,000	0	964,000	964,000	0	964,000
Ames, IA	5,217,400	0	5,217,400	5,181,000	0	5,181,000	4,922,000	0	4,922,000
Peoria, IL	5,549,200	1,520,300	7,069,500	5,560,100	1,509,700	7,069,800	5,560,100	1,509,700	7,069,800
West Lafayette, IN	575,700	0	575,700	571,600	0	571,600	571,600	0	571,600
New Orleans, LA	4,430,500	231,600	4,662,100	4,840,100	230,000	5,070,100	4,840,100	230,000	5,070,100
Beltsville, MD	6,292,600	6,366,900	12,659,500	6,358,300	6,607,500	12,965,800	6,358,300	6,607,500	12,965,800
Beltsville, MD (NAL)	110,200	313,500	423,700	109,400	311,300	420,700	109,400	311,300	420,700
Mississippi State, MS	2,349,600	0	2,349,600	2,404,400	0	2,404,400	2,404,400	0	2,404,400
Stoneville, MS	752,300	1,038,900	1,791,200	763,600	1,031,600	1,795,200	763,600	1,031,600	1,795,200
Raleigh, NC	0	427,300	427,300	0	424,400	424,400	0	424,400	424,400
Fargo, ND	2,551,300	0	2,551,300	2,613,100	0	2,613,100	2,613,100	0	2,613,100
Clay Center, NE	2,973,200	1,937,900	4,911,100	2,952,500	1,924,400	4,876,900	2,952,500	1,924,400	4,876,900
Lincoln, NE	269,200	0	269,200	267,300	0	267,300	267,300	0	267,300
Ithaca, NY	806,900	0	806,900	800,800	0	800,800	800,800	0	800,800
Wyndmoor, PA	0	18,464,300	18,464,300	0	18,539,000	18,539,000	0	18,539,000	18,539,000
Bushland, TX	266,800	0	266,800	265,000	0	265,000	265,000	0	265,000
College Station, TX	5,545,600	0	5,545,600	5,507,000	0	5,507,000	5,507,000	0	5,507,000
Lubbock, TX	610,500	0	610,500	606,300	0	606,300	606,300	0	606,300
Logan, UT	3,590,600	0	3,590,600	3,565,800	0	3,565,800	3,565,800	0	3,565,800
Headquarters	838,300	1,042,000	1,880,300	0	0	0	876,800	649,200	1,526,000
TOTAL	62,005,400	43,170,900	105,176,300	61,675,200	42,820,200	104,495,400	62,293,000	43,469,400	105,762,400

Ms. DeLauro: What major areas of the food safety research program were expanded or enhanced in fiscal year 2008 and what is planned for fiscal year 2009?

Response: In fiscal year 2008, additional attention was given to contamination of produce. In fiscal year 2009 funding is requested to: develop and validate integrated science-based management practices to prevent pre-harvest contamination of produce by enteric pathogens, and develop postharvest intervention strategies to eliminate any pathogen contamination. Additionally, the program will focus on the epidemiology, genomics, evolution and transfer of multi-drug resistance both among foodborne pathogens and pathogens of biosecurity concern. Data will be used to develop mathematical models and conducting risk assessment to determine pattern use.

FOOT-AND-MOUTH DISEASE (FMD)

Ms. DeLauro: What resources were available for FMD in fiscal years 2006, 2007, 2008, and estimated in 2009? Please update your response in last year's hearing record on the major objectives of your FMD research.

Response: Funding for Foot and Mouth Disease is provided for the record.

	FY 2006	FY 2007	FY 2008	FY2009
FMD	$4,150,100	$4,024,700	$3,890,600	$3,341,100

Response: The Plum Island Animal Disease Research Center, Greenport, New York, is responsible for conducting research to protect the United States livestock industries against catastrophic economic losses caused by foreign animal disease (FAD) threats accidentally or deliberately introduced into the U.S. These missions are accomplished by basic and applied research directed toward: (1) more sensitive, rapid and accurate methods of disease agent detection and identification; (2) development of new strategies to prevent, control and eliminate disease epidemics, including vaccines or pharmaceuticals; (3) the assessment of risks involved in the movement of animals or animal products from areas where FADs exits; and (4) investigation of the basic pathobiology of host-pathogen interactions, which is critical to elevating disease resistance in U.S. herds during a disease outbreak.

The major objectives of our FMD research program are as follows:

1) Foot-and-Mouth Disease Virus (FMDV) Host-Pathogen Interactions

- Objective 1: Develop a defined model to identify early (pre-viremic) events in the pathogenesis of FMDV in its natural hosts.
- Objective 2: Develop tools to evaluate host-pathogen interactions at the genomics level
- Objective 3: Identify critical FMDV virulence determinants associated with mechanisms of invasion, infection, replication, persistence and transmission
- Objective 4: Understand the mechanisms of FMDV persistence and the viral carrier state in animals.
- Objective 5: Determine mechanisms of FMDV interference with host responses.

2) Foot-and-Mouth Disease Virus (FMDV) Countermeasures Discovery

- Objective 1. Develop improved vaccine platforms and delivery systems to control FMD
- Objective 2. Determine the mechanism of early immune enhancement against FMDV

FORMOSAN SUBTERRANEAN TERMITE

Ms. DeLauro: Please update your response in last year's hearing record on progress in the Formosan subterranean termite research program, to date. What was spent on this research in fiscal years 2007 and 2008?

Response: The Formosan subterranean termite (FST), *Coptotermes formosanus Shiraki*, was introduced to the continental U.S. after World War II in infested materials shipped from the Pacific Far East. It has spread to 11 states since its introduction. It is estimated that the annual cost in the U.S. for treatments and repair is greater than two billion dollars, excluding the value of trees lost to FST infestations. The population size of FST in the New Orleans area alone has probably expanded 35-fold in the previous decade. These large populations are not manageable with existing technologies or treatment strategies used to protect individual structures. The program investigates organized, area-wide integrated pest management as an effective means of controlling FST by targeting entire populations of the termite. The first of two key control techniques for the area-wide approach is the application of termiticides that avoid the common problem of repellency. The second is the use of baiting systems that utilize foraging termites to introduce toxicants into the entire colony. These techniques impact entire colonies, including those hidden in infested trees or buried debris. Application of control must be targeted through improved detection to discover hidden colonies and identification of the FST, including methods that confirm the species identification and characterize the biological status of individual colonies through molecular genetics.

The New Orleans French Quarter program was funded at $3.24 million during fiscal year 2007, with $1 million in direct support of area-wide treatment of a 78 block area in New Orleans' French Quarter, including the railroad right-of-way and levee adjacent to the Mississippi River. Practical research on new treatment, education, and detection methods were supported with $1.5 million divided among university, local government, and non-governmental organization collaborators. In areas without significant structures, baiting has been able to reduce termite activity to nearly undetectable levels, though areas may be re-invaded by new colonies within a year after cessation of treatment. Treatment of the Mississippi River levee, which was heavily infested, resulted in 98 percent reduction in the termite activity within one year and that low level of activity has been maintained to present. One particular location which had high populations despite the best efforts at treatment, possibly because of disruptions caused by landscaping and construction, is now free of termite activity. A third area, the old U.S. Mint and the French Market, is also 98% free of termite activity. Overall, the termite numbers are down throughout the French Quarter from 45 to 75%, depending on when the respective areas were brought into the area-wide population management program. One of the main contributions of the program has been refinement of the area-wide treatment strategy, as opposed to individual treatment of properties. This experience shows that it is

possible to reduce, though not eliminate, the entire population of Formosan subterranean termites within a given area. Success in the French Quarter area-wide management approach has led to plans to export this approach to other areas. ARS research has produced impressive results in the development of new toxicants, biocontrol agents (pathogens of termites), attractants, and basic work on termite development and physiology. The interaction of the wide area French Quarter project with the ARS in-house research program has resulted in a synergistic relationship in which experimental work is conducted in the light of practical need. During the past year provisional patents have been filed for compounds derived from natural products that might serve as termiticides and a new whole house acoustic monitoring system. A patent application has been submitted for the biological compatible foam for delivery of ARS patented biological control fungi to control termites in trees. Moreover, a large scale genomic sequencing project has been initiated to help discovery on potential new target sites for termite control.

Research has shown that widespread implementation of the control methodologies is highly effective. This work demonstrates the efficacy of commercially available tools and the need for full participation by all properties in the area where FST is to be controlled.

	FY 2007	FY 2008
Formosan Subterranean Termite Research	$7,541,100	$7,036,600

FRUIT AND NUT RESEARCH

Ms. DeLauro: In table format, please update the Committee on the research you are doing in connection with apples, blueberries, peaches, pecans, etc. by location, including brief highlights of 2007 accomplishments.

Response: The research being done is provided for the record.

ARS genebanks at Beltsville, Maryland; Corvallis, Oregon; College Station, Texas; Davis, California; Geneva, New York; Griffin, Georgia; Madison, Wisconsin; Miami, Florida; and Pullman, Washington.

2007 Accomplishments: Valuable new genetic markers for many crops developed and applied. Plant breeding and genetic resource management, especially for perennial crops, remains painstakingly slow and expensive processes. Scientists at ARS genebanks developed and/or applied new genetic markers (Simple Sequence Repeats (SSRs), Single Nucleotide Polymorphisms (SNPs), and nucleotide sequences of key marker genes) for a wide variety of crops, such as tomato, potato, safflower, strawberry, figs, plums, apricots, pecan, lespedeza, cacao, and avocado. These new genetic marker technologies and molecular genotypic information provide rapid and accurate assays of crop genetic variability, yielding critical information for novel crop breeding strategies and for designing efficient and effective genetic resource management programs.

ALBANY, CALIFORNIA:
Salmonella on almonds: The California almond industry, which is the largest supplier of almonds in the world, has been affected by two international and one national outbreak of salmonellosis linked to raw almonds. Propylene oxide (PPO) is the only effective dry treatment to decontaminate raw kernels, but these treated kernels cannot be exported to foreign countries due to a lack

of standards about PPO residue levels in the product. ARS scientists at Albany, California, developed an infrared heat-based technology that is at least as efficacious as fumigation in decontamination of raw kernels and involves a one-hour instead of a 5-day process, to achieve a reduction of over 99.99999 percent in Salmonella levels per kernel. The Almond Board of California presently mandates a 99.99 percent reduction and consequently has shown considerable interest to commercially develop this non-chemical intervention process.

Commercialization of a new line of organic fruit bars: To meet the need for new processing technologies to increase utilization and consumption of fruits by American consumers, researchers at Albany, California, developed and licensed a technology for forming 100 percent fruit health bars from fruit to add value and create new markets for pears and other fruits. During the past year, a new bar formulation was developed in collaboration with a small company that enabled production of a new line of 100 percent fruit bars that are organic, called Bear Bars. This research increased grower profits while assisting consumers around the globe in meeting their daily requirements for fruits through the development of healthy, convenient organic 100 percent fruit bars.

BELTSVILLE, MARYLAND:
Postharvest treatment strategy for fresh-cut apple slices: Commercial processing formulations for fresh-cut produce maintain the instrumental and sensory quality, but not the microbial quality and food safety of the fresh-cuts. Researchers at Beltsville, Maryland, developed a postharvest strategy that includes a brief (2-3 minute) preprocessing heat treatment to control fungal pathogens and spoilage yeasts, and a processing treatment formulation that inhibits or eliminates, depending on concentration and microbe, spoilage bacteria and five bacterial human pathogens (exogenously applied to freshly processed slices) on packaged apple slices during storage. A Confidentiality Agreement has been signed between ARS and a company to discuss patenting and licensing options and what additional research needs to be done to gain FDA approval for use of the new technology on lightly processed fruits and vegetables.

New database release on the antioxidant capacities of fruits, nuts, vegetables and spices: ARS scientists at Beltsville, Maryland, and Little Rock, Arkansas, collaborated on the development of a new database on the Oxygen Radical Absorbance Capacity (ORAC) of about 300 selected foods. ORAC is one approach to evaluating the antioxidant capacity of foods. Such information is essential to scientists investigating the role of food antioxidants in promoting health and preventing risk for chronic diseases. Bioactive compounds in black raspberries and blackberries were identified. ARS scientists at Beltsville, Maryland, found that the pigments cyanidin-3-rutinoside and cyanidin-3-glucoside increased the level of peroxides in the human leukemia cells and selectively killed these cells. In contrast, these compounds caused little oxidative stress in normal human peripheral blood mononuclear cells and had very low toxicity toward these cells. This indicates that natural products such as these could exhibit selective pro-oxidant activities in leukemic cells that might be exploited for the development of anti-tumor agents with low toxicity toward normal cells.

Assessment of Cocoa Germplasm: To date over 5,000 accessions of cocoa germplasm in Trinidad and Costa Rica have been genotyped, cross-checked with the cooperating institutions and the data placed in international cocoa databases, as well as in Genebank. In addition, interesting sub-collections

of wild materials and farmers' selections have been made in Peru. The entire collection of about 600 accessions in French Guiana, comprising both cultivated and wild materials, have also been evaluated and genotyped. Interesting discoveries include the diverse origins of the 'Nacional' cocoa varieties in Ecuador, prized by industry because of their quality traits, as well as detailing the unusual diversity of material found in Nicaragua, which does not completely match the 'Criollo' varieties found in the rest of Mesoamerica, including Mexico.

BYRON, GEORGIA:
Two new peach varieties released: Current peach varieties that ripen in the late season were no longer competitive in the market. Augustprince and Early Augustprince, two new varities developed by ARS scientists at Byron, Georgia, have fruit that are firmer and more attractive than that of Cresthaven and Sunprince, which they can replace. These new releases provide the industry with long-needed, more reliable alternatives for these older peach varieties.

A new moderate-chill peach variety released: Current commercial variety ripening in this season, June Gold, has not set adequate crops in recent low chill years and no longer provides sufficient fruit quality (excessive split pits and low soluble solids) and appearance for current market needs. Gulfcrimson, a new variety developed by ARS scientists at Byron, Georgia, is significantly firmer than June Gold and provides a substantial improvement in fruit quality (virtually no split pits and higher soluble solids) and appearance in combination with a markedly better cropping record.

Red-fleshed peaches and plums have high anti-oxidant levels: Many fruits have been tested for levels of anti-oxidants, and peaches and plums with yellow flesh were thought to have low levels. ARS scientists at Byron, Georgia, in cooperation with researchers at Texas A&M University, revealed that peach and plum breeding lines with dark red flesh were very high in anthocyanins and other anti-oxidants, in some cases as high as blueberries. These compounds are thought to provide a variety of health benefits to the consumer. Further breeding with these flesh types is warranted to provide high-quality red-fleshed varieties for the grower to produce and deliver to the consumer.

New rootstock for peach: The release of Guardian peach rootstock in 1993 was a turning point in the management of peach tree short life (PTSL), which at that time was the leading cause of premature peach tree mortality in the southeastern United States. However, Guardian's susceptibility to Armillaria root rot, the number one problem, was a significant deficiency. In the absence of any alternative chemical or biological management program, the development of an Armillaria-resistant rootstock remained a pressing need. The release of Sharpe rootstock by ARS scientists at Byron, Georgia, marks the introduction of the first Armillaria (*A. tabescens*) resistant rootstock for peach in the United States. Additionally, Sharpe rootstock displays resistance to PTSL and root-knot nematodes comparable, if not superior, to that of Guardian.

Improving tree nickel nutritional status reduces damage to fruit by pecan scab fungus: There is great need to improve tree resistance to pecan scab disease to reduce production losses. ARS scientists at Byron, Georgia, demonstrated that foliar nickel sprays were found to reduce scab damage to developing fruit and to increase kernel quality. This information provides growers with a means of reducing economic losses in pecan to scab disease.

COLLEGE STATION, TEXAS:
New pecan cultivar, Lakota, released: Nut production in pecans requires several-to-many years from tree planting to commercial nut production. Breeding efforts to develop improved cultivars is a slow, but necessary, process if new cultivars resistant to pests and diseases, with superior nut yield and quality traits, are to be made available to producers. ARS scientists at College Station, Texas, in cooperation with scientists at Kansas State University, developed this clone and determined it merited naming and release as a new USDA cultivar. This is an important accomplishment because it provides growers with a new and productive pecan cultivar that fills a market niche and should increase production efficiency and grower profits. Lakota also has disease resistance characteristics that will lessen the need for pesticide applications which are expensive to the grower and potentially harmful to the environment.

CORVALLIS, OREGON:
New red raspberry cultivars developed: In an ongoing collaborative project with Agriculture and Agri-Foods Canada and Washington State University, ARS scientists at Corvallis, Oregon, developed new red raspberry cultivars 'Saanich' and 'Cascade Bounty'. Saanich produces a very high yield of medium-sized, firm, sweet fruit suited to machine harvesting and that can be individually quick frozen very well. Saanich is well adapted for the processing and fresh markets and is resistant to the common strain of the North American raspberry aphid. Cascade Bounty has high levels of root rot tolerance and high yields of mid- to late-season fruit on sites with severe root rot infestations. The fruit is tart, bright-colored, medium size, and rounded in shape and is recommended for machine harvesting for processing uses. Over 470,000 plants of Saanich and Cascade Bounty have already been sold and planted by commercial red raspberry growers in the Pacific Northwest.

Irrigation methods to control root rot in blueberry: Root rot is a prevalent disease of highbush blueberry through the United States. ARS scientists at Corvallis, Oregon, discovered that infection by phytophthora and pythium root rot is higher in the Pacific Northwest when blueberry is irrigated by drip rather than other irrigation methods. ARS identified irrigation systems, configuration, and levels of water application that significantly reduce the risks of developing high levels of infection during plant establishment. This knowledge will be used in the development of management strategies to reduce problems with root rot in blueberry.

Nutrient uptake by grapevines: While grapevines are generally known to benefit from associations with arbuscular mycorrhizal fungi (AMF), it is not known to what extent this benefit is influenced by soil type or the origin of the fungi that colonizes roots. ARS researchers at Corvallis, OR, demonstrated that grapevines grown in a red hill soil were exceptionally dependent on AMF to supply enough phosphorus (P) for growth, while vines grown in a more fertile valley soil can acquire enough P for normal vegetative growth without AMF. Grapevine growth response and P uptake was not better when a native fungus was compared to a nonnative fungus. Results indicate that grapevines planted on sites with red hill soils absolutely require AMF, but growers can be less concerned about AMF when planting vines in valley soils. The use of AMF that are native to a particular soil is not a critical factor for vine establishment. This information will aid wine grape growers and extension viticulturalists to develop soil management strategies that enhance mycorrhizal establishment and function in vineyard systems.

DAVIS, CALIFORNIA:
Pierce's disease (PD) risk factors: The presence of riparian areas adjacent to North-Coastal California vineyards contributes to Pierce's disease, as evidenced by a correlation between disease incidence and proximity of vines to riparian areas, but riparian hosts of the pathogen (*Xylella fastidiosa*) have not been verified by recovery of the pathogen from field plants. The research performed by ARS scientists in Davis, California, found that only one riparian host, Vinca major (periwinkle), was positively correlated with a high incidence of Pierce's disease in adjacent vineyards. Based on these results, eradication of all riparian hosts may be unnecessarily costly, and overly disruptive to riparian ecosystems. Research will aid farmers and administrators in developing effective pest management techniques, particularly, in north coastal California vineyards.

Species specific primers for PCR detection of *Brennaria rubrifaciens*: Currently no rapid, sensitive, and cost effective detection technologies exist for *B. rubrifaciens*, the causative agent of deep bark canker of walnut. Three species specific primer sets were developed by ARS scientists at Davis, California. These primer sets were used to establish parameters for detection of Brenneria from sap, and soil. A semi-selective medium for *B. rubrifaciens* isolation from environmental samples was also developed. These detection methods will be used to develop effective control strategies for both nursery and orchard conditions.

Crown gall resistant walnut germplasm: The most widely used rootstock in the walnut industry is highly susceptible to crown gall disease which causes significant yield loss and reduction in tree life and vigor. ARS scientists in Davis, California, have identified several Juglans species that exhibit significant levels of resistance to *A. tumefaciens* under greenhouse conditions using artificial inoculation techniques. Identification of crown gall resistant walnut germplasm for use in the juglans rootstock breeding program will have a tremendous impact on the walnut industry in California.

EAST LANSING, MICHIGAN:
Assessing internal quality of apples by spectral scattering technique: Modern packinghouses can sort and grade fruit for color and size; some of them are now even capable of sorting fruit for soluble solids (sugar). However, it is still challenging to sort apples for firmness, not to mention both firmness and soluble solids. A new method/technique was developed by engineers at East Lansing, Michigan, for assessing fruit firmness and soluble solids content, based on the measurement of light scattering in apples at selected wavelengths or for a spectral region. Mathematical models were proposed and compared for prediction of fruit firmness and soluble solids content. An improved sensing configuration was tested on the prototype developed earlier for real time measurement of light scattering over the visible and near-infrared region, which showed promising results in measuring both firmness and soluble solids content. The spectral scattering technology will provide the industry a new capability for delivering better quality fruit to the marketplace. The method has been used by other researchers for assessing quality of other horticultural and food products.

FORT PIERCE, FLORIDA:
Development of high throughput detection technology for citrus huanglongbing (HLB): HLB, also known as citrus greening, is the most devastating citrus disease and now wide-spread in Florida, and imposing immediate threat to the citrus industry in California and Texas. Because of the fastidious nature of HLB bacteria (*Candidatus Liberibacter asiaticus*), a high throughput detection

technology for HLB is critical for HLB research and disease management. Polyclonal antibodies against HLB pathogen have been developed by researchers at Fort Pierce, Florida, and a series of primers and probes were also developed for better detection of HLB using PCR or in situ hybridization. These technologies have been transferred to university and state regulatory research laboratories for HLB detection and other research purposes.

Release of citrus rootstocks resistant to Diaprepes root weevil: A complex disease and insect problem, the Phytophthora-Diaprepes disease complex (PDC), has destroyed thousands of acres of Florida citrus. Two promising new hybrid citrus rootstocks with field tolerance to PDC and good fruit productivity were developed by the USDA citrus breeding program and released in 2007 for commercial use. These new rootstocks exhibit dramatic differences in their effects on fruit tree size, and thereby provide a wide range of management options for commercial producers. The rootstocks, US-802 and US-897, fill much-needed niches for vigorous and dwarfing rootstocks, respectively, with field tolerance to PDC. There is large commercial interest in these new citrus rootstocks in Florida.

FREDERICK, MARYLAND:
Huanglongbing (HLB) transmission by psyllids: HLB is the most serious, insect-transmitted disease of citrus and has become established in Florida. Control of citrus psyllid vector populations is a vital component of disease management. ARS scientists at Frederick, Maryland, determined the effect of imidacloprid insecticide on transmission of HLB. Following incorporation of the insecticide into sweet orange seedlings, infectious psyllids were aspirated on the seedlings and monitored for survival and disease transmission. Although most psyllids died within the first 24 hours, strong symptoms of HLB infection were evident by 8 weeks in most plants, indicating the insects could transmit the causal HLB bacterium before dying.

GENEVA, NEW YORK:
Early detection of Botrytis bunch rot in grape: By the time Botrytis fruit infections are detected visually, fruit quality has already suffered. ARS scientists in Geneva, New York, developed an early detection technology based on quantitative PCR to detect and monitor Botrytis infections up to 2 months prior to visual detection. This ability to detect fungal infection prior to damage and secondary spread will enable growers to reduce the frequency of fungicide applications and specifically target applications when needed.

Completion of first apple rootstock genetic map in the United States: There is little or no knowledge of the location of genes that control important apple rootstock traits in the apple genome. To overcome this void, ARS scientists at Geneva, New York, created a genetic map of diverse molecular markers using one of the most successful crosses in the breeding program (Ottawa 3 X Robusta 5), which segregates for several traits including disease resistance, cold hardiness, dwarfing, and precocity. Knowledge of the location and complexity of these traits will enable ARS researchers to streamline their breeding program and permit a more efficient selection and delivery of improved apple rootstocks to the industry.

HILO, HAWAII:
Papaya gene identified that affects yellow and red fruit color associated with nutritional value: Depending on the cultivar, papaya fruit may be the yellow color of carotenoids or it may be the red color of lycopenes. Since carotenoids are the source of human vitamin A and lycopenes are antioxidants, there are nutritional and health benefits related to the color of papaya

fruit flesh. ARS scientists at the U.S. Pacific Basin Agricultural Research Center, in collaboration with researchers from the Hawaii Agricultural Research Center, the University of Hawaii, and the University of Illinois isolated and characterized a key gene regulating the carotenoid biosynthetic pathway. This discovery can be exploited to better understand the genetic linkage between fruit color and fruit flesh firmness, a postharvest characteristic important for shipping and handling. This gene can also be potentially used to improve the nutritional quality of papaya.

KEARNEYSVILLE, WEST VIRGINIA:
Identification of genes associated with apple response to fire blight disease: Fire blight is a destructive disease of apple and pear trees that is estimated to cost the U.S. fruit industry over $100 million a year in crop losses and disease control. ARS researchers at Kearneysville, West Virginia, have used DNA technology to identify over 450 apple genes that respond in apple between 1 and 72 hours after challenge with the fire blight pathogen. The DNA sequence of these genes was deposited in a publicly accessible database to enable horticulturalists and plant breeders to develop new strategies for protection apple and pear trees from fire blight disease.

New tool to improve apple quality: ARS scientists at Kearneysville, West Virginia, determined that reflective aluminized plastic (RF) consistently improved apple red color, while reflective particle film consistently increased fruit size and improved apple red color in 2 of 3 years. This new management technique can be used to improve apple size and color in commercial orchards.

Bloom thinning apple and peach: Most apple and peach trees set more fruit than the trees can carry to a marketable crop. Removal of some of the fruits at bloom time or soon after is essential, yet hand thinning is expensive and chemical thinning can be unpredictable. ARS scientists at Kearneysville, West Virginia, found that the essential oil, eugenol, and the commercial contact herbicide Matran 2EC (50 percent clove oil) produced significant thinning at the 80 percent to 100 percent full bloom stage. Fruit size was increased at the highest level of thinning. Use of an essential oil as a bloom thinner offer growers an alternative to hand thinning in peach and postbloom plant growth regulators in apple.

Development of one of the first microarrays for Rosaceous plant species: Methods for gene expression profiling, such as microarrays, have the potential to revolutionize fruit tree genomic research, but no cost-effective microarrays are publicly available for Rosaceous crops such as apple, pear, stone fruits, strawberry, blackberry, and raspberry. A peach microarray of 5,000 DNA fragments was constructed, printed, and validated by ARS scientists at Kearneysville, West Virginia, and the arrays were tested on RNA of developing peach fruit. This study showed that genes active during peach stone hardening were genes for lignin (woody tissue). This work showed that by using microarrays important genes in stonefruit development could be identified and studied, and ultimately manipulated to improve fruit quality.

Alternative pear cultivars for Pacific coast growers: The lack of diversity in current commercially grown pear cultivars limits opportunities to capitalize on specialty markets and consumer demand for new high quality fruit. Working with collaborators in California and Oregon, ARS scientists at Kearneysville, West Virginia, developed cultivars, 'Blake's Pride' and 'Sunrise', and an unnamed selection that were evaluated and rated very high in consumer preference tests. The unnamed selection, which also has quality

traits of benefit to growers and packers, will be submitted for cultivar release. The new cultivars have the potential to increase consumption of pears. In addition, the newest selection will provide growers and packers with an attractive new cultivar which can be stored for long periods and handled with minimal damage.

New tool to study the behavior of the plum curculio: Lures used to attract plum curculios, a serious direct pest of deciduous tree fruit crops in eastern North America, to monitoring traps are ineffective. A specialized electroanntenograms technique was developed by ARS scientists at Kearneysville, West Virginia, to measure the strength of electrophysiological response to olfactory stimuli. This approach will allow attractive compounds to be conclusively identified and incorporated into more effective lures to be used with monitoring traps.

'HoneySweet', a genetically engineered Plum Pox virus-resistant plum, deregulated by APHIS: Plum pox virus is an exotic invasive virus pathogen of stone fruit species and has been detected in three states (Pennsylvania, New York, and Michigan). To protect commercial plum production, a genetically engineered resistant plum - 'HoneySweet' - was produced by ARS scientists at Kearneysville, West Virginia. In order for this plum to be commercialized, deregulation by USDA Animal and Plant Health Inspection Service (APHIS), the FDA, and EPA is required. So far, the plum has been deregulated by APHIS, making it the first deregulation of a temperate tree fruit by APHIS. This is an important step in the process that will make this resistant plum available to growers and provide resistant plum germplasm for breeding programs.

Fall flowering in short-day type strawberry: In the mid-Atlantic coast region short-day type strawberry plants do not produce fruit in the year they are planted. ARS scientists at Kearneysville, West Virginia, determined that young 'Carmine' and 'Camarosa' transplants prepared in July and held in small containers until field planting in early September resulted in flowering by mid-October. This study indicates that it is possible to produce transplants with high fall fruiting potential without the need to expose transplants to artificial short-days and chilling temperatures. This new approach will allow mid-Atlantic strawberry growers to extend their production season.

LOGAN, UTAH:
Blue orchard bee incubation box improves bee emergence in orchard: Blue orchard bees are excellent pollinators for tree crops such as almonds, cherries, apples, and pears, and a relatively small number of bees are needed for these crops. However, fruit trees bloom early in the spring when temperatures can sometimes be cool enough to inhibit bee emergence from the winter cocoon stage and reduce blue orchard bee activity. ARS scientists in Logan, Utah, designed and field-tested a new outdoor incubation box and compared emergence rates of bees incubated in the boxes with those incubated under standard conditions and determined that the boxes facilitated faster bee emergence without increasing mortality. The incubation box is an effective tool for shortening emergence periods, thereby improving management of these bees when weather is variable and unpredictable. A patent application for the box has been filed, and a customer has expressed interest in licensing the patent once it is available.

MAYAGUEZ, PUERTO RICO:
Host range of fruit fies in Puerto Rico: Growers wishing to export their fruit often face regulatory hurdles designed to protect agriculture in the importing region. Prominent and reasonable fears include the accidental

importation of novel pests, such as fruit flies, that could devastate local agriculture. Puerto Rico has two species of pest fruit flies, one of which, the West Indian fruit fly, is not currently present in the continental United States. A survey, conducted by ARS scientists at Mayaguez, Puerto Rico, provides a baseline of host information for both species of flies that regulators can consult when making regulatory decisions concerning the importation of certain fruit. Fruits that are likely to carry infestations to the mainland can be treated to avoid the problem and fruits that are not likely to carry infestations can be studied to determine more precisely the probability of infestation.

Effect of May beetles on mamey sapote yield: May beetles can severely defoliate fruit trees, such as mamey sapote. The larvae also feed on the roots. The sheer numbers of these insects can frighten growers and lead to unwarranted pesticide applications. Although young seedlings are very susceptible to defoliation and root-feeding by May beetles, ARS research at Mayaguez, Puerto Rico, shows that there is no correlation between the fruit yielded by a tree and the abundance of May beetles feeding on the foliage and the roots of these trees. Indeed, mature trees can harbor up to 300 individual adults without a decrease in yield. This information can reduce the human and environmental risk that is posed by the unnecessary application of pesticides.

MIAMI, FLORIDA:
Development of cocoa DNA markers associated with disease resistance: Disease is the primary cause of economic loss to cocoa farmers worldwide. From a strategic viewpoint, frosty pod, *Moniliophthora roreri*, is the most dangerous if it were to spread from the Western Hemisphere to Africa or Southeast Asia and the Pacific. Witches broom disease is a significant problem in much of South America and especially significant in Brazil (*Moniliophthora perniciosa*), and Black pod disease (*Phytophthora* spp.) is a worldwide problem. The approach has been to utilize various molecular markers to identify the loci of disease resistance and subsequently apply these in a marker-assisted worldwide breeding program to improve the genetic basis of cocoa production. Four candidate genes have been associated with black pod disease. If an appropriate series of selections can be made, the candidate germplasm will be placed in quarantine in the United Kingdom and released in West Africa within 2 years. Also, in collaboration with CATIE, Costa Rica, six genotypes identified to be resistant to frosty pod have been released in Central America for field trial and evaluation. Through an agreement with the International Institute for Tropical Agriculture (IITA), Nigeria, a system for evaluating genetic diversity and establishing trials for resistant material, has been established in West Africa.

OXFORD, MISSISSIPPI:
Pterostilbene found to be a colon cancer preventive natural product: Colon cancer is the second most prevalent cause of cancer mortality. Dietary (especially fruits and vegetables) intervention is recommended to reduce colon cancer risk. Pterostilbene, found in Vaccinium species (e.g., blueberries) and grapes, was shown by researchers at Oxford, Mississippi, to prevent colon cancer in rat model of colon cancer. Pterostilbene was shown in earlier studies to have lipid-lowering property. Discovery of its colon-cancer preventive activity provides further basis for the development of Vaccinium species and/or of grapes as sources of this nutraceutical.

PARLIER, CALIFORNIA:
Differences found in fruit drying rates of raisin grapes: Labor has become limited and cost prohibitive for hand harvesting of raisin grapes. Early ripening raisin grape varieties that dry quickly are needed to facilitate mechanical harvest and replace Thompson Seedless, the standard raisin variety that ripens late and dries slowly. ARS scientists at Parlier, California, determined that berry size and sugar content significantly affected drying rate. Summer Muscat had the fastest drying rate compared to other varieties tested. Even when the waxy layer was removed, Summer Muscat dried quicker than Thompson Seedless, indicating that skin or cuticle characteristics influence the drying rates in raisin grape varieties. This information will be helpful to breeders in developing new varieties with faster drying rates that are suitable for mechanical harvest.

Identification of a ripening-related protein that is associated with the development of mealiness in peaches: Proteins were identified in peaches that were related to the development of flesh mealiness in storage. Heat treatment can act to either enhance or inhibit the development of mealiness and it is important to understand better the mechanism by which mealiness occurs so that successful heat treatments can be developed. ARS researchers in Parlier, California, found that an important ripening protein strongly decreases in amount when peaches become mealy. This information will help understand how heat treatments affect mealiness and will help lead to the development of successful heat treatments.

Correlation of pheromone and egg trap counts with subsequent navel orangeworm damage to almonds: The ability to predict which almond orchards will experience navel orangeworm damage is important to effective integrated management of this pest. ARS scientists in Parlier, California, in collaboration with the Paramount Farming Co. and the Almond Board of California, compared the total navel orangeworm males and eggs captured in each flight with subsequent damage in the almond varieties 'Nonpareil' and 'Monterey'. Damage in 'Nonpareil' was significantly associated with total males captured in flights 1 and 2, whereas damage in 'Monterey' was significantly associated with total males captured in flight 3 and total eggs captured in flights 1 and 3. This finding may reduce use of broad-spectrum insecticides while improving the control of this field pest of phytosanitary importance which threatens almonds worth over $2 billion per year.

Genomic characterization of *Candidatus Liberibacter*, the bacterium associated with Huanglongbing disease of citrus: An innovative PCR-based genome walking approach was developed by scientists in Parlier, California, to identify genomic DNA sequences of the pathogen that causes Huanglongbing disease in citrus. The identified sequences will help scientists develop new genome-based detection tools for the bacterium.

Determination of tarp/seal methods to reduce fumigant emissions in strawberry fields: Minimizing fumigant emissions from strawberry fields becomes mandatory in California because strawberry production depends heavily on pre-plant soil fumigation that contributes to volatile organic compound (VOC) emissions. ARS scientists in Parlier, California, conducted two large field trials in September-October 2006 on strawberry fields with raised bed in coastal areas of California to compare efficiency of plastic tarps. While results indicate that semi-impermeable films or virtually impermeable film films may reduce fumigant emissions, large variations were observed under field conditions. The information is useful for identifying effective field

methods to minimize fumigant emissions from strawberry production in non-attainment areas of California.

POPLARVILLE, MISSISSIPPI:
Release of the new fresh market muscadine grape cultivar 'Eudora': A new fresh-market muscadine grape cultivar, 'Eudora' was released by ARS scientists at Poplarville, Mississippi, to nurserymen for propagation and sale to growers in 2007. Eudora is productive and produces large flavorful berries possessing high concentrations of phenolic compounds associated with the prevention of coronary disease and cancer.

RALEIGH, NORTH CAROLINA:
Accurate detection of aflatoxin in almonds, hazelnuts, and pistachios: Because of the large variability associated with the test procedure, lots may be misclassified when handlers, exporters, importers, and regulatory agencies test treenuts for aflatoxin, which may cause an economic loss to the industry and increase the health dangers to the consumer. The sampling, sample preparation, and analytical variances were determined for all three treenuts by ARS researchers at Raleigh, North Carolina. The variances were compared for all three treenuts and it was determined that a single model based upon the almond data can be developed to evaluate the performance of sampling plan designs. ARS, as part of the U.S. delegation to the Codex Committee on Contaminants in Foods (CCCF), has asked to use the data to recommend a harmonized sampling plan to detect aflatoxin in treenuts traded in international markets for CCCF approval. The U.S. almond industry, which provides 70 percent of the world's demands for almonds, has used the model to develop an industry wide aflatoxin-testing program for almonds marketed in the export trade that would reduce lots rejected upon retesting in the EU.

WAPATO, WASHINGTON:
Non-chemical, non-irradiation quarantine technology to control internally feeding pests of apples, peaches, nectarines, and sweet cherries: Called CATTS, for Controlled Atmosphere Temperature Treatment System, this technology combines a hot moist forced-air treatment with a low-oxygen, high carbon dioxide atmosphere. Packers and shippers of conventional and organic tree fruits are testing commercial-scale units. The tree fruit industry in California is poised to propose CATTS as a quarantine procedure to many trading partners currently requiring methyl bromide fumigation or systems approach to meet import requirements. APHIS has approved CATTS for inclusion in the treatment manual.

Biocontrol of orchard insect pests: ARS scientists developed improved formulations of nematodes for use in orchards and demonstrated control of codling moth in bins with parasitic nematodes. This work provides advanced techniques to use nematodes for codling moth control in the field, and provides a tool to use in packing houses to disinfest bins of codling moth pupae. It has also stimulated similar work on almonds to control navel orangeworm. ARS optimized and improved the codling moth granulovirus (CpGV) for control of codling moths in apple and pear orchards, including optimal dosage and spray interval to use in the field, and use of particle films and lignin with CpGV to protect it from solar degradation and improve longevity in the field. Nearly all organic orchardists in the Pacific Northwest now use CpGV, and an increasing proportion of conventional growers also apply it, mostly as a direct result of this research. When used in place of conventional insecticides, this treatment reduces health risks to applicators, risk of pesticide residue on fruit, and in the air, soil, and

waters, and negative impacts on pollinators, predators, and parasites in the orchard.

Mating disruption for control of apple and pear pests: Tree fruit growers need pest attractants to monitor mating disruption and manage pest populations. ARS identified and developed applications for fruit-based attractants for codling moth, including identification of a novel fruit-odor attractant; optimization of a pear ester lure; development of the lure as a monitoring tool; development of combination pear ester/sex pheromone combinations for mating disruption; and enhancing efficacy of pear ester and pheromone combined with pesticides. This provides information to apple and pear pest managers and growers on how to effectively use the compounds to monitor and manage codling moth populations. It also provides a first example for other scientists of a host plant kairomones that can be used to monitor and manage a pest moth, and a model to follow for isolating and identifying such kairomones that might be attractive to other moth species. Growers use the pear ester lure and a combination pear ester/pheromone lure produced by Trece Inc. to monitor codling moths, establish biofix, and make decisions regarding the need to spray insecticide and the timing of sprays. This work has also impacted research at other U.S. locations, and in Canada, New Zealand, and Italy.

WENATCHEE, WASHINGTON:
Phytosanitary concerns about fire blight prohibit export of U.S.-grown pears to some countries: Scientists at ARS Wenatchee, Washington, and Oregon State University evaluated the potential for co-occurrence of the fire blight bacterium, *Erwinia amylovora*, with mature symptomless winter pear fruit. *E. amylovora* shows similar survival characteristics on both pear and apple fruit. The disease organism does not exist inside mature symptomless pear fruit and its presence is exceptionally rare on commercially produced fruit. Survival of *E. amylovora* on fruit surfaces is unlikely during postharvest chilling given the high population size required for persistence. This information will be of value in efforts to expand foreign markets for U.S. pears.

WESLACO, TEXAS:
White Plastic Barriers for Blackberry Weed Control Provide Multiple Benefits: Weed pests are a challenge to control in blackberry brambles, particularly when organic methods are employed. ARS researchers in Weslaco, Texas, found that white plastic weed barriers used to control weeds in newly planted brambles not only reduced labor needed for weed control, but improved blackberry yields and fruit quality. Improved plant vigor and berry soluble solids likely result from more consistent soil temperatures at four inches, while maintaining consistent soil moisture amounts.

FUNGAL PHYTASE

Ms. DeLauro: Please update the Committee on the status of research on the genetic engineering of fungal phytase to reduce groundwater contamination.

Response: Previously, Southern Regional Research Center (SRRC) researchers engineered an enhanced phytase with 266% greater hydrolysis of soy phytate. Feed trials established that the new phytase has significantly higher activity in animals than a currently marketed phytase. Now scientists from the SRRC and Cornell University are utilizing knowledge-based technology

to develop an improved version of phytase with both increased heat tolerance and higher specific activity for phytic acid. In addition, since the molecular modifications are made on a commercially produced phytase, which was previously isolated and first characterized by ARS scientists, no new production fermentation regime or facilities are required to make this technology available to the industry. The USDA and the Cornell Institute have now patented this technology. Today, the increased interest in the development of new bio-fuel crops has created an opportunity to employ the technology SRRC scientists have developed by cooperative research with the University of Wisconsin Biotechnology Center. A technique to cost-effectively produce fungal phytase and other industrial enzymes in alfalfa and other crops has been achieved. This Biofarming method is now available for adoption in bio-fuel crops. This would then provide additional income to the producers of energy crops and also increase the availability of phytase. Since bio-fuel crops are not involved in the production of food, the general public concern about genetically modified organisms should be limited. The scientists are also working on developing a phytase better adapted to the physiological conditions in the digestive tract of fish. Without phytase supplementation, the fish will not be able to digest phytic acid present in their diet; this could result in the growth of harmful algal bloom (HAB) producing microbes in lakes, streams, and estuaries. Developing a cost-effective phytase through protein engineering will help maintain a robust level of poultry, swine, and fish production for American consumers without fouling the nation's ground and surface waters with excess phosphates. Technology has also been developed that allows for precise measurement of the effects of phosphorus from agricultural operation on the growth and development of microorganisms causing harmful algal bloom in our waterways. This would provide information on how to develop strategies to prevent fish kills and other harmful environmental effects emanating from these agricultural operations.

GAO AND OIG REPORTS

Ms. DeLauro: Please briefly describe the findings, recommendations and actions taken on each GAO and OIG report listed in the fiscal year 2009 explanatory notes.

Response: During FY 2007 the following OIG audits were completed:

#50601-10-Hq, 11/20/06, OIG/EPA Chesapeake Bay Restoration Agricultural Impact on Water Quality.

ARS REPLY: The report contained no recommendations or findings for ARS.

#50601-15-Te, 3/12/07, Review of FY 2005 Congressional Earmarks.

ARS REPLY: The report contained no recommendations or findings for ARS.

The following OIG reports were in progress as of September 30, 2007:

#50601-4-Hy, Adequacy of Internal Controls Over Travel Card Expenditures Followup.

ARS REPLY: This report is not yet completed.

#50501-9-FM, Management and Security Over USDA Wireless Connections.

ARS REPLY: This report is not yet completed.

#02601-1-SF, Management controls Over Research Agreements.

ARS REPLY: This report is not yet completed.

#50601-13-CH, Implementation of Renewable Energy Programs in USDA.

ARS REPLY: This report is not yet completed.

#50601-16-Te, Controls Over Genetically Engineered Animal and Plant Research.

ARS REPLY: This report is not yet completed.

During FY 2007 the following GAO audits were completed:

#07-264, 2/2/07, State Department: State has Initiated a More Systematic approach for Managing Its Aviation Fleet.

#07-283, 2/28/07, Crude Oil: Uncertainty About Future Oil Supply makes It Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production.

#07-520, 5/31/07, South Florida Ecosystem: Restoration is Moving Forward but is Facing Significant Delays, Implementation Challenges and Rising Costs.

#07-652, 6/11/07, Avian Influenza: USDA Has Taken Important Steps to Prepare for Outbreaks, But Better Planning could Improve Response.

#07-604, 6/21/07, Pandemic Influenza: Efforts to Forestall Onset are Underway; Identifying Countries at Greatest Risk Entails Challenges.

#07-781, 8/14/07, Influenza Pandemic: Further Efforts are Needed to Ensure Clearer Federal Leadership Roles and an Effective National Strategy.

#07-1171R, 9/13/07, USDA: Information on Classical Plant and Animal Breeding Activities.

#07-1172, 9/28/07, Climate Change Research: Agencies Have Data-Sharing Policies But Could Do More to Enhance the Availability of Data From Federally Funded Research.

ARS REPLY: None of the above cited GAO audits contained any findings or recommendations that concern ARS.

The following GAO reports were in progress as of September 30, 2007:

#360855, Veterinarian Capabilities for Disease Prevention, Food Safety, and Defense.

ARS REPLY: This report is not yet completed.

#369867, Carbon Offsets.

ARS REPLY: This report is not yet completed.

#460579, Issues Associated With the Expansion of Biosafety Level 3 and 4 Laboratories.

ARS REPLY: This report is not yet completed.

#543177, Federal Leasing Trends and Challenges.

ARS REPLY: The report, completed 1/24/08, contained no recommendations or findings for ARS.

#450489, Critical Infrastructure Protection for Pandemic Influenza.

ARS REPLY: The report, completed 10/31/07, contained no recommendations or findings for ARS.

#310590, Use of Encryption By Federal Agencies.

ARS REPLY: This report is not yet completed.

#450540, User Fee Design.

ARS REPLY: The report, completed 9/24/07, contained no recommendations or findings for ARS.

#360830, Marine Aquaculture Development

ARS REPLY: The report, completed 5/9/08, contained no recommendations or findings for ARS.

#192238, Federal Grant and Direct Assistance Participants Who Owe Outstanding Federal Taxes.

ARS REPLY: This report is not yet completed.

#450547, Improving Federal Agency Use of Performance Information.

ARS REPLY: This report is not yet completed.

#360871, Coordinated Framework for Regulation of Genetically Modified Agriculture.

ARS REPLY: This report is not yet completed.

#360862, Review of Concentrated Animal Feeding Operations.

ARS REPLY: This report is not yet completed.

GERMPLASM - PLANT AND ANIMAL

Ms. DeLauro: By location, what is the funding and staff for germplasm facilities for fiscal years 2007, 2008, and 2009? Please update the list in last year's hearing record of the germplasm collections and their locations that are maintained by ARS. Please update the list in last year's hearing record of the major germplasm collections in the world and their locations.

Response: By location, the funding and staff for Plant Germplasm facilities for fiscal years 2007, 2008, and 2009 are provided for the record.

	FY 2007		FY 2008		FY 2009	
Location	Funds	SYs	Funds	SYs	Funds	SYs
Fairbanks, AK	$1,041,200	3.0	$1,034,100	3.0	$1,034,100	3.0
Stuttgart, AR	182,400	.5	181,100	.5	181,100	.5
Maricopa, AZ	434,700	1.1	431,500	1.1	431,500	1.1
Albany, CA	404,600	1.3	401,800	1.3	401,800	1.3
Davis, CA	1,320,200	2.0	1,311,200	2.0	1,311,200	2.0
Parlier, CA	684,400	1.1	679,700	1.1	679,700	1.1
Riverside, CA	1,124,100	2.0	1,116,100	2.0	1,116,100	2.0
Ft. Collins, CO	4,264,100	6.0	4,234,100	5.8	4,234,100	5.8
Washington, DC	2,062,500	3.3	1,929,600	5.3	1,929,600	5.3
Miami, FL	2,902,600	5.0	2,880,900	5.2	2,880,900	5.2
Dawson, GA	753,600	1.8	748,300	1.8	520,700	1.4
Griffin, GA	2,439,800	7.0	2,422,800	6.0	2,422,800	6.0
Hilo, HI	1,470,300	3.1	1,460,100	3.1	1,460,100	3.1
Ames, IA	2,630,000	3.2	2,611,600	3.2	2,611,600	3.2
Aberdeen, ID	1,451,600	3.1	1,441,600	3.1	1,441,600	3.1
Urbana, IL	1,612,800	3.0	1,601,700	3.0	1,601,700	3.0
Beltsville, MD	4,514,000	8.8	2,570,600	4.5	2,570,600	4.5
Columbia, MO	411,100	1.1	407,700	1.1	407,700	1.1
Oxford, MS	1,373,300	--	1,363,700	--	1,363,700	--
Geneva, NY	1,983,200	4.8	1,967,200	4.8	1,967,200	4.8
Corvallis, OR	1,612,800	4.0	1,601,500	4.0	1,601,500	4.0
Mayaguez, PR	1,453,500	2.4	1,443,400	2.4	1,443,400	2.4
Charleston, SC	214,800	.5	159,200	.3	159,200	.3
College Station, TX	1,603,500	3.1	1,592,400	3.1	1,592,400	3.1
Pullman, WA	2,710,300	9.9	2,691,300	9.9	2,691,300	9.9
Madison, WI	1,436,300	4.1	1,426,300	4.2	1,426,300	4.2
Headquarters	1,689,800	--	1,677,900	--	1,677,900	--
Total	$43,781,500	85.2	$41,387,400	81.8	$41,159,800	81.4

The funding and staffing for Animal Germplasm by location for fiscal year 2007, 2008, and 2009 are provided for the record.

	FY 2007		FY 2008		FY 2009	
Location	Funds	SYs	Funds	SYs	Funds	SYs
Ft. Collins, CO	$762,700	2.0	$757,400	2.3	$757,400	2.3
Brooksville, FL	658,100	1.7	816,900	2.1	--	--
Dubois, ID	1,020,200	2.4	1,187,200	2.8	1,187,200	2.8
West Lafayette, IN	--	--	255,200	0.8	255,200	0.8
Beltsville, MD	6,413,100	11.8	4,873,100	8.2	3,788,600	8.0
Orono, ME	730,700	1.0	724,700	1.0	724,700	1.0
Miles City, MT	934,000	2.4	891,900	2.3	891,900	2.3
Clay Center, NE	1,960,900	6.4	3,589,200	9.6	4,406,100	9.6
Corvallis, OR (Newport w/s)	192,800	.5	191,400	0.5	191,400	0.5
Leetown, WV	2,022,900	3.4	2,007,400	3.4	2,007,400	3.4
Total	$14,695,400	31.6	$15,294,400	33.0	$14,209,900	30.7

The information on location-specific plant and animal germplasm collections maintained by ARS in cooperation with the State and private sector are provided for the record.

Location	Plant Germplasm Collection
Stuttgart, AR	Rice genetic stocks.
Fairbanks, AK (Palmer, AK Worksite)	Arctic germplasm.
Davis, CA	Almond, fig, grape, kiwi, mulberry, olive, persimmon, pistachio, pomegranate, stone fruit, walnut, and tomato genetic stocks.
Parlier, CA	Arid land regeneration site; lesquerella, meadowfoam, jojoba, and guayule.
Riverside, CA	Citrus and related genera, and dates.
Salinas, CA	Lettuce genetic stocks.
Fort Collins, CO	Base seed collection of major economic crops, base collection of apple bud wood and other clonally-propagated germplasm.
Washington, DC	Woody landscape genera.
Miami, FL	Annona, avocado, mango, Passiflora, sugarcane, Tripsacum, tropical and subtropical ornamental and medicinal plants.
Griffin, GA	Cowpea, watermelon, peanut, capsicum pepper, sorghum, warm season forage and turf grasses, tropical and subtropical legumes, annual clovers, mung bean, sesame, okra, eggplant, tropical squash, and sweet potato.
Tifton, GA	Pearl millet.
Hilo, HI	Acerola cherry, atemoya, breadfruit, carambola, guava, litchi, lychee, macadamia, papaya, Passiflora, peach palm, pili nut, pineapple, rambutan, and tea.
Ames, IA	Maize, melon, cucumber, squash, carrots, spinach, amaranths, sweet clovers, temperate zone millets, oilseed brassicas, sunflower, cuphea, ornamentals, mints, umbels, flax, and soybean genetic stocks.
Aberdeen, ID	Barley, barley and wheat genetic stocks, oat, rice, rye, triticale, and wheat and its wild relatives.
Urbana, IL	Maize genetic stocks and soybean and its wild annual and perennial relatives.
Columbia, MO	Wheat genetic stocks.
Oxford, NC	Tobacco.
Fargo, ND	Durum wheat genetic stocks.
Geneva/Ithaca, NY	Apple, vegetable brassicas, onion, buckwheat, radish, celery, sour cherry, hardy grape, highland squash, and tomato.
Columbus, OH	Herbaceous ornamentals.
Corvallis, OR	Blackberry, blueberry, cranberry, currant, filbert, gooseberry, hop, mint, pear, raspberry, and strawberry.
Mayagüez, PR	Bamboo, banana, plantain, sapotaceous tree fruit, tropical ornamentals, sorghum, cacao, tropical quarantine site.
College Station, TX	Cotton and cotton genetic stocks, sorghum genetic stocks, chestnut, hickory, and pecan.
Logan, UT	Temperate zone range grasses, especially annual and perennial Triticeae.
Pullman, WA	Alfalfa, bean, chickpea, vicias, lupines, beets, lettuce, cool season grasses, lentil, garlic, pea and pea genetic stocks, clovers and other forage legumes, and safflower.
Madison, WI	Potato.

ARS has unique farm animal germplasm collections that are maintained as part of the research programs at:

Location	Animal Germplasm Collection
Fort Collins, CO	Beef cattle, dairy cattle, sheep, goats, chickens, turkeys, swine.
Clay Center, NE	Beef cattle, swine, sheep.
Brooksville, FL	Beef cattle.
DuBois, ID	Sheep.
Beltsville, MD	Poultry, dairy cattle.
Orono, ME	Atlantic salmon.
Miles City, MT	Beef cattle.
Stoneville, MS	Channel catfish.
Leetown, WV	Trout.

Germplasm from the ARS animal germplasm collections are also used for cooperative research with other U.S. research organizations.

A number of nations maintain large and diverse major collections beyond these in the United States, including Argentina, Australia, Brazil, Bulgaria, Canada, China, Colombia, the Czech Republic, Ecuador, Ethiopia, France, Germany, Hungary, India, Israel, Italy, Japan, Kenya, Republic of Korea, Mexico, The Netherlands, New Zealand, the Nordic countries, Peru, The Philippines, Poland, Portugal, Romania, Russia, Serbia, South Africa, Spain, Turkey, Ukraine, the United Kingdom, and Zimbabwe.

The Asian Vegetable Research and Development Center (AVRDC) in Shanhua, Taiwan is an international agricultural research center (IARC)that maintains a large and diverse collection of vegetable genetic resources, including cole crops, capsicum peppers, tomatoes, lettuce and other leafy vegetables, celery, cowpeas, peas, beans and other pulses, squashes, cucumbers, melon, and onions and other bulb crops.

The IARC Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) in Turrialba, Costa Rica maintains important collections of cacao (cocoa), coffee, bananas, squashes, and capsicum pepper.

Large crop-specific collections are also held at International Agricultural Research Centers (IARCs) of the Consultative Group on International Agricultural Research (CGIAR) in developing countries. Major crop-specific germplasm collections at the CGIAR IARCs and their locations are provided for the record.

Crop	Location and Organization
Banana	Montpelier, France--International Network for the Improvement of Bananas and Plantains.
Barley	Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.
Bean	Cali, Colombia--International Center for Tropical Agriculture.
Cassava	Cali, Colombia--International Center for Tropical Agriculture and Ibadan, Nigeria--International Institute for Tropical Agriculture.
Chickpea	Hyderabad, India--International Crops Research Institute for the Semi-Arid Tropics, and Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.

Cowpea	Ibadan, Nigeria--International Institute for Tropical Agriculture.
Fava bean	Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.
Lentil	Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.
Maize (Corn)	El Batan, Mexico-International Center for Maize and Wheat Improvement.
Peanut	Hyderabad, India--International Crops Research Institute for the Semi-Arid Tropics.
Pearl Millet	Hyderabad, India--International Crops Research Institute for the Semi-Arid Tropics.
Pigeon pea	Hyderabad, India--International Crops Research Institute for the Semi-Arid Tropics.
Potato	Lima, Peru-International Potato Center.
Rice	Los Baños, Philippines-International Rice Research Institute, and Bouake, Cote d' Ivoire-West Africa Rice Development Association.
Sorghum	Hyderabad, India--International Crops Research Institute for the Semi-Arid Tropics.
Sweet potato	Lima, Peru-International Potato Center.
Triticale	El Batan, Mexico-International Center for Maize and Wheat Improvement and Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.
Wheat	El Batan, Mexico-International Center for Maize and Wheat Improvement and Aleppo, Syria--International Center for Agricultural Research in the Dry Areas.
Yam	Ibadan, Nigeria-International Institute for Tropical Agriculture.

The Food and Agricultural Organization (FAO) recently developed and released a Global Plan for Action for the conservation and use of animal genetic resources to address growing concerns about domestic farm animal biodiversity. At present, the ARS National Animal Germplasm repository at Fort Collins, Colorado, initiated in 1999, is the largest collection in the world for cattle, swine, poultry, fish, and goats and is the second largest in sheep. In addition to the United States, other repositories are held in The Netherlands, Austria, Brazil, and the Czech Republic.

GLOBAL CHANGE

Ms. DeLauro: What ARS resources are being used for global change efforts in fiscal year 2008 and proposed for fiscal year 2009? Please provide an explanation for how you define global change and explain, and update as necessary, the anticipated outcomes of the projects. Please update your response in last year's hearing record on the results that have been obtained to date from ARS research in this area.

Response: Funding for global change research is provided for the record.

	FY 2008	FY 2009
Global Change	$39,366,500	$36,028,000

ARS uses the same definition for global change used by all the research agencies of the U.S. government, which was defined by the U.S. Global Change

Research Act of 1990 [Public Law 101-606(11/16/90) 104 Stat. 3096-3104] as follows. Global change "means changes in the global environment (including alterations in climate, land productivity, oceans or other water resources, atmospheric chemistry, and ecological systems) that may alter the capacity of the Earth to sustain life".

ARS research projects on global change will have the following four general outcomes: (1) an understanding and quantification of the Nation's agricultural contributions to and removal of, greenhouse gases from the atmosphere (primarily carbon dioxide, methane, and nitrous oxide); (2) determination of the impact of global change on the sustainable production of food and fiber by agriculture; (3) methods that cropland and grazing land managers can use to adapt to changes of climate and gaseous compositions of the atmosphere; and (4) new technologies that can help the agricultural community mitigate the causes and effects of global change through strategies such as soil carbon sequestration and greenhouse gas emission reduction.

For FY 2009, research activities will emphasize reduction of emissions of greenhouse gases from agricultural sources and developing ways for agriculture to adapt to global change, including decision support systems and observation systems. A central focus of much of ARS global change research is the Greenhouse gas Reduction through Agricultural Carbon Enhancement network (GRACEnet) project. The GRACEnet project will provide information on soil carbon status and greenhouse gas emission of current agricultural practices and is being conducted at 30 ARS locations across the U.S.

Specific outcomes from research proposed for FY 2009 are as follows:

Global change research activities sponsored by ARS and other USDA agencies contribute to the U.S. Global Change Research Program (USGCRP) and the U.S. Climate Change Science Program (CCSP).

Using the expanded national GRACEnet and AgriFlux network of multiple ARS locations across the major U.S. climatic and agricultural production regions, the impact of crop and grazing systems on carbon storage and the exchange of carbon between the land and the atmosphere ARS will better determine: (1) the current baseline amounts of soil carbon (C) sequestered and greenhouse gas emitted and what practices maximize C sequestration; (2) trade-offs in practices that maximize C sequestration with nitrous oxide and methane emissions; and (3) the relationship between C sequestration and other environmental benefits such as air and water quality. Also, new methods and practices will be developed that: (1) minimize methane and other greenhouse gas emissions from manure handling systems while capturing methane for energy generation; (2) minimize the impacts of ozone and temperature under expected increased atmospheric carbon dioxide (CO_2) conditions; (3) identify range management practices that optimize ecosystem health and forage quality under conditions of expected increased atmospheric CO_2; (4) determine the importance of mycorrhizae in soil carbon sequestration and shown ways to enhance their associations with plants in various cropping systems; and (5) minimize emissions of nitrous oxide in crop and rangeland systems.

Examples of results from 2007 are listed below:

Carbon Sequestration under Continuous No-Till. ARS scientists in Ft. Collins, CO found that carbon sequestration was much higher under continuous no-till than under rotational no-till. Soil samples were collected from ~ 50 farm fields in VA where winter-wheat, corn, and soybean (2 year rotation)

were grown either under continuous no-till or with rotational no-tillage where some tillage occurred during the cropping cycle. During the first 2-yrs of the study the SOC sequestered was higher under the continuous no-till. Across the 3 soil series studied, there was a difference in capacity to sequester SOC. Use of GIS technology and the use of calibrated computer models is expected to allow farm and even county level evaluation of rates of SOC sequestration. The length of the study is still considered too short and resampling is planned during 2008.

Developing Remote Sensing Tools to Measure Crop Residues: Crop residue management is critical for minimizing soil erosion and enhancing soil carbon sequestration. Traditional methods of measuring residue cover are unsuited for characterizing the spatial variability of residue cover over many fields. Remote sensing methods typically exploit spectral differences between soils and residues for estimating crop residue cover. Soil reflectance is assumed to be a stable end-point and that changes in scene reflectance are due to crop residue cover. However, variations in reflectance associated with changes in soil composition (mineralogy and carbon content) across landscapes can mask the subtle changes in reflectance due to crop residue cover. To characterize this source of variation, reflectance spectra and soil mineralogy data for more than 600 topsoil samples from the USDA-NRCS National Soil Classification Center were examined by ARS scientists in Beltsville, MD. Soil and crop residue type significantly affected spectral residue indices that are based on visible and near infrared reflectance ratios and normalized differences. Spectral residue indices based on cellulose absorption features, present in residues but absent in soils, were generally robust. Regional surveys of crop residue cover may be feasible using advanced imaging systems.

N2O Emissions for Various Fertilizer Materials: Greenhouse gas was sampled in 12 different cropping systems (4 repetitions each) representing different rotations, tillage intensities, types of N fertilizer, and N fertilization levels by ARS scientists in Ft. Collins, CO. No-till cropping systems had significantly lower carbon dioxide and slightly lower (not significant) nitrous oxide emissions than conventional till systems. Nitrous oxide emissions from plots fertilized with polycoated urea had lower emissions than plots fertilized with urea ammonium nitrate. Beginning in 2007, a study was initiated to compare N2O emissions from plots fertilized with the same amount but different types of nitrogen fertilizer. Results to date suggest that nitrification inhibitors and time-released fertilizers have strong potential to reduce emissions while maintaining high grain yields.

Invasive plants are a major threat to the Earth's biodiversity and are estimated to cost U.S. agricultural and forest producers 34 billion dollars each year. Understanding how increased atmospheric CO2 may alter establishment, spread, and control of invasive weeds will be crucial to future management strategies. ARS scientists in Auburn, AL examined the response of numerous invasive plants important to the southeastern U.S. [sicklepod (Cassia obtusifolia L.), Johnsongrass [Sorghum halepense (L.) Pers.), purple (Cyperus rotundus L.) and yellow (C. esculentus L.) nutsedge, tropical spiderwort (Commelina benghalensis L.), cogongrass (Imperata cylindrical (L.) Beauv.), Chinese privet (Ligustrum sinense Lour.), Lantana (Lantana camara L.) and Vinca [Catharanthus roseus (L.) G. Don] to either 375 micromole mol-1 (ambient) or 575 micromole mol-1 (elevated) CO2 in open top field chambers. Invasive plants, in almost all cases, had significantly more biomass when grown under elevated CO2, suggesting that these invasive weeds will present agricultural producers with even greater problems as atmospheric CO2 continues to rise.

Rising atmospheric CO2 alters the botanical structure of the Colorado Shortgrass Steppe: Rising atmospheric CO2 has been implicated in the encroachment of woody plants into many world grasslands over the past two centuries, a process which is contributing to their degradation. However, no direct evidence yet exists to support the involvement of CO2 in woody plant invasions. Research by ARS scientists in Ft. Collins, CO and Cheyenne, WY using large open-top CO2-fumigation chambers placed over native shortgrass steppe in northern Colorado showed that doubling CO2 over five years resulted in an approximately 84% increase in productivity of a perennial native grass, Stipa comata (needle-and-thread), and a 40-fold increase in aboveground biomass of Artemisia frigida (fringed sagewort), a common sub-shrub of some North American and Asian grasslands; none of the other 34 plant species responded to CO2. These results illustrate that rising atmospheric CO2 can affect species changes due to differential species sensitivities to CO2, and are the first evidence from a manipulative field experiment implicating rising atmospheric CO2 in rangeland woody plant invasions. Ecologists, land managers, and policy makers will need to consider this impact of rising atmospheric CO2 on rangeland plant community shifts in the formulation of management practices and greenhouse gas emissions policy.

Implications of extreme precipitation events for grassland carbon balance: Climate change driven by increasing atmospheric CO2 concentrations is causing measurable changes in precipitation patterns. Most climate change scenarios forecast continuing increases in extreme precipitation patterns for North American terrestrial ecosystems, manifest as larger precipitation events separated by longer dry periods. Changes in the size of precipitation events may differentially affect the processes controlling uptake and release of carbon (C) from terrestrial ecosystems, and therefore could alter carbon sequestration on grasslands and other ecosystems. Scientists at the Grassland, Soil & Water Research Laboratory in Temple, Texas, together with university collaborators found that more extreme precipitation patterns (longer intervals between events combined with larger events) shifted experimental grasslands toward greater net uptake of C and made C fluxes less responsive to variation in event size. More extreme precipitation regimes thus may reinforce increases in grassland C-sequestration expected to result from increasing atmospheric CO2, but may also lower plant water status and productivity. Benefits of greater carbon storage on grasslands likely will be offset by reductions in forage quantity and quality.

Mapping Soil Moisture using Thermal Satellite Imagery: Changes of soil moisture that can affect the hydrologic cycle are occurring because of shifting precipitation and temperature patterns. A methodology has been developed by ARS researchers in Beltsville, MD and university researchers to estimate soil moisture using satellite imagery acquired in the thermal waveband. In comparison with standard microwave-band moisture mapping techniques, the thermal band has the advantage of having higher spatial resolution (10s of meters) and the ability to detect moisture deficits under dense vegetation cover. The algorithm was tested using thermal data collected with the Geostationary Operational Environmental Satellites (GOES) over the state of Oklahoma in comparison with ground observations from the Oklahoma Mesonet. The comparison yielded a root-mean-square error of 0.06 cm3/cm3 in average volumetric soil moisture content (1-100cm depth) over a full range in vegetation cover conditions. Pending further validation under varying landcover types and climatic conditions, these methods will facilitate soil moisture mapping at 5-10km spatial resolution across the U.S. and other countries with geostationary satellite coverage.

GRAINS AND LIVESTOCK

Ms. DeLauro: In the FY 2009 budget for ARS, what is the total amount of funding targeted for research in grains and livestock? Provide a table showing actual and proposed funding for fiscal years 2006 through 2009.

Response: The total amount of funding targeted for research in grains and livestock for fiscal years 2006 through 2009 is provided for the record.

	FY 2006	FY 2007	FY 2008	FY 2009
Grains	$143,586,400	$142,297,600	$141,797,600	$134,632,200
Livestock	205,471,300	207,732,900	208,929,000	187,552,000

GRAPE PHYLLOXERA

Ms. DeLauro: Please provide a table showing the funding for fiscal years 2007, 2008, and 2009 devoted to grape phylloxera research, by location.

Response: The location and funding for research on grape phylloxera is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Davis, CA	$ 72,900	--	--
Parlier, CA	192,600	--	--
Total	$265,500	--	--

In fiscal year 2008, because considerable progress had been made on phylloxera, ARS redirected phylloxera efforts into high priority issues affecting the grape industry.

GRAPE VIROLOGY RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the work you are doing in connection with grape virology research, by location.

Response: As plantings of phylloxera-resistant rootstocks have increased, two new graft-transmissible diseases have been observed in commercial grape plantings using Foundation or certified planting materials. The effect of necrotic union disorder and necrosis-distortion is early death of grafted seedlings. The means by which these two economically limiting diseases of grape spread is under investigation. A vineyard survey for these diseases revealed an increase in necrotic union disease from 2.1 percent in 2004 to 13 percent in 2007, which indicates secondary spread. ARS researchers at Davis, California, have initiated experiments to determine the mode of transmission by grafting buds onto rootstocks with potentially differential susceptibility.

Diseased grape material was collected and assayed across a range of test plants propagated on six rootstocks. Initial readings will be made in the summer of 2008. A new rootstock trial was planted in 2007 for use in 2008.

Research Plans for 2009 - The primary focus will be on understanding graft-transmissible disease agents associated with graft union related disorders in California vineyards, including:

- Assist National Clonal Germplasm Repository in the development of virus-free grapevine accessions for important Vitis species/cultivars.
- Intensify efforts to characterize the infectious agents responsible for necrotic union disorder associated with red leaf disease on wine grapes.
- Develop improved diagnostic molecular assays suitable for high throughput screening of grapevines for viruses of significance in grapevine registration and certification programs.
- Develop sensitive antisera for the detection of grapevine leaf roll-associated viruses to support grapevine indexing efforts.

Ms. DeLauro: By location, what is the funding for grape virology research for fiscal years 2007 and 2008, and proposed for 2009?

Response: Grape virology research is being done at Davis, California. For fiscal year 2007, the funding was $230,900; for fiscal year 2008 funding was $142,700; and for fiscal year 2009, the proposed funding is estimated at $142,700.

GRASSHOPPER AND MORMON CRICKET

Ms. DeLauro: Please update your response in last year's hearing record on the research you are doing on grasshoppers and Mormon crickets. By location, what is the funding for grasshopper and Mormon cricket research for fiscal years 2007, 2008, and 2009?

Response: The ARS Northern Plains Agricultural Research Laboratory (NPARL) in Sidney, Montana, conducts research on grasshopper and Mormon cricket control that focuses on environmentally compatible, economical, and publicly acceptable control technology. Grasshoppers and Mormon crickets cause the loss of an estimated $1.25 billion per year in forage (21 to 23 percent of available range forage in the western United States), with periodic outbreaks often leading to costly, large scale chemical control. The research focuses on developing the biological and ecological knowledge needed for developing efficacious, environmentally-sound and safe management of these pests. More specifically, this research seeks to develop preventative cultural strategies (especially fire and grazing management) and biological interventions (especially microbial agents) to maintain these pests at levels below the need for chemical control. The laboratory is also continuing work to generate vital information needed on grasshopper ecology, and population dynamics, which are needed to predict grasshopper outbreaks and determine economic impact.

NPARL scientists had previously shown that Mormon cricket bands can walk more than 1.5 miles per day. Within their migratory bands, Mormon crickets are protected from predators, which in turn helps to maintain these often obnoxious and damaging bands. The scientists at NPARL demonstrated that rearing Mormon crickets in groups versus solitarily did not influence band formation - the opposite of what happens with locusts. Rather, the migration arises from and is maintained by individual interactions within the group. In 2007-2008, ARS collaborated with scientists from the University of Sydney (Australia), University of Oxford (United Kingdom), and Kent State University

in Ohio to investigate whether the lack of nutrients causing Mormon crickets to migrate also resulted in a loss of their ability to defend themselves fro pathogens. This novel study indicated that Mormon crickets that moved faster had reduced immunity to microbial agents. Thus relative to slow moving or stationary individuals, long-distance migrating individuals are likely to be more susceptible to the fungal and bacterial pathogens that the NPARL laboratory is developing as control agents.

Research by NPARL, in collaboration with USDA/APHIS scientists, Phoenix, Arizona, has targeted improving efficacy of existing, EPA-registere microbial grasshopper control agents through the use of baits and attractive carriers, and understanding the environmental limitations of these microbial agents. In addition, NPARL has entered into collaboration with CABI Biosciences (an international, non-governmental organization promoting agriculture) and Commonwealth Scientific and Industrial Research Organisatio (CSIRO)(Australia's governmental research organization) to evaluate in the United States two new microbial agents - fungi developed in Africa and Australia for the control of locusts in those regions. (These agents are approved as environmentally friendly but efficacious controls of locusts, an only attack Orthopterans (grasshoppers, crickets, katydids, etc.) If successful, these evaluations may lead to an environmentally friendly microbial agent more efficacious, and more specific for grasshoppers and Mormon crickets than the presently registered microbial products.

Current NPARL research, indicates a direct link between weather variation, resource quality, and grasshopper population dynamics, leading to severe grasshopper outbreaks. This work demonstrates that infrequent large precipitation events can have significant effects on grasshopper population dynamics. These results are helping land managers understand one of the multiple factors that play a role in outbreaks.

Grasshoppers lay their eggs in the soil, often several inches deep. Controlled rangeland burns could be effective as a grasshopper management tool. NPARL scientists demonstrated that high rates of below ground grasshopper egg mortality can result from grassland fires, with differences in the egg laying behavior among grasshoppers (some species lay eggs close t the surface, some deeper in the soil) influencing the effects of fire intensity on egg mortality. In particular, late summer fire can be useful as a management tool to control some (but not all) pest grasshopper species in the northern Great Plains, and the amount of standing plant fuel at the time of the fire can determine whether or not a fire will lead to significant grasshopper egg mortality.

In the past year, the technology transfer Web site "Grasshoppers: Thei Biology, Identification and Management" (www.sidney.ars.usda.gov/grasshopper was regularly updated. The Web site and associated CD-ROM were produced by NPARL. The CD has been an integral part of the USDA-APHIS-PPQ sponsored "Train-the-trainers grasshopper IPM workshops" presented to more than 900 pest managers in the western United States. In total, ARS has distributed over 7,000 copies of the CD-ROM. The Web site provides updated grasshopper and Mormon cricket survey and outbreak information, which is otherwise not readily available to pest managers. The Web site and CD-ROM contains numerou grasshopper and Mormon cricket identification keys and field guides, updated decision support software, a grasshopper integrated pest management handbook practical management information for pest managers.

The Systematic Entomology Laboratory at Beltsville, Maryland, provides taxonomic and identification support for scientists working on grasshopper research and in support of APHIS action programs. ARS scientists in Alaska are modeling grasshopper populations for use in integrated pest management systems approaches using current technologies.

The funding for grasshopper and Mormon cricket research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Fairbanks, AK	$1,052,500	$1,045,400	$1,045,400
Gainesville, FL	209,700	208,200	208,200
Beltsville, MD	121,000	120,100	120,100
Sidney, MT	1,043,700	1,036,400	1,036,400
Total	$2,426,900	$2,410,100	$2,410,100

HONEY BEE

Ms. DeLauro: By location, provide a table showing the funding devoted to honey bee research in fiscal years 2007, 2008, and 2009. Please provide an update on the major issues ARS is researching at these locations.

Response: ARS has provided a table showing the funding devoted to bee research, by location included in the fiscal year 2008 budget request.

	FY 2007	FY 2008	FY 2009
Tucson, AZ	$1,130,700	$1,122,800	$2,137,900
Gainesville, FL	209,700	208,200	208,200
Baton Rouge, LA	2,306,100	2,290,100	2,588,200
Beltsville, MD	2,072,600	2,057,700	3,401,800
Fargo, ND	65,000	64,500	64,500
Weslaco, TX	1,890,500	1,877,300	--
Logan, UT	1,603,300	1,592,200	1,592,200
Madison, WI	49,100	48,800	48,800
Montpellier, France	--	177,400	177,400
Total	$9,327,000	$9,439,000	$10,219,000

Colony collapse disorder (CCD), which reduces honey production and severely reduces pollination, has focused attention on the plight of the honey bee. Some correlation of pests and pathogens is likely involved. Together with the varroa mite, CCD is the major, immediate threat to the beekeeping industry and crops dependent on pollination (e.g., almond, alfalfa seed, berries, tomatoes, tree fruit crops). Following are major issues being researched at each location, and the ARS research response.

In FY 2007 and 2008, ARS worked with industry to develop and initiate a plan to address CCD, while recognizing that varroa mites, nosema, other diseases, and poor nutrition and transportation, may contribute to susceptibility to CCD. ARS strength in bee breeding and in the genomics of bees and their pathogens will be critical to developing solutions. The emergence of CCD also emphasizes the need for continued development of non-honey bee pollinators.

TUSCON, ARIZONA - Apiarists need to maintain healthy and populous honey bee colonies during transport to orchards and fields and prior to bloom when flowering plants are unavailable. ARS and a CRADA partner filed a patent

application and established a licensing agreement resulting in the manufacturing and production of an artificial diet that is fed to honey bees as a substitute for pollen during times when flowering plants are unavailable. The diet - called MegaBee-The Tucson Diet - stimulates colony growth at higher rates than other commercially available feeding supplements, as shown by tests in California in advance of almond bloom. Additional tests to boost brood production at other times of the year are underway. The diet could provide a solution to the nutritional deficiencies that may predispose bees to CCD.

Treatments are needed to reduce honey bee colony losses from parasitic varroa mites that are resistant to the miticides currently registered for control. ARS is developing a biodegradable delivery system for a natural miticide (2-heptanone) that is extremely effective against varroa, and is working with a CRADA partner to manufacture and distribute 2-heptanone products to beekeepers. In addition, a CRADA was established with J. I. Haas, Inc. to develop plant acids (byproducts of hops processing) for use against varroa mites and bacterial diseases. The effectiveness of microencapsulated essential oils against varroa and brood diseases is also being determined. The oils can be fed to the bees using the MegaBee diet as a delivery system.

The invasion of Africanized honey bees and their displacement of gentle European honey bee colonies is a growing problem for beekeepers across the nation. ARS is developing methods based upon honey bee behavior to prevent invasion of European hives by swarms of Africanized bees. Research is also being conducted to determine methods and timing for transforming Africanized colonies into European ones, via introduction of European queens. In addition, ARS is identifying bee samples sent by state agencies, and serving as a source of information and guidance to states that have recently been invaded by Africanized bees.

GAINESVILLE, FLORIDA - The small hive beetle (SHB) is a recently introduced pest of honey bee colonies. It consumes hive stores and also transmits a yeast that causes spoilage. ARS scientists have documented that SHB is resident in areas that do not have honeybees, where it is capable of reproducing on fallen fruits, particularly oranges and melons. ARS scientists have found that the associated yeast attracts SHB. If clean beetles are attracted to fruit infested with yeast by other beetles, the beetles will become contained and transmit the yeast to hives when they attack. Thus, the reproductive cycle of both the yeast and beetle is not limited to bee hives and this magnifies the beetle problem.

ARS scientists have also documented that varroa mites use chemical signals from bee larvae and will crawl off of adult bees and actively seek out cells releasing these compounds. In fact, once the mites enter even empty cells that have been impregnated with these chemicals they will not leave, even though there is no food source for the mites. ARS is testing to see if this can serve as the basis for developing a trap.

BATON ROUGE, LOUISIANA - Improved honey bee stocks are a long-term solution to varroa mites and other parasites, pathogens, and other factors causing mortality of bees. Self-sustaining inbred honey bee lines are necessary for cost-efficient breeding programs that maintain specific desirable traits. ARS has produced and is maintaining self-sustaining inbred lines that show resistance to varroa mite (e.g., Russian bee lines). Genes responsible for resistance ([e.g., the genes for varroa associated hygiene, formerly known as the suppression of mite reproduction are being identified,

so they can be bred into bee lines of interest to the bee industry. These lines and bee traits are being tested side by side in a commercial beekeeping operation to compare long term performance of theses stocks and traits under real-world conditions.

BELTSVILLE, MARYLAND -ARS showed that, besides causing direct mortality to bee brood, varroa mites can transmit bee viruses, thus adding another concern to the spread of this invasive parasite.

To battle American foulbrood (the most serious bee disease), ARS obtained FDA approval for use of the antibiotic tylosin to control the causative bacterium. Additionally, we have identified genes involved in the immune response of bees to this disease agent, and have shown variation in commercial bee populations in both immunity levels and disease resistance - providing novel genetic traits with strong potential for breeding more disease-resistant bees. To facilitate this, ARS scientists are lead collaborators with scientists from the Baylor College of Medicine and elsewhere in bee genome and have sequenced the genomes of the honeybee and three key pathogens: the bacterium that causes American foulbrood disease and the fungus that causes chalkbrood disease, and the microsporidian that causes nosema, as well as numerous viruses.

ARS also operates a bee disease diagnosis service for beekeepers and state inspectors that can identify resistance problems and aid in the proper management of diseases and pests across the United States.

Prior to CCD, pesticide-resistant mites were the number one cause of bee losses in the United States and pesticide-resistant mites continue to be a major problem. ARS is developing a combination of mite management strategies (e.g., formic acid, oxalic acid, essential oils, screen bottom boards and mite trapping) that are not reliant on synthetic chemicals.

There are also industry-wide problems with failing honey bee queen health necessitating queen replacement. ARS has shown the negative impact of (sub-lethal) levels of chemical residues used for parasitic mite control on queen health and performance and is determining the impact of nosema, viruses and other pathogens on queen health and longevity.

Hive stress during long-range transport is a major contributor to reduced performance in honey bee hives used in migratory pollination. This year ARS scientists documented a 30% loss of young brood in colonies transported in March from California to Florida following almond pollination. ARS is determining key physiological stressors at the bee level during hive transport across U.S. regions, and developing management practices to lessen impacts of these stressors, thereby increasing pollination efficiency and crop production.

There are also increasing levels of a new species of parasitic nosema, *Nosema ceranae*, in U.S. honey bee populations. ARS is surveying the distribution of this new species and developing new control strategies to limit its impact.

Wax combs in honey bee colonies harbor pesticide residues and pathogen spores, both of which can affect bee health. Beekeepers re-use wax combs from hives that have died and may be passing on pesticides and pathogens to new colonies. ARS scientists have documented pesticide residues in beeswax and are exploring means to reduce the pathogen and pesticide loads in beeswax

using gamma irradiation and fumigation with ozone. The goal is to provide beekeepers with an inexpensive and effective means to limit pesticide and pathogen carryover in older beeswax combs.

No technology exists for breeders of queen bees to store germplasm with desirable honey bee traits (e.g., for honey production, resistance to mites and diseases, non-aggressiveness). Our honey bee germplasm research aims to develop the capability to preserve honey bee semen and embryos as a tool to be used by queen breeders. In collaboration with the USDA National Animal Germplasm Program, our ultimate goal is to develop a bee-banking program to meet the future needs of the U.S. beekeeping industry.

FARGO, NORTH DAKOTA - Together with the ARS Logan laboratory collaboration: 1) a functional genomics approach is being used to better understand diapause and overwintering physiology in the alfalfa leafcutting bee (the major pollinator in U.S. alfalfa seed production), the results of which will contribute to protocols that reduce storage losses of artificially managed populations; and, 2) the source and identity of chemical cues produced by nesting alfalfa leafcutting bees and blue orchard bees (an excellent pollinator of cherries, pears, apples, and almonds) are being determined to increase brood production and pollination levels of the target crops. These approaches will be used to develop alternative pollinating bees to supplement honey bee pollination.

WESLACO, TEXAS - ARS is: 1) developing integrated pest management (IPM)/organic/ sustainable methods to control mites and diseases, and is testing several chemicals; 2) completing data registration for EPA approval of natural organic mite control compounds; and, 3) optimizing management practices for integrating mite-tolerant bee stocks into the southwestern United States to minimize in-hive pesticide use. Promising approaches include use of the chemical oxalic acid, as well as a fungus that is being developed (in cooperation with researchers at the ARS laboratory in Logan and at Florida A&M University) for use in controlling mites in the hive. Similar work, with European fungal strains, is being conducted at our European Biological Control Laboratory in France.

Genomic-level information is required for the rapid development of new disease management options in honey bees and for the reduction of antibiotic use in hives, thereby reducing antibiotics in the human food chain (honey). Based on a genomics approach, ARS is: 1) determining the innate defense mechanisms that allow honey bees to respond to major disease pathogens; 2) developing a detailed understanding of bee/pathogen interactions through the mapping of major disease pathogen genomes; and, 3) providing for eventual use of this information in honey bee stock breeders.

For SHB, ARS is: 1) identifying odors that attract the beetle into honey bee hives (in close collaboration with ARS researchers in Gainesville, Florida); 2) developing control tactics to reduce SHB populations within individual hives and apiaries; and 3) evaluating biological control compounds/nematodes for long-term control of the beetle.

LOGAN, UTAH - ARS is developing novel control options and delivery systems for the management of chalkbrood, as well as other diseases, parasites, and predators in commercial-scale solitary bee pollinator populations.

Natural bee behavior affects the rate at which bees return to their nests after being released in growers' fields. ARS has determined that some bees, such as the alfalfa leafcutting bee (used for alfalfa seed pollination) and the blue orchard bee (used for tree fruits and nuts), mark their nests with compounds that attract them back to their homes. Work is being done to create chemical compounds that can be used to attract the bees to nest where growers want them to nest, thus reducing the loss of released bees.

California almond producers are having difficulty renting sufficient honey bees for pollination, and this problem persists as the acreage of almonds continues to increase. ARS is teaching beekeepers and almond growers to use the blue orchard bee. This bee is not susceptible to the varroa mite or CCD, and, when compared to the honey bee and fewer bees are needed per acre for pollination. This bee is also an excellent pollinator for other tree fruits such as apples and cherries.

There is a growing need to address pollination management and profitability in crops. ARS is working with seed growers and seed companies to determine how many bees need to be released in order to obtain high yields, yet maintain good bee reproduction rates. Previously, alfalfa seed producers have been releasing too many bees per acre, an unnecessary cost.

Bumble bees are needed for pollinating tomatoes and berries in greenhouses and crops with row-covers, but no bumble bees native to the western United States are available to producers, and bumble bees from other areas might introduce diseases if imported to the West. ARS is working on finding suitable native bumble bee species for commercial use in the West. This technology will be transferable to other areas of the country as well, for example, for blueberry pollination in Florida.

Federal land managers require knowledge of native pollinators to satisfy regional and national mandates, particularly for Threatened and Endangered plant species recovery. In close collaboration with Federal land management agencies, ARS is: conducting biological surveys of native bee pollinators; establishing monitoring programs to determine if human activity is causing bee declines; and expanding agency knowledge of bee systematics in agricultural and natural systems for direct implementation in management plans.

MADISON, WISCONSIN - ARS scientists are studying the impact of insect pollinators on gene dispersal from transgenic crops using the Rocky Mountain columbine flower as a model.

KEARNEYSVILLE, WEST VIRGINIA: ARS researcher developed a sugar estertechnology for control of Varroa mite (marketed as Sucracide); it has application, primarily, to hobbyist beekeeping.

HOPS RESEARCH

Ms. DeLauro: Please provide an update on the 2007 and 2008 accomplishments in hops research activities and plans for 2009.

Response: U.S. hop production provides 30 percent of the world supply of hops. Approximately 60 percent of the crop is exported, contributing positively to the U.S. agricultural trade balance. Over 50 percent of all hop varieties grown in the United States were developed by the USDA-ARS Forage

Seed and Cereal Research Unit hop genetics program. The emergence of hop powdery mildew and annual epidemics of hop downy mildew in Idaho, Oregon, and Washington State continue to threaten the economic viability and sustainability of the U.S. hop industry. USDA-ARS has accelerated the development of disease resistant hop germplasm, as well as germplasm adapted to short trellis production systems, produced disease prediction models, and identified non-chemical approaches to pest management that will enable the U.S. hop industry to reduce pesticide use and enhance profitability.

Identification of Molecular Markers Linked to Powdery Mildew Resistance. The ARS Forage Seed and Cereal Research Unit identified two molecular markers associated with resistance to the invasive disease hop powdery mildew. This is significant because traditional breeding methods for developing powdery mildew-resistant varieties are time consuming, laborious, and insufficient. The markers identified by this research will accelerate selection for powdery mildew resistance to ensure a stable supply of U.S. hop products, reduce pesticide use, and ensure environmental protection.

Development of a New Molecular Test to Predict Breeding Potential of Male and Female Hop Accessions. The ARS Forage Seed and Cereal Research Unit designed and evaluated a molecular test that can predict the breeding success of specific male and female hop pairs. Genetic relatedness between male and female hop accessions were determined using molecular markers. This knowledge helps to eliminate the guessing involved in selecting potential parents for developing new varieties. The use of this new technique is significant for producers and brewers because it will increase breeding efficiency relative to traditional breeding methods. This ultimately will result in quicker responses to new production and brewing needs.

Development of Superior Hop Germplasm with Resistance to Multiple Races of Powdery Mildew. The ARS Forage Seed and Cereal Research Unit completed selection from two breeding nurseries designed to incorporate multiple genes for resistance to powdery mildew infection. Data on powdery mildew resistance, yield, overall vigor, and chemical properties of the hop cone (component used in brewing) were taken over a 4-year period. Twenty-five offspring from these nurseries were selected for superior performance and strong resistance to powdery mildew. Completion of this selection cycle is significant as these public selections provide new germplasm and potential new varieties possessing higher yields, better resistance packages to plant diseases and superior brewing capabilities for American breweries.

Release of Germplasm with New Resistance to Powdery Mildew. The ARS Forage Seed and Cereal Research Unit and National Clonal Germplasm Repository submitted an application to release 'Kazak 2000', a variety that provides hop breeders a new source of genetic resistance to powdery mildew. The release of 'Kazak 2000' is significant because resistance to powdery mildew often is overcome by new strains of the pathogen. This germplasm will provide public and private sector plant breeders new tools to develop hop varieties with durable resistance to powdery mildew that minimize pesticide use and ensure profitable production of hops in the U.S.

Developed New Molecular Tests to Enhance Crop Protection. The ARS Forage Seed and Cereal Research Unit developed and validated an approach to monitor air for the presence of the hop downy mildew pathogen. In field validation over three years, the assay detected the pathogen in air samples no later than 8 days after the appearance of trace levels of disease and/or airborne spores. Growers utilizing the system eliminated at least one

unnecessary pesticide application compared to their standard practices. The air sampling technology will serve as a component of plant protection monitoring systems for native and introduced pathogens to optimize detection and timing of control measures.

Research planned for 2009:

Development of dwarf hop-varieties that perform well on low-trellis to reduce major labor inputs. Use of dwarf varieties will reduce labor inputs up to 30 percent and enable the U.S. hop industry to remain competitive in international markets, as well as mitigate non-target pesticide drift issues that may impact threatened and endangered aquatic species in the Pacific Northwest.

Development of antibiotic-replacement hop cultivars. Recent research demonstrated that an ARS hop variety that contains high quantities of certain naturally-occurring compounds can replace antibiotics in poultry production. The antimicrobial compounds also can be used as a preservative in bio-ethanol and sugar refining. ARS is developing new hop varieties that have higher levels of the antimicrobial compounds for use as replacement of antibiotics in animal feed and other applications. New crosses and nurseries are being established to produce higher yielding, disease resistant varieties for this emerging market.

Development and validation of prediction models for the occurrence of downy mildew and powdery mildew. ARS is developing models to forecast the occurrence of powdery mildew and downy mildew. These models will allow producers to make informed decisions that optimize pesticide usage, minimize supply disruptions due to disease outbreaks, and enhance the economic viability of the U.S. hop industry.

Ms. DeLauro: Please provide a table, by location, highlighting the funds and staff devoted to hops research in fiscal years 2007 and 2008, and proposed in fiscal year 2009. Include funding provided for cooperative research.

Response: ARS conducts hops research in Corvallis, Oregon, and cooperates with scientists at Washington State University. Funding provided to Washington State University for cooperative research was $81,275 in fiscal year 2007. Extramural funding for fiscal year 2008 has not yet been determined.

	FY 2007		FY 2008		FY 2009	
	Funds	SYs	Funds	SYs	Funds	SYs
Corvallis, OR	$973,800	2.5	$966,980	2.5	$966,980	2.5

HUMAN NUTRITION RESEARCH

Ms. DeLauro: Please provide a table showing each location for ARS funding of human nutrition research, and how much funding was spent in fiscal year 2007 and 2008 and what is anticipated for fiscal year 2009.

Response: The funding for the ARS Human Nutrition research locations and related programs for fiscal years 2007 and 2008, and what is anticipated for fiscal year 2009 is provided below for the record.

Location	FY 2007	FY 2008	FY 2009
Arkansas Children's Hospital Research Institute Little Rock, AR	$5,980,800	$5,937,300	$5,937,300
Western Human Nutrition Research Center, Davis, CA	7,226,800	7,177,300	11,894,300
Pennington Biomedical Research Center Baton Rouge, LA	869,500	863,400	199,100
Jean Mayer USDA Human Nutrition Research Center on Aging, Boston, MA	16,313,100	16,198,900	16,198,900
Beltsville Human Nutrition Research Center, Beltsville, MD	23,821,000	23,740,100	29,172,100
Stoneville, MS	298,500	296,400	296,400
Grand Forks Human Nutrition Research Center, Grand Forks, ND	10,297,000	10,154,100	--
Children's Nutrition Research Center Houston, TX	14,678,800	14,576,100	14,576,100
National Agricultural Library	625,000	621,000	621,000
Lower Mississippi Delta Intervention Research Initiative, (LA, AR, MS)	4,222,500	4,193,400	--
Other Locations	1,683,000	1,581,000	583,800
Total	$86,016,000	$85,339,000	$79,479,000

Ms. DeLauro: Please update the table in last year's hearing record that shows the total USDA program for human nutrition research and education, including the NRI, special grants, Hatch Act, Smith-Lever, and other programs.

Response: The total budgets for human nutrition research, education and related activities in USDA will be provided for the record.

HUMAN NUTRITION RESEARCH, EDUCATION AND RELATED ACTIVITIES
(Dollars in Millions)

	2007 Actual	2008 Estimate	2009 Budget
Agricultural Research Service	$86.0	$85.3	$79.5
CSREES - Cooperative State Research, Education and Extension Service:			
Hatch Act [1]	(8.5)	(5.1)	(3.7)
Evans-Allen [1]	(3.0)	(3.1)	(2.8)
Special Research Grants	(0)	(1.5)	(0)
National Research Initiative	(12.9)	(17.8)	(15.3)
Smith-Lever 3 (b) & (c) [1]	(17.3)	(16.6)	(16.4)
EFNEP [1]	(63.5)	(65.5)	(62.3)
1890's & Tuskegee [1]	(2.1)	(2.2)	(2.1)
Total, Cooperative State Research, Education and Extension Service	107.3	111.8	102.6
Economic Research Service	12.4	12.4	12.4
Food, Nutrition and Consumer Services	730.1	779.9	788.0
TOTAL, USDA Nutrition	$935.8	$989.4	$982.5

[1] Funding through CSREES formula grant programs is allocated to specific programs by the receiving institution.

Ms. DeLauro: Why is USDA seeking funding after the fact to determine if "optimal adherence to the Dietary Guidelines prevents unhealthy weight gain in adults"? Why wasn't this research done before the release of the Guidelines?

Response: The 2005 *Dietary Guidelines for Americans* is the first release of the guidelines to promote body weight management through combined nutrition and physical activity recommendations. Although it would have been advantageous to determine if "optimal adherence to the *Dietary Guidelines* prevents unhealthy weight gain in adults" before their release, the *Dietary Guidelines* process does not provide sufficient time between formulation and issuance of the guidelines to conduct such research. Thus, ARS proposes to embark upon multifaceted research to test the efficacy of the complete package of food and physical activity recommendations as an obesity prevention and healthful eating strategy for the American people. Confirmation of impact is crucial to stemming the obesity epidemic.

INTEGRATED PEST MANAGEMENT (IPM)

Ms. DeLauro: Provide a table with the current IPM research projects, including funding for each project in fiscal year 2007 and 2008 and the funding level for each project proposed in the fiscal year 2009 request. Describe each project and the anticipated outcome.

Response: The locations and funding for the current Integrated Pest Management research projects for FY 2007, 2008, and proposed 2009 are provided for the record.

Location	FY 2007	FY 2008	FY 2009
Fairbanks, AK	$2,631,300	$2,613,400	$2,613,400
Albany, CA	1,476,000	1,465,700	1,465,700
Davis, CA	214,700	213,200	213,200
Parlier, CA	1,026,500	1,019,400	1,019,400
Salinas, CA	1,146,000	1,138,200	1,138,200
Shafter, CA	319,000	316,700	316,700
Ft. Collins, CO	1,979,000	1,965,100	1,965,100
Gainesville, FL	1,962,800	2,146,200	1,744,100
Ft. Lauderdale, FL	2,763,600	2,743,400	2,743,400
Ft. Pierce, FL	2,640,300	2,622,400	2,622,400
Miami, FL	1,596,700	1,584,800	1,584,800
Tifton, GA	146,800	147,900	147,900
Ames, IA	410,700	407,800	407,800
Peoria, IL	714,500	729,400	729,400
West Lafayette, IN	72,700	72,200	72,200
New Orleans, LA	458,300	455,100	455,100
Beltsville, MD	954,700	885,500	885,500
Morris, MN	222,300	220,700	--
Stoneville, MS	3,820,900	3,855,400	3,855,400
Lincoln, NE	232,300	230,700	230,700
Ithaca, NY	255,800	254,300	254,300
Burns, OR	769,200	763,900	763,900
Corvallis, OR	389,400	386,700	386,700
Brookings, SD	2,783,400	2,763,900	2,763,900
College Station, TX	703,700	698,800	698,800
Kerrville, TX	394,400	466,300	391,700
Weslaco, TX	872,800	866,700	--
Logan, UT	1,284,600	1,275,700	1,275,700
Prosser, WA	189,500	188,200	188,200
Pullman, WA	154,500	153,400	50,400
Wapato, WA	1,976,800	1,962,300	1,962,300
Kearneysville, WV	298,800	286,400	286,400
Washington, DC	409,300	406,400	406,400
Headquarters	6,498,700	6,453,100	6,453,100
Total	$41,770,000	$41,759,300	$40,092,200

Under the auspices of the ARS National Program for Crop Protection and Quarantine, and in support of the Department's Integrated Pest Management (IPM) goals and other IPM needs, ARS currently conducts IPM research at approximately 35 locations with more than 75 projects that are focused on developing environmentally friendly pest control technologies. These projects emphasize classical and augmentation biological control, cultural control, host-plant resistance, behavior modifying chemicals (e.g., pheromone mating disruptors and attracticides), sterile insect release techniques, resistance management, cultural and mechanical practices, improved pesticide application technologies, and other related pest control tactics. Target pests include a multitude of insects, mites and ticks, plant pathogens and nematodes, and weeds.

A prominent focal point of the agency's IPM program continues to be its area-wide IPM pest management projects, which have been developed in partnership with other Federal and State institutions and the private sector. These multi-state 5-year projects are managed from Wapato, Washington; Brookings, South Dakota; Manhattan, Kansas; Sidney, Montana; Gainesville, Florida; Hilo, Hawaii; Stillwater, Oklahoma; Fort Lauderdale, Florida; Fort Pierce, Florida; Davis, California; Stoneville, Mississippi; Burns, Oregon;

Parlier, California; Beltsville, Maryland; Weslaco, Texas; Baton Rouge, Louisiana; and Tucson, Arizona.

The area-wide IPM program focuses on management of pests where existing technologies must be applied over a multi-state or multi-regional area. Adoption of the technologies by growers and pest control practitioners is a major goal of the demonstration projects.

The area-wide projects take technology that is proven on an IPM (i.e., field-by-field, farm-by-farm) basis, and develop the means for extending the technology to larger areas (often many States, a region, or a specific habitat). The key points are that 1) projects are designed to end after a relatively short time, and 2) low-input, permanent, environmentally compatible technology is transferred to partners. Once a project is finished, the area-wide funds are redirected to the next high-priority project. The first successful projects initiated, beginning in 1995, were targeted at combating codling moth on tree fruits with mating disruption, in the Pacific Northwest, and the corn rootworm through an adult attracticide, in the midwestern United States.

In FY 2000, another area-wide project was initiated in Hawaii for management of fruit flies through population monitoring, male annihilation, Spinosad baits, and sanitation. The project has met its goal of suppressing fruit flies below economic thresholds across the Hawaiian Islands. Demonstration sites were implemented in central Oahu, on the island of Maui in the Kula area, on the island of Hawaii in the Kamuela and Kohala areas, and on the islands of Molokai and Kauai. Infestation damage was reduced to less than 5 percent with greater than 75-90 percent reduction in chemical insecticide applications for melon, Oriental, and Mediterranean fruit flies. More than 2,540 growers are partners, on 607 farms, with more than 15,773 acres under suppression in the program. Small farms are now growing crops they had previously abandoned due to fruit fly damage. This program will be completed in FY 2008.

In FY 2001, an areawide pest management project for fire ants in Florida, South Carolina, Mississippi, Texas, and Oklahoma using biological control and attracticides was initiated. The project has already resulted in the successful establishment of two species of fire ant decapitating flies. A third species has been added to the program. Environmentally friendly baits have been developed by the program and successfully commercialized for public use.

In FY 2001, the second area-wide project for combating a weed was initiated in the Everglades of southern Florida for the Australian tree called melaleuca. ARS scientists involved with the melaleuca project developed four demonstration sites on public and private lands in four counties, applying biological control agents such as weevils and psyllids, plus herbicides and mechanical control. The psyllids (tiny sucking insects), in particular, have been spectacularly successful, causing the extreme decline of melaleuca during the project. As a result, some land managers have removed melaleuca from their list of major invasive weeds. This project is a classic demonstration of environmentally friendly and permanent, low-input weed management conducted by ARS and a host of Federal, State and local partners.

Two additional projects were initiated in FY 2001 for Russian wheat aphid and green bug in the United States wheat belt, and the tarnished plant

bug on cotton in the mid-South United States. Russian wheat aphid and greenbug project scientists established 11 area-wide demonstration sites in a 6-state suppression area. This project has relied on resistant wheat varieties and more effective biological control by natural enemies and crop rotations. Area-wide pest management of the tarnished plant bug, a pest of cotton, soybean, and corn, was implemented at seven demonstration sites in Mississippi and Louisiana. It enlists herbicides to destroy weed hosts in the early season, (thus lowering the populations of plant bugs), and remote sensing technology to detect plant bug infestation and damage.

An area-wide pest management project focused on methyl bromide alternatives was initiated in Florida and California during FY 2007. In FY 2008, four new area-wide IPM projects were initiated. One project is directed at management of weedy annual grasses, such as cheatgrass and medusahead, on rangelands in the Great Basin ecosystem of the United States. Another project is directed at area-wide management of the Asian tiger mosquito/West Nile virus, with initial demonstration sites located in New Jersey. Yet another project is directed at managing the navel orangeworm which attacks almonds, pistachios, and walnuts in California.

The last new project is directed at improving honey bee health, nutrition, survival, and pollination availability, across the United States by controlling bacterial, protozoan, fungal and viral pathogens, and Varroa and Acarapis bee mites. ARS honey bee laboratories in Beltsville, Maryland; Baton Rouge, Louisiana; Weslaco, Texas; and Tucson, Arizona are partnering with states and the private sector in this effort.

Other related projects that contribute to the overall IPM program include: a management program for the Formosan termite in Louisiana; a community-based field trial for control of the deer tick and Lyme disease in the northeastern United States; community based area-wide pest management of silverleaf whitefly across the southern tier of the United States; and an IPM program that has significantly lowered glassy-winged sharpshooter/Pierce's disease in California vineyards.

ARS also implements IPM projects other than area-wide projects, as needed by our customers and stakeholders. ARS scientists cooperate with state, regional, and local IPM teams in a variety of action-oriented smaller scale implementation and pilot-test projects that demonstrate biologically based pest control in on-farm situations. The anticipated outcome of these projects will be the adoption of the component technologies by the end-users into IPM and sustainable agriculture systems with a concomitant reduction in chemical pesticide use and increased worker and food safety. Most of these projects develop alternative technologies that can substitute for at-risk chemical pesticides that are being lost as a result of the Food Quality Protection Act of 1996.

Numerous other descriptions and achievements of ARS' IPM projects and accomplishments may be found in the Agricultural Research Service's Web site home page in the National Program section and annual reports. (www.ars.usda.gov/research/programs.htm)

IR-4 RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the IR-4 program and IR-4 projects selected to date, including IPM programs. By location, list the funding and staff for IR-4 research for fiscal years 2007 and 2008, as well as funding and staff for these same programs in fiscal year 2009.

Response: The IR-4 program is a cooperative program among Federal, State, and industry scientists to register minor uses of pesticides. Major research components to develop performance and residue data lie within USDA-ARS, USDA-CSREES, the State agricultural experiment stations, and private industry. A staff headquartered at Rutgers University maintains files, tracks projects, prepares research protocols, and develops petitions for submittal to regulatory agencies and the chemical registrants. The program is guided by an Administrative Advisory Committee and a Project Management Committee. The ARS Administrator represents ARS on the Advisory Committee and a scientist represents ARS on the Project Management Committee. In addition, ARS conducts field experiments to determine pesticide efficacy and performs laboratory analyses to determine pesticide residues.

For edible specialty crops, ARS established 87 pesticide/crop combinations in field trials at seven locations for the 2008 field season and will analyze 147 pesticide/crop combinations in the laboratory for pesticide residues at three locations. In 2007, ARS contributed data from earlier years for tolerances on 39 crops and 18 pesticides to be used by registrants to label these uses to make them available to specialty crop growers.

For ornamental specialty crops, ARS established 244 pesticide/crop combinations in field trials at seven locations for the 2008 field season. In 2007, ARS data contributed toward new and/or amended EPA registrations of 5 pesticides with uses impacting 3,222 crops.

The judicious use of chemicals is an integral part of the integrated pest management (IPM) programs. IR-4 works closely with its USDA IPM Centers to determine registration needs which are prioritized together with other IR-4 needs. In addition, IR-4 is assisting in the registration of biopesticides useful for IPM programs.

A table that reflects the IR-4 research funding and where the research is being conducted is provided for the record.

	FY 2007		FY 2008		FY 2009	
Location	Funds	SYs	Funds	SYs	Funds	SYs
Maricopa, AZ	$167,500	--	$166,200	--	$166,200	--
Salinas, CA	270,100	--	268,300	--	268,300	--
Tifton, GA	789,300	.24	783,700	.22	783,700	.22
Urbana, IL	16,400	--	16,300	--	--	--
Beltsville, MD	717,200	1.05	712,100	1.05	712,100	1.05
Wooster, OH	167,400	.10	188,300	.10	188,300	.10
Corvallis, OR	142,300	.10	141,300	.10	141,300	.10
Charleston, SC	145,800	--	144,800	--	144,800	--
Weslaco, TX	190,700	--	189,400	--	--	--
Prosser, WA	85,400	.05	106,800	.05	106,800	.05
Wapato, WA	698,200	.10	693,100	.11	693,100	.11
Headquarters	540,100	--	492,200	--	492,200	--
Total	$3,930,400	1.64	$3,902,500	1.63	$3,696,800	1.63

INVASIVE SPECIES

Ms. DeLauro: Provide a list that identifies, in terms of cost, the major pests and diseases that ARS defines as invasive species. If this information has been supplied in other questions, as the agency indicated in last year's hearing record, please compile those answers, update as necessary, and provide the complete list for the record, as requested by the Committee. The agency failed to provide this information as requested last year; please make sure it is included it this year.

Response: Executive Order 13112 defines an invasive species as a species that is both not native to the region or area and whose introduction causes or is likely to cause harm to the economy, the environment, or harm to animal or human health. Invasive species affect both aquatic and terrestrial habitats, and they can be plants, animals and microorganisms. Invasive species occur in all habitats ranging from lakes and rivers, forests and fields, homes and backyards to coast and oceans. It is currently estimated that approximately one new invasive species invades California alone every six weeks. ARS does not prepare economic analysis. Please consult the USDA Economic Research Service for cost information. ARS' priority research is on the following invasive species:

Insects: Africanized honey bees, Asian longhorned beetle, citrus Asian psyllid, emerald ash borer, fruit flies (including Mexican fruit fly, Mediterranean fruit fly, and olive fruit fly) glassy-winged sharpshooter, imported fire ant, light brown apple moth, lobate lac scale, mamorated stink bug, papaya mealybug, pink hibiscus mealybug, Russian wheat aphid, sirex wood wasp, small hive beetle, soybean aphid, subterranean Formosan termite, and varroa mite.

Weeds: arundo, Canada thistle, Cape ivy, giant salvinia, kudzu, leafy spurge, medusahead, melaleuca, old world climbing fern, saltcedar, perennial pepperweed, purple loosestrife, Scotch thistle, tropical soda apple, and yellowstar thistle.

Diseases: bronze wilt, citrus canker, citrus greening, citrus tristeza, dwarf bunt, fusarium headblight, karnal bunt, plum pox, potato mop top, Ralstonia solanaceanum, root-knot nematode, sclerotinia diseases, soybean rust, sudden oak death, and wheat stem rust.

More detailed information is provided in the responses to the questions on "Emerging Diseases and Exotic Pests" and "Noxious Weeds."

JOINTED GOAT GRASS CONTROL RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the work you are doing and progress made on jointed goat grass control, by location. Also by location, provide a table showing the funding for jointed goat grass research in fiscal years 2007, 2008, and 2009.

Response: ARS conducts basic and applied research on jointed goatgrass (*Aegilops cylindrica*) at Pullman, Washington; Brookings, South Dakota; and Akron, Colorado.

At Pullman, Washington, aspects of the basic biology and ecology and management of jointed goatgrass are being studied. Researchers evaluated

bacterial communities that were isolated from winter wheat, downy brome, and jointed goatgrass roots to understand the role of soil microbes in jointed goatgrass growth. In laboratory studies, 50 percent of the 2,450 naturally occurring soil bacteria were inhibitory to jointed goatgrass seedling growth. Conventional tillage systems maintained higher populations of inhibitory bacteria than no-tillage systems. Crop rotation had little effect on the incidence of jointed goatgrass inhibitory bacteria. Microbes can have a profound affect on plant growth, and thus have a place in modern weed management strategies. Ecologically based approaches, such as those using microbial communities in the soils, which take into consideration the weed, the pathogen, and the environment are important in weed management strategies.

The Pullman group is also continuing to work on an herbicide-resistant winter wheat (HRW) project (non-transgenic wheat) that is examining the frequency of growing HRW in winter wheat production systems. In the Pacific Northwest, winter wheat is planted as often as possible to optimize farm profit. One of the major recommendations for jointed goatgrass management is to rotate out of winter wheat and plant spring wheat. The results of this 6-year study will enable ARS to provide growers with information about when to introduce HRW into their cropping systems and how often HRW should be grown. Data will enable growers to maximize jointed goatgrass management while minimizing herbicide resistance transfer from HRW to jointed goatgrass. In FY 2007, scientists concluded a multi-year study to determine the effect of one-time deep plowing, no-till HRW, and length of absence of winter wheat production on jointed goatgrass populations and crop yield and quality. They sampled jointed goatgrass plants from these field trials to look for herbicide-resistant jointed goatgrass. In future work, these plants will be grown from the seed collected and subjected to dose response studies to determine if these conditions resulted in selection for a natural population of resistant jointed goatgrass. This study will provide to growers spring wheat production strategies that will enable them to return most rapidly to planting winter wheat while effectively controlling jointed goatgrass. This research is also supported by funds from the National Jointed Goatgrass Research Initiative.

At Brookings, South Dakota, ARS is preparing a series of nine extension bulletins that outline the fundamentals of jointed goatgrass management. Five bulletins are published, and the remaining four are being prepared and reviewed. These bulletins are transferring research information to wheat producers and others interested in management of jointed goatgrass.

ARS scientists at Akron, Colorado, have cooperated with scientists at Colorado State University to determine if genes from herbicide-tolerant wheat move, via hybridization, from wheat into jointed goatgrass, which would make the weed even more difficult to kill. Hybrid weed seeds were identified in weeds that were growing side by side with the herbicide-resistant wheat, and their frequency ranged from 0.1 to 1.6 percent. The greatest distance over which hybridization was documented was 16 meters. Even a small, localized amount of hybridization could lead to large numbers of herbicide-resistant populations of jointed goatgrass plants, and additional management concerns for wheat growers.

The funding for jointed goatgrass research by location is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Akron, CO	$222,500	$221,000	$144,600
Brookings, SD	73,200	72,700	72,700
Pullman, WA	152,400	151,300	--
Total	$448,100	$445,000	$217,300

LABORATORY SECURITY

Ms. DeLauro: Please update your response in last year's hearing record by describing the nature of the agency's effort to protect its laboratories in terms of biosecurity and overall homeland security. Are fiscal year 2004 Buildings and Facilities funds still available and being used for this purpose in fiscal years 2008 and 2009?

Response: The Agricultural Research Service (ARS) Agency overall approach to addressing security needs and improving its biosecurity and overall homeland security posture has been multi-faceted. It includes installing physical security countermeasures, implementing policies and procedures to protect ARS assets, and ensuring the suitability of persons working in its facilities.

Utilizing both Fiscal Year 2002 supplemental ($19.9M) and Fiscal Year 2004 Building and Facilities funds ($10.468M) ARS is actively involved in the installation of security countermeasures and upgrades in priority order to ensure the future security of its facilities and locations.

Fiscal Year 2002 supplemental funds have been fully obligated. ARS has completed security assessments for 135 locations; prioritized its approach to laboratory and facility security upgrades; and installed security countermeasures and upgrades to ensure future security. In high risk locations, assets were immediately consolidated and restricted access put in place.

Physical security countermeasures have been installed at all Priority One sites, which include all five BioSafety Level-3 (BSL-3) facilities and BSL-2 laboratories with select agents, as well as the majority of Priority Two sites and some Priority Three sites.

In FY 2008 and FY 2009 the remaining Priority Three and Four sites are scheduled for physical security countermeasures. As of April, 2008 all but $560,000 of FY 2004 B & F funds have been obligated against these projects. This remaining balance will be used to revisit the agencies BSL-3 facility and BioSecurity Plans to ensure contemporary countermeasures are in place. Countermeasures and upgrades for Priority Five sites are contingent upon future funding.

Security related policies and procedures addressing physical security, biosecurity, pathogen inventory control procedures, cybersecurity, and personnel suitability have been developed and issued as USDA Departmental Manuals covering all USDA facilities.

A centralized national pathogen inventory has been developed; the agency is in compliance with CDC and APHIS regulatory requirements for

physical security; background investigations on high containment facility personnel have been and continue to be completed.

LAPSED SALARIES

Ms. DeLauro: Were any funds accrued through lapsed salaries in fiscal year 2007 or 2008? If so, please provide the total amounts including headquarters and field. Why does ARS appear to consistently lapse millions of dollars in salaries? How were the lapsed funds obligated?

Response: The determination of salary lapse for 2008 has not been completed. The funds accrued through FY 2007 lapsed salaries, totaling $12,969,394, were used for Area-wide priorities, Agency IT initiatives, and Department support costs (Working Capital Fund and Greenbook).

These represent 60 percent of the total lapsed salary accrual for each year, which was managed from ARS Headquarters. The 40 percent balance of the accrued lapsed salaries was retained and used by local managers to directly support research programs and operating needs.

Salary lapse is a normal function for Agencies operating federal civilian/salaried accounts. As attrition occurs, "lapse" is generated between the time the position is vacated and subsequently backfilled. ARS maintains strict accountability and control over all Agency salaried accounts and lapsed funds.

LATE BLIGHT POTATO RESEARCH

Ms. DeLauro: By location, what is the funding and staff for late blight potato research for fiscal years 2007, 2008, and 2009?

Response: Late blight is one of the most important diseases affecting potatoes in the United States. Over the past 2 years, ARS scientists at Beltsville, Maryland, developed molecular tools to identify new strains of the late blight pathogen. In Madison, Wisconsin, ARS scientists identified and located a gene for late blight resistance. The gene has been subsequently introduced into potato breeding lines. The result of these new genes, new tools, and new discoveries will be varieties with diseases resistance, earlier diseases detection in the field, better tracking of their movement, reduced sources of inoculum for infection of the crop, and more profitable production with reduced chemical inputs.

Funding, location, and staffing for late blight potato research for fiscal years 2007, 2008, and 2009 is provided for the record.

	FY 2007		FY 2008		FY 2009	
Location	Funds	SYs	Funds	SYs	Funds	SYs
Aberdeen, ID	$94,000	0.2	$93,300	0.2	$93,300	0.2
Beltsville, MD	464,400	1.2	605,100	1.4	591,100	1.4
Orono, ME	703,400	2.0	697,700	2.0	--	--
Madison, WI	567,900	2.2	564,000	2.2	564,000	2.2
Total	$1,829,700	5.6	$1,960,100	5.8	$1,248,400	3.8

LOCOWEED RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the work on this issue completed in fiscal year 2007 and 2008 and proposed for 2009, including funding levels for each fiscal year by location.

Response: Toxic species of the *Astragalus* and *Oxytropis* genera commonly poison livestock and wildlife in the western U.S., Canada, South America, China and many other countries. Both of these genera of plants have swainsonine as a toxin.

Recent Accomplishments:

The Poisonous Plant Research Laboratory (PPRL) at Logan, Utah continues to be the only ARS location currently conducting research on locoweed. The PPRL has a continuing cooperative research agreement with New Mexico State University.

Research highlights include:

Locoweed survey for the endophyte and swainsonine: There are 354 species of *Astragalus* and 22 species of *Oxytropis* in the U.S. and Canada, but not all contain the toxic alkaloid swainsonine. A survey that included cooperators from New Mexico State University was conducted of the major locoweed species and varieties in the Western U.S. to compare their toxicity (swainsonine concentration) and relate toxicity to the presence of the endophyte Embelissia. PCR analysis showed all species contained the endophyte, but it could not be cultured in some varieties and individual samples, and these samples did not contain swainsonine. *Astragalus wootonii* is most toxic (swainsonine concentration: 0.43%), followed by *A. pubentissimus* (0.21%), *A. mollissimus* (0.19%), *A. lentiginosus* (0.15%), and *O. sericea* is least toxic (0.04%). Swainsonine was not found in *A. mollissimus* var. *thompsonii* or *A. amphioxys*. By identifying the *Astragalus* or *Oxytropis* species, ranchers and land managers can determine the risk of poisoning from these locoweed species.

Susceptibility of horses to swainsonine: Horses are uniquely sensitive to locoweed poisoning. Mares developed clinical signs of poisoning at doses of 0.25 mg swainsonine/kg bw/day for 14 days. This is lower than other livestock such as sheep and cattle which require doses of 0.30 mg/kg for nearly 21 days to develop clinical signs. High swainsonine doses of 0.75 and 1.5 mg/kg produced similar clinical changes supporting the hypothesis that poisoning progresses in a threshold fashion. When cellular mannosidases are inhibited more swainsonine does not further alter cellular function or toxicity.

Effect of locoweed on reproductive processes in mares: Locoweed poisoning in mares alters ovarian function with most animals developing ovarian cysts, prolonged abnormal estrus with excessive vaginal secretions, and altered behavior. Poisoned mares recover reproductive function when exposure is discontinued suggesting previously poisoned animals may be salvaged as brood mares. As some neurologic signs do not resolve, previously poisoned animals should be handled cautiously. In addition, they should not be used for riding or work. This information provides important information to producers regarding the utility of horses that have previously been poisoned by locoweed.

Effect of swainsonine on placentation in goats: Locoweed (*Astragalus lentiginosus*) fed to pregnant goats for 7 days during pregnancy interfered

with normal blood vascular development of the placenta at the microscopic level both qualitatively and quantitatively. Swainsonine resulted in a great distortion to the vasculature at 18 weeks.

Comparison of sheep breeds and goats to locoweed poisoning: Locoweed (*Astragalus lentiginosus*) was fed to pregnant wool sheep, hair sheep and Spanish goats to compare toxicoses between small ruminant breeds and species. Goats were the most sensitive to the toxicity of swainsonine. Pregnant Spanish goats are extremely sensitive to poisoning by locoweed, however, the mechanism or reason for this sensitivity is unknown. This information can be used by producers in locoweed infested areas due to the differential susceptibility in these species.

Excretion of selenomethionine: Selenium (Se) toxicokinetic studies have shown that selenomethionine has extensive respiratory Se excretion with rates nearly 100 times higher than sodium selenite or plant associated Se regardless of the dose.

Selenium concentration in Aster: Aster (*Symphyotrichum spathulatum*) appears to contain Se in a chemical form other than selenomethionine. It appears to be highly bioavailable and toxic to sheep. Toxicity results in distinct clinical and histologic lesions when compared to sodium selenite and selenomethionine. This information can be used by veterinarians in differential diagnosis in poisoning cases involving selenium in its different forms.

Future Research:

Research Objectives: Develop better diagnostic techniques; compare lesions or locoweed poisoning in deer and elk with chronic wasting disease; synthesize swainsonine analogs and protein conjugates to develop immunologic diagnostic techniques and vaccines; determine effect of dose and time on reproductive functions; determine conditions of grazing and poisoning of cattle and horses on Astragalus locoweeds and develop management strategies to reduce loss. Determine if locoweed is addictive to livestock.

Research Approach: Develop diagnostic techniques based on glycosylation of specific serum proteins and ELISA technology. Swainsonine and synthetic analogs will be conjugated onto carrier proteins, introduced into animals and titers measured for immune response. Reproductive dysfunction will be evaluated using hormone analysis, histochemistry techniques and ultrasound following feeding animals at various doses and times. Grazing studies on Astragalus locoweeds using cattle and horses will determine conditions of grazing. Aversion conditioning will be tested in horses. Population cycles of important locoweeds will be described and related to climate. Competition studies will be conducted to determine if locoweeds can be suppressed by grasses.

	FY 2007	FY 2008	FY 2009
Logan, UT	$1,019,200	$1,012,200	$1,012,200

LOW-INPUT SUSTAINABLE AGRICULTURE

Ms. DeLauro: Please update the Committee on the work ARS has underway in the field of low-input sustainable agriculture, including 2007 and 2008 accomplishments and plans for fiscal year 2009 by location.

Response: American farms generate more than $200 billion in goods and services on 442 million acres. Profitable farms are also the basis of vibrant rural economies. Consumers benefit from agricultural production that provides an abundant choice of food and fiber products at relatively low costs. ARS conducts research to reduce the cost of food and fiber production while enhancing the environmental service provided by agriculture through the development of low input sustainable systems.

Fiscal year 2008 accomplishments will not be available until after the end of the fiscal year.

2007 Sustainable Agriculture Accomplishments:

Agronomic Crop Production Systems: ARS research is addressing the needs of agronomic crop production systems dominated by the commodities including corn, soybean, cotton, peanut, wheat, barley, and turf and herbage seed crops. Accomplishments in 2007 include:

Sidney, Montana reported results from a 21-year study of the effects of tillage method and cropping sequence for cereal production. Even though less wheat was produced each year with the annual crop system, total income over the two years was greater than for one crop produced every other year. Mean crop biomass was 53 to 66 percent greater with reduced tillage with an annual cropping system than for conventional till with a spring wheat followed by a fallow system. During a six-year drought period during this long-term study, zero-tillage management allowed greater soil water to be available at planting than with conventional tillage. Just as importantly, the amounts of carbon and nitrogen in the soil surface residues were 23 to 141% greater than in the conventional tillage system. These findings demonstrate both the yield and conservation benefits of using reduced tillage practices in the Northern Great Plains region, and provide the scientific basis to support participation in USDA Farm Bill Conservation Title programs.

Successful adoption of cover crop use in conservation tillage systems requires knowledge of establishment methods, types of cover crop, fertilizer management, and termination equipment. USDA-ARS scientists in Auburn, Alabama and Watkinsville, Georgia, in conjunction with other regional experts synthesized diverse information on managing cover crops in conservation systems to produce a comprehensive guideline titled *Managing Cover Crops Profitably*. Both general recommendations, as well as specific considerations for different regions of the United States are presented. The compiled information is being adopted by university extension agents in training programs to help producers incorporate cover crops into farm operations and USDA-NRCS to develop conservation plans for delivery of Farm Bill Conservation Title programs in the Southeastern region.

ARS scientists in Ames, Iowa are working with collaborators at Iowa State University to find out how many farmers in the Corn Belt use cover crops in their production systems. Farmers who grow a greater diversity of crops were more likely to use cover crops, but only 18 percent of farmers in the region reported ever using cover crops – only 8 percent had planted cover crops in the fall of 2005. Eighty percent of farmers use some other sort of conservation practices, and indicated that they believed that cover crops improve soil conditions by reducing erosion and increasing soil organic matter. However, over a quarter of farmers perceived that cover crops are too expensive to use, and over a third believed that planting cover crops took too much time. These findings will help researchers design their work to

demonstrate the maximum combined benefits from using cover crops to Midwest farmers and help them realize ways to maximize profits.

Compaction limits the productivity of most Southern United States soils, so farmers typically use periodic in-row subsoiling to loosen compacted soil layers to promote root growth and increase crop yields. However, the cost of this operation has become increasingly expensive with rapidly escalating fuel prices. USDA-ARS scientists in Auburn, Alabama have shown that fuel use can be reduced 54% when subsoiling by proper selection of bentleg subsoiler shanks used at shallow tillage depth, operating at the proper soil moisture condition, using cover crops, and controlling vehicle traffic. An additional benefit was minimal disruption on the soil surface of the crop residues that help intercept precipitation and prevent soil erosion.

Scientists in Watkinsville, Georgia along with cooperators from the University of Georgia and Monsanto Inc. compared seven kinds of cover crops for use in cotton production on a Coastal Plain soil with strip tillage and no-till conservation practices. The legumes hairy vetch and Austrian winter pea fixed about half the amount of nitrogen needed to grow a cotton crop, while the combination of black oat and strip-tillage provided an additional $20 to $30 per acre returns than a cereal rye cover crop alone. Using nitrogen fixing cover crops to replace purchased nitrogen adds to the savings from conservation tillage practices, and enhances soil quality that contributes to increased crop productivity. Combined, these practices can increase returns to Coastal Plain producers where a majority of the 2.9-million acres of cotton in the southeastern U.S. is grown.

Concern about increasing costs of production and the need to protect soil and water resources has led many Mississippi Delta cotton producers to consider various conservation practices, including reduced tillage and cover crops. However, the economic impacts of these practices are not known. USDA-ARS scientists in Stoneville, Mississippi in collaboration with Mississippi State University scientists and producers demonstrated that the highest returns and lowest relative risks on Delta alluvial soils would be obtained by using a traditional no-till production system. Additional use of cover crops or sub-soiling as a part of the management package increased yield sufficiently to offset the additional expenses associated with these practices. Conventional production practices, while giving relatively high returns, were also the riskiest compared to conservation tillage management.

Scientists in Mandan, North Dakota and Fort Collins, Colorado investigated costs and returns for conventional tillage and no-till irrigated continuous corn production in Northeastern Colorado. Even though corn yields were lower under no-till than under conventional tillage, production costs were reduced so much that profits were greater for the no-till establishment system.

USDA-ARS scientists in Bookings, South Dakota evaluated the field decomposition rates of residues from *Bt* and non-*Bt* corn hybrids over a period of 22 months. No differences in the decomposition rates of the chopped residue from the four corn hybrids were detected. Widespread adoption of un-necessary aggressive tillage would offset decades of gains in soil and water quality improvement that has been achieved through conservation tillage practices.

Scientists in Columbia, Missouri have determined the effects of GM Roundup-resistant soybean treated with Roundup herbicide on crop residue

decomposition and soil biological processes under variable soil moisture conditions. Most of the measurements, including decomposition, showed no effect from Roundup or GM soybean at any soil moisture. However, the *Fusarium* fungal group consistently infected soybean roots at a higher incidence at all soil moisture levels in fields receiving Roundup, than with no Roundup applied. Results indicate that general biological measures such as residue decomposition did not detect GM soybean effects, but *Fusarium* microbial groups were more sensitive indicators of effects. This information is important because it helps to understand the occasional production problems observed in production system using GM soybeans, and to develop management solutions that will avoid crop growth reductions.

Scientists in Corvallis, Oregon determined total straw production for all counties in Oregon, Washington, and Idaho and determined county-by-county amounts of straw that should be returned to the soil for conservation purposes. A geographic information systems resource map was developed showing where the 7 million tons of straw that are annually produced in the region can be harvested. This information is useful to farmers and biofuel-producing companies who are beginning to consider the best strategies for utilizing this resource, and to government agencies for developing the best policies to ensure that high quality soil and water resources are maintained.

Specialty Crop and Organic Production Systems: ARS is also conducting research to increase the sustainability of specialty crop and organic production systems by solving problems related to the production of high-value vegetable crops and value-added organic products. Accomplishments in 2007 and include:

USDA-ARS scientists in Orono, Maine conducted on-farm field trials and showed that mustard, canola, and rapeseed green manures reduced powdery scab by 15-40%, and canola and rapeseed reduced black scurf by 70-80%. A mustard green manure also reduced common scab by 25%. Overall, mustard was most effective in reducing powdery and common scab diseases, and rapeseed and canola were most effective in reducing *Rhizoctonia* diseases. This research provides conventional potato growers with a viable tool for reducing soilborne disease levels without additional pesticides, and is useful to organic producers who do not use synthetic fungicides.

To enhance soil organic matter, scientists in Weslaco, Texas used a combination of cowpea and sorghum cover crops to increase soil organic matter by 52% and 61%. As a result, onion yields were increased 60-80% and there was an increase in the percentage of large market onions. Also, increasing soil organic matter improved soil tilth so that it was easier for the onions to be mechanically transplanted, with less need for follow-up labor.

A three-year field experiment was conducted at Beltsville, Maryland to measure the nitrogen released from a hairy vetch cover crop and the efficiency with which this nitrogen was used in sweet corn production compared to nitrogen supplied in fertilizer. Fewer marketable ears were produced by sweet corn grown on nitrogen released from a decomposing hairy vetch cover crop than by corn grown on synthetic nitrogen released from fertilizer. The lower crop use efficiency of nitrogen derived from hairy vetch cover crops is caused by reduced crop population as a result of interference by heavy levels of surface cover crop residue. This research shows the need to find new ways to manage legume cover crops to overcome limitations to organic sweet corn productivity.

Scientists in Weslaco, Texas have shown that garlic extract and kaolin particle film applied to peppers control on the pepper weevil as well as conventional insecticides. Similarly, the cowpea curculio on cowpeas was as effectively suppressed by garlic extract as by the conventional insecticide. This work provides possible organic approaches for suppressing both cowpea curculio and pepper weevil insect pests that may reduce or replace synthetic chemical controls.

USDA-ARS researchers in Weslaco, Texas found that white plastic weed barriers used to control weeds in newly planted brambles not only reduced labor needed for weed control, but improved blackberry yields and fruit quality. Improved plant vigor and berry soluble solids likely result from more consistent soil temperatures at four inches, while maintaining consistent soil moisture amounts.

USDA-ARS scientists in Salinas, California and cooperators conducted on-farm research to evaluate the effectiveness and costs of six organic weed management tools to prepare stale seed beds in high-density vegetable production. These techniques included organic herbicides, propane flamers, and various cultivation tools. Most techniques controlled more than 70% of the weeds and cost less than $230 per acre. However, the organic herbicide was ineffective and cost $1557 per acre. These findings identified effective methods to help organic producers minimize the need for hand weeding of high value vegetable crops.

Biological amendments, including biocontrol organisms, microbial inoculants, and compost teas, may be used to increase soil microbial diversity and antagonism towards soilborne pathogens. In multi-year field trials, USDA-ARS scientists in Orono, Maine showed that a combination of conifer-based compost and biocontrol amendments resulted in significant reductions in *Rhizoctonia* disease (23-48%) and improved tuber yield (30-50%). Combining biological amendments with an effective crop rotation (barley underseeded with ryegrass) reduced stem canker, black scurf, and common scab by 18-33% and increased potato yields by 20-32%. This research shows that combining biological and cultural practices can substantially reduce diseases and increase yields without additional use of synthetic pesticides.

USDA-ARS scientists in Orono, Maine previously reported the first identification in Maine of *P. infestans* on the common weed hairy nightshade. In 2007, the scientists further evaluated the significance of hairy nightshade as an alternate host to potato Late Blight, and found that disease severity varied with source of inoculum (9-37%), weed sage-of-growth (6-21%), ambient temperature (1-14%), and relative humidity (6-18%). Results show that potato growers can reduce their risk of potential Late Blight infection by controlling hairy nightshade weed populations, and reduces the need for fungicide applications.

USDA-ARS scientists in Beltsville, Maryland showed in a ten-year study that average corn yields in organic systems increase with increasing crop rotation length and increasing diversity of crops grown in rotations. Average corn grain yield was 30% greater in a corn-soybean-wheat-hay rotation than in a corn-soybean rotation, and 10% greater than in a corn-soybean-wheat rotation. Differences were due to increased nitrogen availability and lowered weed competition with increasing crop rotation length. This research shows that increasing crop rotation length and complexity can address the two most important production challenges in organic grain crop production: providing adequate nitrogen for crop growth and decreasing weed competition.

Advanced Technology to Increase Competitiveness and Sustainability: ARS is also conducting research to develop and apply advanced technology for integrated decision making to increase production system economic and environmental sustainability. Accomplishments in 2007 and 2008 include:

Scientists in Tifton, Georgia and Watkinsville, Georgia, found that a handheld multispectral radiometer sensor could be used to detect tillage and residue cover differences on Coastal Plain and Piedmont region soils as well as currently used time consuming line-transect estimates. Residue cover indices that were developed to differentiate between conservation and conventional tillage could be valuable tools for USDA-NRCS and other agencies to make rapid watershed-scale assessments of conservation tillage adoption.

Three years of research by USDA-ARS scientists in Sidney, Montana have shown that strip tillage on sprinkler-irrigated sugarbeets leads to substantial fuel savings by greatly reducing the number of tractor passes required to establish the crops, compared to conventional tillage practices. Also as a result of strip-tillage, the percentage sucrose in the beets was consistently higher with equivalent yields as conventional tillage.

Scientists in Brookings, South Dakota utilized variable-rate technology that is currently in use in the southern Great Plains to apply variable rates of nitrogen fertilizer based upon in-season winter wheat plant nitrogen needs. The average amount of nitrogen needed to obtain maximum yield and quality decreased significantly over traditional soil test nitrogen recommendations, potentially reducing the impact of nitrogen fertilizer losses from fields to water sources, and decreasing overall production costs in the Northern Great Plains region.

USDA-ARS scientists in Fort Collins, Colorado have tested the RZWQM-DSSAT hybrid model for simulating the effects of cover crop versus no cover crop on nitrate leaching losses in subsurface drainage water. Field experimental data collected over several years from Boone County, Iowa were used to calibrate the model. Average observed and RZWQM-simulated flow-weighted annual nitrate concentrations in subsurface drainage water for the cover crop treatments were reduced 61% and 50%, respectively, for actual measured and model-simulated waters from tile drainages. This modeling approach can help farmers and conservation planners determine the best places to use cover crops to achieve desired reductions in nitrate losses from fields.

Plans for Sustainable Agriculture Research in 2009:

The value of U.S. crop output in 2002 was 2.6 times higher than that in 1948, while the inputs required to achieve this output have declined. However, the profitability of many farms is declining because of escalating costs of energy, fertilizers, labor, and other purchased inputs. ARS is continuing research into the sustainable production of agronomic crops. Projects at Ames, IA; Auburn, AL, Beltsville, MD, Corvallis, OR, Dawson, GA, Mandan, ND, Morris, MN, Pendleton, OR, Pullman, WA, Sidney, MT, Stoneville, MS, and Watkinsville, GA are developing economic risk averting management strategies that improve soil productivity, enhance soil and water conservation and nutrient cycling, and reduce fuel and pesticide use. These projects will also develop conservation management practices suited to their regional conditions, and document their benefits on natural resource quality. The results from this research will provide guidance to help USDA-NRCS support farmer participation in USDA Farm Bill Conservation Title programs.

The United States has embarked on an ambitious program to replace a portion of petroleum-based transportation fuels with bio-based fuels. Producers, government agencies, energy companies, and policy makers need to know how best to produce biomass and dedicated energy crops in different regions of the country, and what the likely impacts would be of an expanding bio-economy on whole-farm economic return and natural resource quality. ARS is initiating new research at Auburn, AL, Beltsville, MD, Corvallis, OR, Dawson, GA, Mandan, ND, Orono, ME, Pendleton, OR, and Temple, TX in cooperation with USDA-Economic Research Service are developing and applying biophysical-economic analysis tools to identify optimal strategies for different U.S. production regions so farmers who wish to incorporate bio-based energy production into their operations can do so without disrupting agricultural diversity and compromising natural resource quality. ARS in cooperation with the U.S. Department of Energy will continue and expand research at Ames, IA, Auburn, AL, Brookings, SD, Corvallis, OR, Florence, SC, Fort Collins, CO, Lincoln, NE, Morris, MN, St. Paul, MN, Pendleton, OR, and West Lafayette, IN to determine how much corn stover and other crop residues can be removed from fields for cellulosic ethanol production and not degrade soil quality. Due to the uncertainty of climate change and declining available resources for future use by agriculture, models and precision agriculture technologies being extended at Beltsville, MD, Columbia, MO, Fort Collins, CO, Lincoln, NE, and Mississippi State, MS to apply across all U.S. agricultural production environments so that American agriculture can prepare to adapt to change and meet future needs for food, feed, fiber, and biofuels.

The value of U.S. specialty crops is greater than the combined value of corn, soybean, wheat, cotton, and rice crops. Of great importance to producers of specialty crop products is economic production of sufficient quality to meet high market and consumer preference standards. ARS is continuing whole-system research for annual high-value specialty crops at Orono, ME, Prosser, WA, and Salinas, CA to develop ecological-based management strategies that enhance yields and market quality, while replacing the need for purchased fertilizers and pesticides in organic production, and reducing the need for purchased inputs in conventional production. With rising transportation and energy costs, combined with increasing competition in the global market, new research is being initiated at Beltsville, MD and Orono, ME in cooperation with the Massechusettes Institute of Technology to determine the potential capacity of local-regional production to meet the market demand of the Washington, D.C. to Boston urban corridor. ARS is initiating new research at Weslaco, TX to develop alternative management strategies based on enhanced agroecological functions and integrating advanced sensor technologies to significantly reduce costs and enhance the overall quality of harvested product in a high-value fresh-market citrus production system.

Whole-farm management approaches are lacking that integrate livestock production into crop or agroforestry-only production systems to take advantage of the complimentary benefits that could be produced by combining production enterprises. New research will be initiated at Booneville, AR, Mandan, ND, and Watkinsville, GA to assist farmers wishing to transition to more integrated whole-farm systems. The research will determine the relative amounts of risk of economic loss and potential trade-offs between economic and environmental outcomes for multiple-enterprise agroecosystems compared to less-diverse specialized production systems. The primary focus of these projects is the re-integration of livestock into existing crop and agroforestry-based farm production systems to diversify and increase economic returns.

Researchers and stakeholders need methods to understand the best ways new production technologies and management systems should be delivered so producers can more easily adopt them. A national effort led by Watkinsville, GA, Auburn, AL, Mandan, ND, and the ARS Office of Technology Transfer in cooperation with North Carolina State University will identify the most appropriate methods for delivering new information and technologies to promote adoption by customers and stakeholders of ARS sustainable agriculture research. The research will include development of measures and indicators to determine the impact of the new information and technology used. This research will determine the technical limits and feasibility of integrating new technologies to ensure that their use will increase agricultural efficiency and economic competitiveness.

LYME DISEASE RESEARCH

Ms. DeLauro: Please update the Committee on the work you are doing on Lyme disease, by location, including 2007 and 2008 accomplishments and plans for 2009. Please include funding for all three years.

Response: The USDA Northeast Regional Lyme Tick Control Project was launched in 1997. Specific funding for this project was directed by Congress to the New York Medical College and then to Yale University in 2000. In addition, ARS maintains an in-house tick research program (Knipling-Bushland US Livestock Insects Research Laboratory, Kerrville, Texas; and the Animal Parasitic Diseases Laboratory, Beltsville, Maryland) that makes contributions to Lyme disease prevention research, as well as works on livestock diseases transmitted by ticks. Prior year accomplishments included completion of analysis of a multi-year (five), multi-state (five states, seven locations) field trial that showed that the number of Lyme disease ticks (*Ixodes scapularis*) could be reduced substantially (69-80 percent) by use of a device that treats wild deer with insecticide as they feed on bait corn (the "4-poster" device, invented by ARS). This device has been transitioned to a private manufacturer and is now approved and available to the public and local action agencies in 47 of the 48 contiguous states and currently has been sold in 19 states. In Maryland, a community-operated '4-poster' program, monitored by ARS, sustained a high level of control of *I. scapularis* for the last four years. Further refinements of the '4-poster' technology include development of a means to reduce squirrel usage and a development of a weather- and cost-based model for operating the devices in colder months when adult *I. scapularis* intermittently seek hosts. In addition, an automated collaring device still in developmental stages was further refined. This device will increase the rate of control of ticks and eventually provide an opportunity to vaccinate wild deer populations. The research program previously showed that *I. scapularis* bites cattle and transmits the Lyme disease bacteria to them. Considerable progress was made in developing our understanding of attractants for the ticks (to lure them to insecticide and for monitoring purposes), arrestants and repellents. Two compounds occurring in American beautyberry were found to repel *I. scapularis* as effectively as DEET, the most widely used repellent approved for use on human skin. Another naturally-occurring chemical, isolongifolenone, also was shown to repel *I. scapularis* as well as DEET. Cream formulations of three repellents were shown to repel 85-100% of ticks for 12 hours on human volunteers, a duration of effectiveness previously unreported for products intended for use on human skin. Various animals and birds rub citrus fruit on themselves, presumably as protection against ectoparasites. Responses of ticks to 24 compounds that

occur in citrus fruit were found include repellency, toxicity, inhibition of climbing and inhibition of crawling onto a host. A method for more reliably testing attractants in the field was developed and used to assess the efficacy of four carbon dioxide generating technologies in attracting ticks. The distribution and survival of *I. scapularis* were studied within the forest ecosystem.

In 2007 and 2008, scientists at the Knipling-Bushland U.S. Livestock Insect Research Laboratory, Kerrville, Texas, and at the Areawide Pest Management Unit, College Station, Texas, in collaboration with academic institutions and industry discovered genes responsible for pesticide resistance, susceptibility to disease transmission, and essential metabolic processes. This work opened an entirely new range of possibilities for tick control. Salivary components of ticks have been identified and genetically defined, creating candidates for anti-tick vaccines. Also in 2007, ARS and scientists at the Kerrville lab were granted a U.S. patent for a device that prevents squirrels, birds and other non-target daytime feeding animals from using 4-Posters. This will reduce maintenance and improve efficiency of the devices.

In cooperation with the Center for Ecoepidemiology, Yale University, New Haven, Connecticut, scientists found that deficiency of a protein in the ticks makes them more susceptible to infection with the Lyme disease agent. They also studied co-evolution of the tick and the *Borrelia*, working toward an understanding of the risks of new pathogens. Evaluating the distribution of Lyme disease in the northeastern U.S., they found that forest fragmentation favors transmission and explored the relationship between climate change and the ecology of Lyme disease.

In 2008, the program is initiating field trials with the robotics and electronics enhanced deer collaring device, formulating extended release pesticide impregnated anti-tick collar materials, beginning to adapt the collaring device for delivery of vaccines to deer, and beginning development of anti-tick vaccines for deer. Selected new repellent formulations will be evaluated in a 12-hour duration study using human volunteers. Compounds associated with the integument of various bovine species will be evaluated for repellent and anti-tick properties and other natural products tested for repellency. Unlike many other tick species, *I. scapularis* do not need to be on a host in order to mate. A study of vibrations as a means of ticks locating one another off hosts has shown that female *I. scapularis* are capable of producing scraping sounds probably perceptible by another tick on the same plant. However, the significance of the scraping remains to be determined.

In 2009, Kerrville and Beltsville labs will cooperate on a series of trials to evaluate efficacy and longevity of extended release anti-tick collars, to observe behavioral responses of deer to both collars and the collaring device, and to develop protocols and methodology for operating and maintaining deer collaring devices. Yale University and ARS will cooperate on efficacy and methods of delivery of anti-tick vaccines for deer as they become available. Evaluation of bovid compounds as repellents and anti-tick compounds will be completed and other potential repellents and attractants will be tested. Field evaluation of commercial entomopathogenic fungus will begin.

	FY 2007	FY 2008	FY 2009
Lyme Disease	$1,300,800	$1,291,400	$545,700

MANAGEMENT COSTS

Ms. DeLauro: Please update the tables that appear in last year's hearing record on funding and staffing levels other than scientists, required to manage your research program.

Response: The following tables show the funding and staffing levels for ARS personnel other than scientists required to manage and coordinate our research programs.

Washington, DC Area: (Headquarters)

	FY 2008	
FUNCTION	STAFF YEARS	FUNDING
Research Direction	95	$15,132,649
Management	138	29,571,893
Personnel	131	11,327,305
Financial	27	2,326,957
Contracting	29	2,676,712
Facilities	43	6,283,618
Computers	66	7,599,601
Total	529	$74,918,735

Outside Washington, DC Area: (Area Offices)

	FY 2008	
FUNCTION	STAFF YEARS	FUNDING
Research Direction	62	$5,340,035
Management	42	3,654,619
Personnel	11	931,650
Financial	41	3,579,252
Contracting	43	3,761,651
Facilities	24	2,073,103
Computer	25	2,164,230
Total	248	$21,504,540

MAREK'S DISEASE

Ms. DeLauro: Update your response, in last year's hearing record, on progress ARS is making on Marek's disease. Where is this research done? What funding was available in fiscal year 2008 and planned for fiscal year 2009?

Response: Marek's disease (MD), which causes a T cell lymphoma in chickens, is the first cancer-causing virus for which a tumor-preventing vaccine was developed. In the United States, most commercial chickens are vaccinated against Marek's disease virus type 1 (MDV1) at the very early stages of life in embryonating eggs, before hatching. But while these very successful vaccination programs, begun in the 1960s, have saved the industry billions of dollars, the MDV problem still persists.

Vaccination does not eradicate the virus, resulting in the evolution of new variants that pose a threat to the poultry industry. Because the virus is constantly evolving, new vaccines have to be developed to keep them in check.

To investigate the differences between the variants and identify predictors of virulence shifts, ARS initiated a collaboration between the Southeast Poultry Research Laboratory (SEPRL), Athens, Georgia, and our Avian Disease and Oncology Laboratory (ADOL), East Lansing, Michigan, to establish a comparative genomics research program.

In FY 2007, the SEPRL lab in Athens Georgia completed a comparative genomic project involving 13 virus strains from the five MDV pathotypes (very virulent plus, very virulent, virulent, mildly virulent and attenuated). It was discovered that attenuated strains (e.g. strains limited in their disease causing capacity and often used as vaccines) contain altered DNA structure and those specific changes in the DNA are likely to contribute to their inability to cause disease. These data will allow for a better understanding of virulence, pathogenesis and provide the means to rationally design the development of improved vaccines.

In FY 2008, the SEPRL laboratory initiated a new comparative genomic project to determine the correlation between the genomic composition and pathotype (disease inducing ability) of virulent and serially passaged attenuated viruses. Earlier at ADOL, a very virulent strain (648A) was serially propagated in cultured cells for months and at defined intervals (10, 20, 30, 40, …, 100) samples were removed, frozen and used in animal studies. SEPRL received 8 of these viruses and determined their complete nucleotide sequences. Novel methodologies for the isolation of viral DNA from virus particles (e.g. virions) were developed and implemented. The sequencing was completed by using an innovative technology based on pyrosequencing at approprimately $1/7^{th}$ the cost. Bioinformatic analyses of these sequences will be completed by the end of FY2008.

In FY 2009, SEPRL is planning to continue the comparative genomic sequencing studies to identify additional virulence factors to facilitate the construction of next generation, highly effective vaccine candidates. This work will involve collaboration with ADOL to identify specific genetic changes following serial tissue culture passage of virus strains. Strains which retain the ability to be a protective vaccine strain, but have reduced ability to produce disease will be developed.

In FY 2007, ADOL took a multifaceted approach to control Marek's disease. In one approach, tools were developed to identify chicken genes and pathways associated with genetic resistance or efficacy of vaccinal protection to Marek's disease. ADOL constructed an integrated genetic, physical and comparative map of the chicken genome and identified candidate chicken genes that confer resistance to Marek's disease. ADOL scientists examined how the Marek's disease virus (MDV) infects, spreads through the chicken and how it evades the host's immune responses. In one study, it was determined that MDV infections increase the level of the class II major histocompatibility complex (MHC), a critical protein for detecting and modulating the chicken immune response. It is likely that this increase in MHC enhances virus spread by making more MDV-susceptible cells available for infection. Preventing this increase in MHC proteins may aid efforts to control Marek's disease. Genes critical for the pathogenesis of MDV have been identified and deletion of one MDV gene resulted in an attenuated virus that appears to be a promising vaccine candidate. In FY 2008, ADOL conducted field trials to test the efficacy of the gene-deleted MDV vaccines. The results indicated that protection provided by this new vaccine was comparable to that provided by the best currently available commercial vaccines. Recently, a panel of immunomodulators known as cytokines and chemokines were identified

as important factors in modulating host-virus interaction in MDV infected chickens. Studies at ADOL revealed that highly pathogenic strains of MDV modulate the chicken's immune system to a type known as a T helper-2 (TH2) immune response that is not protective against virus infection. This information is essential and should be important in designing vaccines that will inhibit MDV replication and pathogenesis.

	FY 2008	FY 2009
Marek's Disease	$2,453,400	$553,200

METHYL BROMIDE RESEARCH

Ms. DeLauro: Please update the Committee on fiscal year 2007 and 2008 accomplishments in methyl bromide research and plans for fiscal year 2009. Please include funding for all three years.

Response: ARS provides farmers and other methyl bromide users with effective, economical, and environmentally acceptable approaches for soil and product fumigants. ARS and other USDA agencies are working with the U.S. Environmental Protection Agency (EPA), States, and industries, including the Crop Protection Coalition, to address high priority needs of commodities and products in both soil and postharvest fumigation. In addition to the ARS methyl bromide research program, ARS provides extramural funds to universities, primarily for research by university scientists in the severely affected states of Florida and California, to develop new soil fumigation/postharvest technologies.

ARS maintains a close working relationship with EPA that continues to facilitate pesticide registration changes that will make available to farmers and other methyl bromide users the greatest number of fumigants. ARS sponsors on a continuing basis, and in cooperation with the EPA, meetings with methyl bromide alternatives registrants, growers, State agricultural officials, scientists, and environmental regulatory officials to discuss and resolve regulatory hurdles to adoption of promising new fumigants. In October 2007, the EPA granted a 1-year registration for iodomethane. ARS conducted multiple field trials that contributed to the registration. ARS is currently field-testing other fumigants that are making their way through the registration process.

The USDA participates in joint research with Canada through the Canada/U.S. Working Group on Alternatives to Methyl Bromide. ARS also provides two representatives to the Montreal Protocol Methyl Bromide Technical Options Committee which assesses the availability and efficacy of methyl bromide alternatives, provides technical advice to the Montreal Protocol on methyl bromide alternatives issues, and reviews applications for Critical Use Exemptions.

In fiscal year 2009, ARS will continue to conduct research on chemical (including new application technology) and non-chemical alternatives for soil sterilizers so growers will have effective, practical, and economical replacements for methyl bromide. Additionally, ARS will continue research on emission reduction for those situations for which no technically and economically feasible alternative to methyl bromide exists.

ARS established two pre-plant area-wide projects - one in the western United States and one in the southeastern United States - starting in October

2006 and budgeted $1.5 million for fiscal year 2007 and $2 million for fiscal year 2008 to be split evenly between the two projects. ARS expects to fund these projects at the $2 million per year level in FY 2009 again evenly split between the two projects. Growers have identified the lack of commercial-scale field trials as one of the hurdles to the adoption of new potential alternatives to methyl bromide. The area-wide projects are addressing this need. These projects will allow ARS and university scientists to work directly with growers to conduct large-scale tests of the best alternatives in grower fields using best commercial practices.

The following are accomplishments for fiscal year 2007 research into alternatives for methyl bromide postharvest and pre-plant uses.

Pre-plant Soil Fumigation Alternatives:

A cooperative research project between ARS scientists in Fort Pierce, Florida, and scientists at the University of Florida has yielded new information on the use of methyl iodide:chloropicrin and soil solarization for soil fumigation under variable nematode and weed pressures in multiple locations in Florida. Hard-seeded leguminous weeds have been difficult to control with increased chloropicrin content in methyl bromide formulations. Methyl iodide:chloropicrin combinations and soil solarization were found to be better control options for clover in snapdragons than was a 67:33 methyl bromide:chloropicrin formulation. With validation of these results, growers will have a greater number of options when weeds are the principal pest problem.

Effective, economic, and environmentally safe field methods are needed to minimize fumigant emissions. Various surface seal, soil amendment with chemical (thiosulfate) or organic materials, and irrigation methods were compared to minimize fumigant emissions from shank-injection under field conditions. During studies conducted by ARS scientists in Parlier, California, the range of soil water content that most likely reduce emissions, but not affect efficacy, was determined in soil columns, and the effect of organic material incorporation in soils on fumigant degradation was tested in lab-incubation experiments. Results indicate that irrigation with sprinkler systems prior to fumigation can minimize emissions as effectively as post-fumigation water seals or tarp covers; and that soil amendment with organic materials may not necessarily reduce emissions depending on application methods. The research provided essential information for evaluating soil and emission reduction methods currently considered in field experiments as well as for further research areas.

A major impediment to widespread use of certain plant-beneficial bacteria such as Serratia marcescens and Burkholderia spp. in agriculture is health concerns regarding these bacteria. In a collaborative project, ARS scientists in Washington, D.C., demonstrated that extracts of Serratia marcescens strain N4-5, containing inhibitory compounds produced by this strain and no viable cells, suppressed damping-off of cucumber caused by Pythium ultimum at levels equal to, or greater than, those obtained from viable cell preparations. This approach may allow the use of preparations from bacterial isolates labeled as opportunistic human pathogens that are also extremely effective in suppression of this pathogen, in biological control strategies in production agriculture.

Minimizing fumigant emissions from strawberry fields becomes mandatory in California because strawberry production depends heavily on pre-plant soil

fumigation that contributes to volatile organic compound (VOC) emissions. ARS scientists in Parlier conducted two large field trials in September-October 2006 on strawberry fields with raised bed in coastal areas of California to compare efficiency of plastic tarps. While results indicate that semi-impermeable films or virtually impermeable film films may reduce fumigant emissions, large variations were observed under field conditions. The information is useful for identifying effective field methods to minimize fumigant emissions from strawberry production in non-attainment areas of California.

Pythium root rot is a significant problem in the production of calla lily rhizomes for the potted flowering plant market. ARS scientists in Parlier established two trials in collaboration with Golden State Bulb Growers in Moss Landing, California, to evaluate control of Pythium root rot on calla lily by use of pre-plant soil fumigants followed by the application of low molecular weight control agents through the irrigation system after crop establishment. Results indicate that significant control is achieved with the pre-plant alternative treatments, but the post-plant treatments had no effect. Potential impact will be a change to drip-applied alternative chemicals with better disease control and lower emissions.

Weeds and pathogens pose a potential threat to cut flower growers who grow in field soil. ARS scientists from Parlier established two trials to test "soft" alternatives to methyl bromide with Por La Mar Nursery in Goleta, California. These treatments included 2-bromoethanol, dimethyl disulfide, sodium azide, furfural, and propylene oxide. Results indicate that the soft chemicals have the potential to increase weed and disease control, especially when teamed with a sequential metam sodium application. Potential impact could be weed and disease control in areas where township caps and buffer zone requirements preclude the use of the other alternatives, such as 1,3-D.

Cut flower producers have a very limited number of alternatives to methyl bromide due to the lack of herbicides available for these crops and the need to control previously planted cultivars within the same species. A field trial was conducted by ARS scientists in Fort Pierce to evaluate Midas™ (methyl iodide:chloropicrin 50:50 at 224 kg/ha) under metalized film for production of ornamental cockscomb (Celosia argentea var. cristata). Disease incidence and weed density were significantly lower in methyl iodide and methyl bromide treated plots, when compared to an untreated check. Number of marketable stems was highest and there were no volunteers from the previous crop in the fumigated treatments. Nematodes isolated from roots at harvest were significantly reduced in Midas and methyl bromide fumigated soil, which was reflected in lower galling and higher root weights for both fumigants compared to the untreated control. This illustrates the importance of early season nematode control to reduce galling of *Celosia*. Limited movement of methyl iodide in soil, as well as application issues were identified, which included slow start to fumigant movement through lines and lack of lateral movement in fumigated areas with clogged chisel lines.

Soil bacteria play a critical role in regulating terrestrial ecosystems including the incidence and severity of plant disease. ARS scientists in Fort Pierce measured changes in soil bacterial communities over multiple years as they were subjected to various land management and crop production practices employed as chemical and non-chemical alternatives to soil fumigation with methyl bromide. Soil bacterial diversity was found to be higher in an organically managed system when compared to perennial pasture grass, undisturbed weed fallow, and vegetation free (disk fallow) land management

systems. Comparisons between samples from organic and conventionally managed tomato production systems revealed no significant differences in soil bacterial diversity. However, the composition of soil bacterial communities remained unique and distinct from communities in all other land management systems despite repeated cultivation to tomato and damage from two major hurricanes. This study identified and documented the impacts of alternative land management systems on the diversity and composition of soil bacterial communities.

Postharvest Alternatives:

The potential and actual breeding hosts for tropical fruit flies determine the need for quarantine actions in both international and domestic trade. Currently, there are no international standards for correcting host lists or determining host status. ARS researchers at Weslaco reviewed factors contributing to host specificity and host selection by fruit flies and compiled into an Annual Review of Entomology chapter. This review served as a guideline for studies of citrus (oranges, grapefruit), native Sapotaceae, and for reviews of experiments by trading partners to derive a standard method for examining resistance factors and how they affect infestation of commercial and wild fruit. An experimental procedure with a supporting example for determining resistance factors was completed and a summary was presented to the USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine, and International Services for establishing internationally standards for host lists and experimental determination of host status.

Proteins were identified in peaches that were related to the development of flesh mealiness in storage. Heat treatment can act to either enhance or inhibit the development of mealiness and it is important to understand better the mechanism by which mealiness occurs so that successful heat treatments can be developed. ARS researchers in Parlier found that an important ripening protein strongly decreases in amount when peaches become mealy. This information will help understand how heat treatments affect mealiness and will help lead to the development of successful heat treatments.

Pure phosphine fumigation was demonstrated to be effective in controlling western flower thrips and safe on lettuce and broccoli by an ARS scientist in Salinas, California. This research provides immediate solution to western flower thrips control on exported fresh commodities to Taiwan and benefits U.S. agriculture.

Funding for fiscal year 2007 was $19,081,300. In fiscal year 2008 funding for methyl bromide research was $19,601,900, and for FY 2009 it is estimated at $17,947,900.

MOTOR VEHICLES

Ms. DeLauro: Please provide additional information on the problems with USDA's Purchase Card Management System-Fleet Module and "PROP," discussed on page 10-8 of the budget justification. Are the replacements for the fleet card system and property system on schedule for November 2008, as far as ARS knows?

Response: The interface is designed to provide a monthly electronic feed of fleet operational costs, from the specific fleet card for each

vehicle, from the Purchase Card Management System-Fleet Module to the PROP System. Individual fleet card transactions are combined into a single monthly total for each vehicle record. This includes both Purchase Card Management System-Fleet Module data and data that PROP users manually add to PROP for costs incurred by other purchase methods, such as merchants who do not accept the Voyager Fleet credit card or Government provided fuel or maintenance. ARS relies on these systems to determine its fleet operating costs. The interface between the Purchase Card Management System-Fleet Module and the PROP system has been inconsistent for several years, primarily post-Hurricane Katrina. Continuous problems include no monthly data feed for multiple months or the feed repeats the same monthly costs for several months. Because the monthly cost data is a combination of electronic data and manual data, it is difficult to determine the data that is incorrect, overstated, or understated. Due to these issues, ARS has had to rely on estimated data as well as system data.

As far as ARS is aware, the replacement systems for the Purchase Card Management System-Fleet Module and the PROP System are still on schedule for November 2008 and September 2008, respectively. Upon award of a new bankcard and bankcard system, the bank will be responsible for developing an interface between the bank's electronic access system (the replacement for the Purchase Card Management System) and the replacement system for PROP. We believe this will eliminate the majority of data integrity issues and allow ARS to rely on USDA's systems to provide enhanced fleet reporting requirements.

NARCOTICS CONTROL RESEARCH

Ms. DeLauro: Please update the Committee on the work you did in fiscal year 2008, as well as plans in fiscal year 2009, on narcotics control research, and include any accomplishments in this area for fiscal years 2006 through 2008.

Response: The Agricultural Research Service terminated our narcotics control research in fiscal year 2007, as indicated in last year's response. All technical findings, field manuals, etc., were provided to the U.S. Department of State and the Government of Colombia.

The Agency also, from time to time, provides forensic support to the Drug Enforcement Administration and Federal Bureau of Investigation in analyzing the chemical and genetic characteristics of confiscated narcotic plants for intelligence and judicial purposes.

Significant work has been directed towards the development of commercial crops as alternatives to narcotics production in South America. In 2003, a cocoa improvement program in Ecuador, combining funding from the Agency and the Department of State, as well as private industry, was initiated. Funding is continuing through the U.S. Agency for International Development and Public Law 480 funds (monetized food assistance). The program involves the training of small farmers in improved cultural practices, developing alternatives to chemical pesticides, and the identification and breeding for specific flavor and quality traits in cocoa. In fiscal year 2005, the program was expanded to include the development of a doctoral candidate program for two Ecuadorian scientists, which was completed in December 2007. The Agency intends to complete the genetic mapping of important Ecuadorian cocoa collections as well as providing support for the

maintenance of genetic materials in Ecuador for use in both breeding and genetic conservation projects.

A similar alternative crop program, in cooperation with the Department of State, has been underway in Peru since 1997. Since 2003, the Agency has supported a research station/extension program in the Middle Huallaga Valley of Peru, which includes farmer technical support, a soil analysis laboratory, and small farmer extension courses. Alternative crops supported by the program include cocoa, coffee, plantain, coconut and oil palm, and cassava. These programs are ongoing through fiscal year 2008.

In both Peru and Ecuador, extensive explorations for wild genetic materials which would aid in the improvement and breeding of cocoa were initiated in fiscal year 2005 and will continue at least through 2008. These resultant genetic data will be deposited in a functioning international database available to South American researchers and breeders.

Currently, in-country research with South and Central American collaborators relative to alternative crop development is being conducted in Bolivia, Peru, Colombia, Ecuador, Costa Rica, Trinidad and Tobago, Mexico, and Brazil.

Ms. DeLauro: Please provide a summary of funding ARS received from others for this research for fiscal years 2006, 2007, and 2008.

Response: In fiscal year 2007, ARS received $250,000 from the Department of State for cocoa research and market development in Ecuador. These funds are directed towards developing integrated pest management of cocoa diseases, conducting farmer training, and identifying the genetic basis for quality traits and disease resistance in cocoa. The funding ended during fiscal year 2007.

Additionally, ARS is receiving approximately $50,000 in reimbursements for fiscal years 2006, 2007, and 2008 from the Drug Enforcement Administration to identify the different varieties of illicit coca in Colombia and define the genetic relationship, if any, to both narcotic alkaloid production and herbicide resistance in illicit coca.

ARS continues to receive $700,000 annually in reimbursable agreements from M&M Mars, Inc. to work on joint projects overseas, primarily in South America and West Africa. These projects are directed to identifying environmentally safe, sustainable, alternatives to pesticides for the control of both cocoa diseases and insect pests and improve the production and disease resistance characteristics of cultivated cocoa, through a program of molecular marker-assisted breeding.

NATIONAL AGRICULTURAL LIBRARY (NAL)

Ms. DeLauro: Please provide additional information with respect to how the proposed increase for NAL of $1,000,000 in the 2009 budget would be used.

Response: The $1,000,000 increase proposed for NAL in the 2009 budget would be used as follows:

- Improving information services for veterinary practitioners ($500,000) by:
  - Supporting a Web portal (www.VetMedInfo.org) that is under development to support the information needs of veterinary practitioners. In addition to NAL, the National Library of Medicine, the American Veterinary Medical Association, USAIN (United States Agricultural Information Network) and the Veterinary Libraries section of the Medical Library Association are working on the initiatives. Work on the portal has been under way since 2007 and a prototype of the portal is expected to be launched in the summer of 2008. Funds are required to support the information technology infrastructure, content creation, and reference services for the portal.

  - Acquiring more journals, books, other information products and staff to support expanded veterinary medicine information services.

- Increasing content and scope of the NAL collection and NAL's Digital Desktop Library for USDA (DigiTop)($300,000) by subscribing to and licensing more journals and databases and purchasing more books and other information products.

- Collaborative creation of digital content for AgSpace (the NAL digital repository), and AgNIC (Agriculture Network Information Center), with Land-Grant Universities and other agricultural institutions ($200,000). NAL will be able once again to fund projects with institutions to convert to digital format and post on the Web important publications currently available only in printed and microfilm formats.

Ms. DeLauro: Please provide more detail on the rationale for the proposed cut of $4,689,000, including the proposed "downsize" in NAL programs and operations.

Response: In focusing on the need to reduce spending, redirect, and reallocate limited ARS resources to higher priority research initiatives and to provide funding that would support the Administration's goal of deficit reduction, ARS reviewed programs for relevance, quality, impact, and cost effectiveness. Decisions as to the programs and locations to be proposed for redirection, termination, and closure were difficult, but necessary, given budgetary constraints. Given the need to fund high priority needs within the overall budget targets, ARS proposes a cut of $4,689,000 for NAL, which would have three components:

1) The termination of the National Agricultural Law Center.
2) Redirection of the operations of the Animal Welfare Information Center to support NAL participation in development of www.VetMedInfo.org; procurement of additional journals, books, databases and other products for the NAL collection; and funding for collaborative digital content creation projects.
3) Reduction in other staffing, programs and services ("downsize") of the National Agricultural Library. These would include but not limited to:
   - 35+ NAL contract and Federal staff positions would be terminated.

- NAL document delivery services would no longer fill requests from the NAL collection for materials available only in print.
- NAL purchases of printed materials would cease.
- All NAL subscriptions for print journals would be cancelled.
- Staff would be reassigned from print-related work, to work solely on digital-related activities.
- Public access to NAL print materials would be available only on-site, at the Abraham Lincoln Building in Beltsville, Maryland, and the Library's Reference Center at USDA headquarters in Washington, D.C.

LIBRARY CHANGES AND USAGE

Ms. DeLauro: Please update the table that appears in last year's hearing record for NAL document delivery service activity and cost to include 2008 and 2009.

Response: The information is provided for the record.

	2003	2004	2005	2006	2007	2008	2009 Estimate
Requests Received (A)	125,538	107,542	98,247	68,437	52,734	44,000	39,000
Total Requests Filled (B)	110,997	90,354	82,176	55,995	40,079	32,000	29,000
Requests Filled from NAL Collection(C)	95,630	77,965	72,494	51,548	36,810	30,000	27,000
Amount Spent (Millions)(D)	$2.6	$2.6	$2.2	$1.74	$1.08	$.82	$.82
Amount Recovered (Millions)	$.031	$.016	$.025	$.023	$.018	$.015	$.015
NAL Web Hits/ DigiTop/CALS Services (Millions)	49.7	68.7	85.4	92.8	89.1	90	93

(A) The number of requests received continues to decline due to NAL's continuing efforts to provide increased Web access to documents in place of traditional document copying and delivery services and to the effects of the chargeback program for USDA agencies that was implemented in fiscal year 2003. In fiscal years 2006 and 2007, Web hits/DigiTop/CALS Services total declined slightly due to Web site redesign that reduced the number of "clickthroughs" required to find information.

(B and C) The volume of requests received decreased in fiscal year 2007, as did NAL's fill rate for document delivery requests. NAL filled 76 percent of the document delivery requests received in fiscal year 2007; 92 percent were filled from the NAL collection while an additional 8 percent were filled from outside sources.

(D) The amount spent on document delivery decreased by 38 percent due to the decreasing volume of requests received and efficiencies achieved through implementation of the Relais Enterprise™ document delivery management system.

Ms. DeLauro: Please describe any recent changes at the NAL and its usage during the last year.

Response: NAL faces increased demand for services and the escalating need for access to an increasingly broad and sophisticated range of research data and relevant information in the agricultural and related sciences. To respond to this environment and to respond to recommendations of an Ad Hoc Task Force on NAL established by USDA's National Agricultural Research, Education, Extension, and Economics (NAREEE) Advisory Board in 2005, the Library has initiated a number of programs and services, as well as a variety of efficiency initiatives designed to augment, refine, improve, and integrate operations and services through cost efficiencies and application of new digital networking technologies. As part of this effort, NAL continued to plan for development of a coordinated National Digital Library for Agriculture (NDLA) in response to the increasingly complex needs for access to information related to agriculture by USDA mission agencies, the Land Grant University community partner institutions, and the American public. NAL has also recently published a staff discussion paper discussing how the Library could be reinvigorated so as to meet its dual legislative mandates of serving as USDA's library and the Nation's national agricultural library.

Examples of recent changes at NAL and its usage during the last year include:

CHANGES IN THE VOLUME OF SERVICE DELIVERY. The Library's total volume of direct customer services declined to about 90 million transactions in fiscal year 2007, a small decrease largely caused by a change in the methodology for counting Web-based transactions. For FY2008 and beyond, it is anticipated that the trend of annual increases will resume. Visits to AGNIC Web sites again exceeded 150 million in FY 2007 and are expected to increase in FY 2008.

EXCELLENT RANKINGS OF NAL INFORMATION RESOURCES BY INTERNET SEARCH ENGINES. Since the fall of 2007, NAL has been tracking how NAL information resources are ranked by Internet search engines. The latest rankings are reflected in the following table:

MARCH 2008

Information Center	Search Term	Search Engine Ranking			
		Yahoo	MSN	Google	Ask.com
Alternative Farming	alternative farming	1	1	1	1
Animal Welfare	animal welfare	1	4	1	1
Dietary Supplements*	dietary supplements	1	2	2	1
Food and Nutrition	food and nutrition	1	4	1	1
Food Safety Research	food safety research	1	2	1	6
Invasive Species	invasive species	1	1	1	1
Nutrition.gov	nutrition	1	2	1	1
Rural Information	rural information	2	1	1	1
Technology Transfer	technology transfer			5	
Water Quality	water quality	2	7		1

*International Bibliographic Information on Dietary Supplements
Any program with a ranking # of 10 or higher has a blank space.
"Water quality information" search term was changed to "water quality."

CONTINUING DECLINE IN NAL STAFFING. NAL has reduced or cancelled contracts for staffing of reference and document delivery services, abolished positions, and converted permanent posts to term posts. NAL has also suspended recruitment and hiring for almost all vacant positions.

CONTINUING DECLINE IN PURCHASING BOOKS AND JOURNALS. NAL management continues to devote as much funding as possible to the Library's mandate to build the U.S. national collection of agricultural information. This mandate dates from 1862 when the Library was established. NAL's collection of monographs, serials, and other information products constitutes a fundamental national resource of information needed to support the nation's agricultural interests and has been declared a USDA capital asset valued in the hundreds of millions of dollars. However, the costs for acquiring serial and monographic resources have increased at rates that exceed core inflation rates. The combined effects of material price increases, inflation, and international currency fluctuations over the past two decades have reduced NAL's materials budget purchasing power by an estimated $1.6 million. The needs of USDA researchers for high-demand, expensive published serial literature in the biosciences compete with the Library's mandate to acquire and maintain the scientific literature in more specialized agricultural subjects and acquire other kinds of information to support information services for consumers and other NAL mandated audiences. As a result, there are serious continuing gaps in the depth and coverage of core agricultural subjects in the NAL collections and NAL continues to be challenged to manage its national library collection responsibilities.

NAL SERVICES. The Library continued to refine its extensive program of products and services in FY 2007. As a result of the 2006 NAL User Information Needs Survey, staff focused on increased marketing of NAL products and services, especially to USDA staff, adding key digital content to NAL's Web site, and refining products and services to meet the needs of the broad array of very different customers and audiences served by the Library. NAL continues to emphasize an expanding array of Web products and services that provide broader access for its global clientele on a 24-hour per day seven days a week basis. Recognition of NAL Web sites as high quality, reliable sources of information on emerging and critical agricultural issues continues to grow. Innovations in search and retrieval technology and in design continue to improve customer access to NAL programs

and services via the NAL Web site www.nal.usda.gov. An important innovation is that people can use one search box on www.nal.usda.gov to open and search simultaneously about 15 NAL databases that previously had to be searched separately, as well as information on the complete NAL family of Web sites. This functionality was initially developed for www.science.gov, the Federal Web portal for scientific and technological information, in which NAL continues to play an important leadership role. As an example of the Library's response to demands for new kinds of information services, NAL developed a proposal for a "National Biofuels, Biobased Products and Bioenergy Information Center" which NAL would like to be able to develop soon.

CONTINUED EXPANSION OF AGRICULTURE NETWORK INFORMATION CENTER (AgNIC), www.agnic.org. The number of AgNIC partner institutions had increased to 67 in May 2008 and digital content about a number of new subjects was added. The AgNIC calendar - www.agnic.org/events - continues to be one of the most-used NAL Web products, within and outside USDA. A subset of the AgNIC calendar was developed to display events relating to biofuels and bio-based products.

CONTINUED DEVELOPMENT OF AGSPACE, NAL'S DIGITAL REPOSITORY. The Library has developed the capability to store digital publications by USDA authors in an effort to make them permanently accessible via the Web and moved towards implementation of its initiative to build the NAL digital repository, AgSpace. By May 2008 the Library had deposited about 13,000 journal articles by USDA authors into AgSpace. Plans are underway for a *Federal Register* notice soliciting comments about NAL's plans for AgSpace with a launch expected once that process has been completed.

CONTINUED DEVELOPMENT OF INITIATIVE. NAL continued to refine and expand digital content delivery offerings to USDA employees throughout the world through NAL's USDA Digital Desktop Library service (DigiTop). The redesigned Current Awareness Literature Service (CALS) was integrated with DigiTop. New datasets were added, containing electronic journals, online databases and reference information products. USDA agencies continued to increase their financial support to DigiTop and usage continued to grow. In FY2008 it is expected that close to 1,000,000 article downloads will have been made by USDA staff. DigiTop demonstrates that savings and expansion of access to information are possible through the Library's negotiation of central large-scale licenses.

CONTINUED GROWTH IN NAL'S INTER-AGENCY WEB PORTAL PARTNERSHIPS. NAL added new information services to the two key Federal inter-agency Web portals operated by NAL, www.invasivespeciesinfo.gov and www.nutrition.gov and continued its leadership and participation in www.science.gov. NAL also began work, with the National Library of Medicine, the American Veterinary Medical Association, the U.S. Agricultural Information Network, and the Veterinary Libraries section of the Medical Library Association, on a www.VetMedInfo.org, a Web portal for veterinary practitioners, and continued working with a variety of national and international partners on a new international science portal, www.WorldWideScience.org. Such partnerships with other Federal agencies and departments as well as international partner institutions provide ways to leverage NAL's resources in order to fulfill NAL's mandate to serve the Nation.

RE-SCOPING AND REDUCTION OF COVERAGE BY AGRICOLA. AGRICOLA, whose content grew to 5,000,000 entries in 2008, is the catalog and index to the printed

and digital collections of the National Agricultural Library (NAL), as well as a primarily free of charge public source for world-wide access to agricultural information. Currently, about 60,000 AGRICOLA index records can be added annually by NAL staff and contractors. This contrasts with the estimated annual publication output of almost 200,000 English language journal articles published on agriculture related topics and the hundreds of thousands of journal articles published in languages other than English. To deal with this imbalance, in FY 2005 NAL initiated a process to redefine the scope of the AGRICOLA index to reflect realistic capacity and capabilities and to respond to NAL's mandate. As a result, NAL began indexing a new list of journals in 2007 and will continue to index these journals in 2008. Rather than pursue a goal of comprehensiveness, the re-scoping of the AGRICOLA index focuses on publications authored by USDA scientists, as well as on digital and printed content material not included in indices offered by commercial indexing services. The re-scoped AGRICOLA index will continue to serve as the search tool to access NAL's collections. Should additional funding become available, NAL would be able to index more journals. NAL also began using computer-aided indexing software to determine if it can be used to assist indexers, thus increasing indexing productivity, for subject indexing without indexer intervention, and acquiring indexing information from publishers that can be added directly to AGRICOLA.

CONTINUED COLLECTION MAINTENANCE, SPACE, AND SECURITY INITIATIVES. Collection shelf storage space in the Abraham Lincoln Building stack floors has been filled to capacity. The collections require comprehensive rearrangement and weeding to optimize space management, ensure security, and assure proper preservation. Work continued on several actions required to alleviate this growing crisis and shift the library's entire collection holdings of more than 6 million items, including weeding of the complete collection to eliminate and discard duplicate and other out-of-scope items; moving valuable items from the stacks to the archival Special Collections 5th floor; identification of unprocessed materials located in the stacks; reclassification of nearly 3,000 active serial titles from the USDA classification arrangement to the Library of Congress classification scheme, thereby facilitating the "collapse" of older material and inactive journal titles into dense storage to allocate growth space to be used for expanding; reactivating the materials binding program; and initiating bar-coding of the collection to enhance security, perform inventory, and provide better collection usage data.

DOCUMENT DELIVERY SERVICES. NAL maintained a two-day turnaround time for all document delivery and interlibrary loan requests in fiscal year 2007. NAL continued to experience a decrease in the volume of requests received, due to the availability of its DigiTop service which provides USDA employees with desktop electronic access to a wide variety of agriculture and science journals and to the effect of the chargeback program for USDA agencies that was implemented in fiscal year 2003. The Library continues to fill a significant number of requests for materials which are not available through DigiTop. The Library's costs for delivering documents continued to decrease in 2007 due to the smaller volume of requests received and efficiencies achieved through use of the Relais Enterprise™ document delivery management system. This system, which is now linked to NAL's AGRICOLA online catalog and indexing database, provides increased convenience and efficiency for both NAL customers and staff through a Web-based requesting interface, electronic storage and management of requests and increased statistical reporting capabilities.

FACILITIES IMPROVEMENTS. A major factor in the preservation of library collections and the successful operation of library programs and services is the environment resulting from the condition of library facilities. NAL provides services from two facilities: the Abraham Lincoln Building located in Beltsville, Maryland and NAL's Reference Center located in USDA's South Building. The Abraham Lincoln Building continues to experience serious operational challenges due to its obsolete and failing infrastructure. NAL's identification as a mission critical facility emphasizes the need to address upgrades. There were no building and facilities appropriations provided for NAL for FY 2007 or requested for FY 2008. A facilities study was completed in FY 2007 to address facility options for the Abraham Lincoln Building. NAL will continue to pursue implementation of recommendations from the study. NAL will also continue to utilize appropriated R&M funding to address facility issues. Future requirements for the Abraham Lincoln Building include planning for the renovation of the ground floor and the remaining floors, window replacement, and other life safety upgrades. The HVAC Replacement - Phase II project for the Library's computer room HVAC system was completed in FY 2007. The following projects are scheduled for FY 2008: installation of the Meefog humidification system in certain air handlers, which will result in energy savings; and, renovation of other air handlers, which feed a wing building of the Abraham Lincoln Building, which will bring the air handlers up to industrial standards and make NAL more energy efficient.

AD HOC TASK FORCE ON THE NATIONAL AGRICULTURAL LIBRARY. An Ad Hoc Task Force on NAL was established in June 2005 by the National Agricultural Research, Education, Extension, and Economics (NAREEE) Advisory Board and continues to operate. The NAREEE Advisory Board is a Federal Advisory and Committee Act board providing advice to the USDA Under Secretary for Research, Education, and Economics (REE), the Secretary of Agriculture and the U.S. Congress. The impetus for the Task Force grew out of a Leadership Council comprised of representatives from libraries, extension, and experiment stations which met in November 2004 and in May of 2005. The new Task Force is charged to provide advice to NAL and USDA on how NAL can: 1) Improve its unique national collection of current and retrospective science-based information on U.S. food, fiber, natural resources and agricultural-related issues to best and most effectively serve USDA, its Land-Grant university library partners, other federal agencies, stakeholders, and the general public; and 2) increase significantly its visibility as a one-of-a-kind national agricultural repository and disseminator of information to the stakeholder community through both traditional and electronic means. The task force met in 2007 to review the situation of NAL and the Advisory Board issued recommendations about NAL in February 2008.

Ms. DeLauro: Please update the tables that appear in last year's hearing record relating to the NAL.

Response: The information is submitted for the record.

[The information follows:]

National Agricultural Library

Resources in Support of Specialized Subject Areas - Fiscal Year 2007 Actuals

Information Center	General Purpose	Appropriated Funds	Reimbursable Funds	Total	Staff Years
Alternative Farming Systems	Supports agriculturalists interested in lessening the impact of farming on the environment. Includes Aquaculture information.	$372,712	$198,699	$571,411	2
Animal Welfare	A focal point for those interested in obtaining information on domestic and laboratory animal welfare.	952,585	0	952,585	9
Food and Nutrition	Maintains and monitors current data on healthy diet and nutrition for all sectors of U.S. society.	850,646	1,434,513	2,285,159	3
Food Safety	Gateway for current, relevant and accurate information about food safety issues and trends.	385,741	0	385,741	2
Invasive Species	Gateway to invasive species information from Federal, State, local and international sources.	168,664	0	168,664	2
Rural	Provides information and referral services to revitalize rural communities.	104,853	0	104,853	1
Technology Transfer	Assists in getting research results to those who can put them to practical use.	65,380	0	65,380	0
Water Quality	Monitors and maintains information on farming's effects on U.S. water supplies.	385,490	43,000	428,490	1
	TOTALS	3,286,071	1,676,212	4,962,283	20

National Agricultural Library

Resources in Support of Specialized Subject Areas - Fiscal Year 2008 Estimates

Information Center	General Purpose	Appropriated Funds	Reimbursable Funds	Total	Staff Years
Alternative Farming Systems	Supports agriculturalists interested in lessening the impact of farming on the environment. Includes Aquaculture information.	$367,710	$198,699	$566,409	2
Animal Welfare	A focal point for those interested in obtaining information on domestic and laboratory animal welfare.	945,917	0	945,917	9
Food and Nutrition	Maintains and monitors current data on healthy diet and nutrition for all sectors of U.S. society.	919,726	1,562,088	2,481,814	3
Food Safety	Gateway for current, relevant and accurate information about food safety issues and trends.	378,668	0	378,668	2
Invasive Species	Gateway to invasive species information from Federal, State, local and international sources.	168,664	0	168,664	2
Rural	Provides information and referral services to revitalize rural communities.	109,948	0	109,948	1
Technology Transfer	Assists in getting research results to those who can put them to practical use.	64,532	0	64,532	0
Water Quality	Monitors and maintains information on farming's effects on U.S. water supplies.	298,835	43,000	341,835	1
	TOTALS	3,254,000	1,803,787	5,057,787	20

NATIONAL ANTIMICROBIAL RESISTANCE MONITORING SYSTEM (NARMS)

Ms. DeLauro: Please update your response in last year's hearing record on ARS' involvement in NARMS. Include the funding level for this project from fiscal year 2006 through plans for fiscal year 2009, including any funding provided for interagency agreements. Please discuss the reason for and changes in funding levels from 2008 to 2009. Please discuss in detail the work ARS has performed for the Center for Veterinary Medicine at FDA from 2002 through 2009.

Response: The National Antimicrobial Resistance Monitoring System (NARMS) is a collaborative effort between the Department of Agriculture (USDA/ARS), and the Food and Drug Administration's (FDA) Center for Veterinary Medicine (CVM), and the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services.

NARMS was established because of growing and continuing public health concerns about antimicrobial resistance. The goals and objectives are to: provide descriptive data on the prevalence of antimicrobial susceptibility in enteric organisms from the human and animal populations; facilitate the identification of resistance in humans and animals as it arises; provide timely information to veterinarians and physicians; and identify areas for more detailed investigation.

NARMS has for over 20 years undertaken monitoring antimicrobial susceptibilities of foodborne pathogens isolated from human and animal diagnostic specimens, from healthy farm animals, and from raw product collected from federally inspected slaughter and processing plants. The animal arm of NARMS resides at the USDA-ARS Russell Research Center, Athens, Georgia, while the human arm resides at the CDC in Atlanta, Georgia. The retail arm is at the FDA, Center for Veterinary Medicine in Laurel, Maryland.

ARS receives samples from various sources through collaborative efforts with other USDA agencies (FSIS and APHIS). Samples include farm surveys and isolates from slaughter/processing plant samples. Isolates from sentinel diagnostic laboratories throughout the US and the National Veterinary Services Laboratory (NVSL) were discontinued in 2006 due to limited funding.

In collaboration with FDA and CDC, USDA (ARS/APHIS/FSIS) provides a yearly and an executive report which includes combined data from human, animal, and retail arms of NARMS. Other collaborative efforts include maintaining a website, assisting in the development of database analytics, and providing information upon request from other agencies and interested partners. USDA presents data from the NARMS program at public forums and generates peer-reviewed publications in collaboration with FDA and CDC.

Essentially everything that ARS does in NARMS is at the request of CVM; and includes the following:

- ARS coordinates receipt of samples from all the sources for the animal arm of NARMS.
- ARS cultures all farm samples for *Salmonella*, *Campylobacter*, *E. coli* and *Enterococci* and cultures all FSIS regulatory samples for *Campylobacter*, *E. coli* and *Enterococci* (FSIS cultures for *Salmonella* and provides those isolates to ARS).
- ARS conducts antimicrobial susceptibility testing on all *Salmonella*, *Campylobacter*, *E. coli* and *Enterococci* isolates

- ARS conducts all additional molecular and phenotypic characterization of the animal isolates for NARMS.

ARS provides $950,000 (direct funds) for NARMS. Funding provided through an Interagency Agreement with the FDA-CVM is reported below:

Year	Funding Level
FY 2006	$1,403,076
FY 2007	$1,403,046
FY 2008	$1,403,046
FY 2009	$1,403,046 Estimated

NATIONAL ARBORETUM

Ms. DeLauro: Please provide the budget for the National Arboretum for fiscal years 2007, 2008, and 2009.

Response: The funding for the National Arboretum for fiscal year 2007 was $11,106,000; for fiscal year 2008 it was $11,549,000; and for fiscal year 2009 is estimated at $9,600,000.

Ms. DeLauro: Please discuss in detail the downsizing of the Arboretum proposed in the 2009 budget.

Response: The reduction of $2 million from the Gardens Unit and the Education and Visitor Service Unit has been proposed to address higher research priorities of the Administration, such as bioenergy, food safety, and obesity prevention. ARS would continue to provide education at the U.S. National Arboretum at a reduced scope.

The impact of this reduction means that the Arboretum would emphasize research activities and reduce funding for its non-research activities. The Gardens Unit and Education and Visitor Services Unit would be merged. Resources to maintain the gardens and plants collections would be reduced and educational activities and use of the arboretum by outside organizations would be limited.

To meet this cut, public access time would most likely be reduced and the arboretum would have to reduce in size several of the existing collections and no longer actively maintain other collections. There would also be a reduction in staff. The Gardens Unit would be reduced from the current level of 26.6 FTE to 13.5 and the Education and Visitor Services Unit would be reduced from 11.7 to 3.7 FTE positions.

ARS views the Arboretum as a national asset and has taken pride in its public displays. ARS is committed to research supporting the floral and horticultural industries.

NEW CROPS

Ms. DeLauro: Please update the Committee on the research ARS did on new crops in fiscal years 2007 and 2008 and what it plans to spend in 2009.

Response: The ARS new crops research is focused on those new or alternative crops that are compatible with environmental concerns, that

contribute to sustainable production systems, and that provide the potential for domestically processed value-added products or strategic materials. Most of the potential new crops are oil-bearing seed crops with properties valuable to industry or as replacements for imports.

Guayule (*Parthenium argentatum*), a desert shrub grown in Arizona, New Mexico, California, and Texas, is a potential new crop being grown for its hypoallergenic latex; but little research has been done on determining the optimum harvest time for latex concentration and yield. ARS research on guayule addresses both production and utilization of the guayule plant. During fiscal years 2006 and 2007, ARS researchers at Maricopa, Arizona, harvested three guayule lines every other month for 2 years and analyzed them for latex concentration, total biomass, and latex yields. Results varied among lines and harvest dates; but there may be sufficient differences to enable sowing lines selected for different optimal harvest dates so that growers can spread the optimal harvest time throughout most of the year. This would also benefit processors by enabling them to reduce production costs by processing the harvest over additional months.

They also conducted storage studies to develop the means to maintain latex extractability and yield of fresh harvested guayule. Currently, guayule must be processed within a few hours of harvest to maintain latex extractability and yield, otherwise latex is converted to solid rubber. Re-conversion to latex involves a cost-prohibitive chemical process. Storage studies conducted on fresh harvested guayule indicate that harvested guayule can be stored for up to 4 weeks without significant loss of latex if the harvested material is kept moist and shaded. These results demonstrate that harvested guayule can be processed during a longer period than at present, while maintaining or even increasing latex yields.

During fiscal year 2008 and in subsequent years, guayule germplasm will be evaluated by both traditional and molecular approaches for increased rubber and resin contents. Data from agronomic tests will be assessed to determine how plant populations, harvesting methods, and planting dates affect yield of rubber and resin.

Lesquerella (*Lesquerella fendleri*) is a winter annual that can be grown in the southwestern United States for its oil, gum, and meal. Successful establishment of lesquerella production fields depends on knowing the optimal dates of planting — these also affect biomass production and seed yield. During fiscal years 2006 and 2007, ARS researchers at Maricopa, Arizona, examined growth and yield responses to five different planting dates. They found that biomass production and seed yield were drastically reduced when plantings took place after November 1. The early plantings in the middle of September and first of October produced the highest yields. This information will help producers determine the optimal time for crop establishment.

Fatty acid content is one of the major factors determining the oil value of lesquerella. Several fatty acid mutants were identified in FY 2007 with ranges of lesquerolic acid from 0 to 73 percent. The line with 0 percent lesquerolic acid is high in oleic acid (80 percent compared to 10 percent), a precursor to lesquerolic acid. The line with 73 percent lesquerolic acid should increase the value of lesquerella oil and reduce production costs, whereas the 0 percent lesquerolic acid line will facilitate genetic studies to determine the inheritance of fatty acids in lesquerella.

In fiscal year 2008 and future years, new lesquerella germplasm with higher yields and higher oil contents will be developed via interspecific crosses. The relative merits of spring versus fall plantings for water use efficiency and time to harvest will be investigated.

Concurrently, ARS scientists at Peoria, Illinois, produced many derivatives of lesquerella oil, and have characterized the oil's and its derivatives' physical properties. Lesquerella oil and derivatives are comparable or better than those derived from castor for a wide range of applications. ARS also developed a method for partial seed oil and fatty acid composition analysis for lesquerella that in fiscal year 2008 and future years will advance the genetic improvement effort at Maricopa.

Cuphea (*Cuphea viscosissima*) contains oil with the potential to replace coconut and palm oils in detergents and other industrial products. Derivatives of the medium-chain length fatty acids in cuphea oil may have superior properties for the manufacture of non-petroleum based lubricants. Thanks to efforts by ARS researchers at Peoria, fiscal year 2006 saw the first commercial production of cuphea with 1,000 acres grown in western Minnesota and eastern North Dakota. Interest in cuphea by the detergent industry as a source of capric acid remains strong, but cuphea cultivars must have acceptable agronomic properties. Research in fiscal year 2008 and subsequent years will attempt to increase current yields of 580 lbs/acre in fiscal year 2007 to reach the 1,800 lbs/acre needed for cuphea to be competitive with imported coconut and palm kernel oils.

Crambe (*Crambe abyssinica*) is grown commercially in North Dakota, Wisconsin, Nebraska, Indiana, Kansas, and Iowa. Crambe oil is a valuable source of erucic acid, used in products such as non-cling food wraps. During fiscal years 2006 and 2007, ARS researchers at Peoria developed additives from crambe oil to improve biodiesel fuel performance properties, such as cold flow properties, resistance to oxidation during storage (degradation caused by exposure to air), and reduction in harmful exhaust emissions from biodiesel combustion. Research products in fiscal year 2008 and future years may include new analytical methods to assess fuel quality, and the development of marketable co-products from biodiesel production, e.g., glycerol. Such future improvements in fuel properties and related development are needed to increase the consumption of biodiesel as an alternative fuel source and to improve the economics of biodiesel production.

ARS scientists in Peoria also identified coriander (*Coriandrum sativum*) accessions that may be suitable for double crop rotations with winter wheat, involving a July planting of coriander and an October harvest. In fiscal year 2008, researchers will increase seed for a field plot study. Preliminary analyses of the physical properties of coriander oil have been conducted and a method for producing adipic acid and lauric acid from the petroselinic acid found in coriander is being developed. If successful, this new rotation would enable cultivation of a major food crop followed by an industrial crop, without displacing our food production. Similarly, ARS scientists in Peoria identified a double crop rotation potential for pennycress (*Thlaspi arvense*) with a full season soybean where pennycress serves as a fuel source produced in the winter/spring and soybean provides food from spring/summer production. The initial analyses of physical properties have shown that pennycress oil will be a suitable biodiesel with the potential to produce 169 million gallons of biodiesel in soybean rotation acres (10 percent of U.S. need). ARS researchers are collaborating with a local company to scale up production with the goal of 50,000 acres of pennycress production in 2008.

Funding in fiscal year 2009 for New Crops is estimated at $3,394,000.

NOXIOUS WEEDS

Ms. DeLauro: Please update your response in last year's hearing record, and describe noxious weed funding and research projects by location.

Response: Crop losses in the United States due to insects, diseases, and weeds have been estimated at between 33 percent and 37 percent with costs estimated at $34.7 billion, impacting not only on agriculture, but water quality, wildlife, and recreation. ARS invasive weed science research is funded at $52,468,400 in FY 2007. Research is conducted at 50 locations. Projects focus on exclusion, early detection and rapid response, and control and management. Exclusion and early detection and rapid response research is conducted in support of action agencies such as the USDA-Animal and Plant Health Inspection Service. ARS weed control and management research is biologically based where possible, using biological control and cultural control/revegetation as the base strategies, and incorporating chemical and mechanical control where appropriate. ARS conducts research on weeds of crops, rangelands, urban areas, and natural areas. All of the ARS weed science research is conducted closely with customers and stakeholders. In the account below, general topics are indicated first, followed by a list of the key weed species studied at each location, where appropriate.

[The information follows:]

Location	Projects	FY 2008 Funding
Albany, CA (including worksites at Davis, CA, and Reno, NV	Biologically based weed management; Foreign exploration for natural enemies of weeds; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; alga, *Caulerpa taxifolia*; saltcedar, *Tamarix* spp.; Cape ivy, *Delairea odorata*; cheatgrass, *Bromus tectorum*; diffuse knapweed, *Centaurea diffusa*; egeria, *Egeria densa*; Eurasian watermilfoil, *Myriophyllum spicatum*; hoary cress, *Lepidium draba*; hydrilla, *Hydrilla verticillata*; potamogeton, *Potamogeton* spp.; Russian knapweed, *Centaurea repens*; Scotch broom, *Cytisus Scoparius*; Scotch thistle, *Onopordum acanthium*; spotted knapweed, *Centaurea Maculosa*; tall whitetop or perennial pepperweed, *Lepidium latifolium*; yellow starthistle, *Centaurea solstitialis*	5,221,900
Ames, IA	Cover cropping; Vegetative filters to prevent pesticide loss to stream water; Weed population shifts in response to herbicides	1,112,300
Beijing, China	See Headquarters	
Beltsville, MD	Biologically based weed management; Cover cropping; Develop risk analysis data for biological control agents; Minor use pesticide registration coordination; Post-release monitoring of target and non-target impacts; Systematics of arthropods and fungi for weed management; Weed management in organic systems; Canada thistle, *Cirsium arvense*	5,561,700
Brisbane, Australia	See Headquarters	
Buenos Aires, Arg	See Headquarters	
Burns, OR	Biologically based weed management; Function of ecosystems; Integrated weed management; Management impacts on Great Basin weeds; Ecosystem revegetation; cheatgrass, *Bromus tectorus*; medusahead, *Taeniatherum caput-medusa*; perennial pepperweed, *Lepidium latifolium*; Russian knapweed, *Centaurea repens*; western juniper, *Juniperus occidentalis*	763,900
Charleston, SC	Allelopathic influences of vegetable crops on weeds; Cover crop mulching systems for weed control	548,800
Cheyenne, WY	Ecology of weed invasion; Grazing management strategies; Livestock grazing management strategies; Response of rangeland plant communities to climate change; Weed invasion in response to climate change	434,400

Location	Projects	FY 2008 Funding
Columbia, MO	Biologically based integrated weed management; Cover cropping; Production, quality and effectiveness of mass-rearing; spotted knapweed, *Centaurea maculosa*	780,200
Corvallis, OR	GIS to look at production impacts on herbicide resistance	805,500
Davis, CA	See Albany, CA	
Fairbanks, AK	Integrated weed management; bird vetch, *Vicia cracca*; Canada thistle, *Cirsium arvense*; Japanese knotweed, *Polygonum cuspidatum*; garlic mustard, *Alliaria petiolata*; orange hawkbeard, *Hieracium aurantiacum*; perennial sowthistle, *Sonchus arvensis*; white sweet clover, *Melilotus alba*	784,000
Fargo, ND	Integrated weed management; Dormancy in root and crown buds of leafy spurge; New and innovative perennial weed control strategies; Population genetics of Canada thistle; Seed dormancy in wild oat; Canada thistle, *Cirsium arvense*; leafy spurge, *Euphorbia esula*	1,641,800
Fort Collins, CO	Integrated Great Basin weed management; Bioeconomic weed management models Herbicide resistance; Herbicide use protocols; Weed seeds in soil	589,500
Ft. Detrick, MD	Biologically based weed management; Foreign exploration for natural enemies of weeds; Host-specificity testing for weed biological control agents; Post-release monitoring on target and non-target impacts; Risk analysis data for biological control agents; Canada thistle, *Cirsium arvense*; common crupina, *Crupina vulgaris*; Russian thistle, *Salsola iberica*; yellow starthistle, *Centaurea solstitialis*	1,978,600
Ft. Lauderdale, FL	Biologically based weed management; Foreign exploration for natural enemies of weeds; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; air potato, *Dioscorea bulbifera*; Brazilian peppertree, *Schinus terebinthifolius*; Eurasian watermilfoil, *Myriophyllum; spicatum*; hydrilla, *Hydrilla verticillata*; melaleuca, *Melaleuca quinquenervia*; Old World climbing fern, *Lygodium microphyllum*; salvinia, *Salvinia molesta* skunk vine, *Paederia foetida*; tropical soda apple, *Solanum viarum*; waterhyacinth, *Eichhornia crassipes*	2,743,400

Location	Projects	FY 2008 Funding
Headquarters (including locations at Beijing, China, Brisbane, Australia, Hurlingham, Argentina)	Biologically based weed management; Foreign exploration for natural enemies of weeds; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; Many target species	3,959,400
Ithaca, NY	Biologically based weed management; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control Agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; Biological control of weeds; Physiological relationship among weeds and natural enemies; purple loostrife, *Lythrum salicaria*; Swallow worts, *Vincetoxicum* spp.	821,400
Lane, OK	Identify and prioritize key weed/crop problems in horticultural crops and characterize the biological, ecological, and optimum control mechanisms of the most invasive, commercially important weeds; Enhance the selection and precision application of established and new inorganic and bio-based herbicides for weed control in horticultural crops; Develop economical, sustainable, and ecological sound integrated weed control systems for horticultural crops using multiple methods (weed biology and ecology, organic and inorganic herbicides, mechanical, and cultural practices) to limit or eliminate weed interference below economic thresholds.	360,100
Las Cruces, NM	Ecologically based management of arid rangelands; Monitoring and assessing arid rangeland ecosystems; Remediation of arid rangelands	681,800
Logan, UT	Ecologically based management of arid rangelands; Integrated rangeland weed Research; Monitoring and assessing arid rangeland ecosystems; Poisonous plant Research; Remediation of rangelands	425,200
Miles, City, MT	Integrated weed management systems; Grazing and fire impacts on weed invasion; Rate and extent of invasion of noxious weeds; Rangeland renovation	444,300
Montpellier, France	Biologically based weed management; Foreign exploration for natural enemies of Weeds; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; Many target species	1,661,200
Morris, MN	Integrated weed management; Develop phenological models and decision aids	1,363,100
Newark, DE	Biologically based weed management; Host-specificity of herbivore natural enemies of weeds; Risk analysis data for biological control agents	115,000

Location	Projects	FY 2008 Funding
New Orleans, LA	Biologically based weed management; Integrated weed management; Bioherbicide Development; Delivery systems and formulations	1,193,000
Oxford, MS	Aquaculture and algaecide discovery; Natural products for weed management; Crops that suppress weed growth; Phytotoxins and allelochemicals for use in IPM	1,768,200
Prosser, WA	Herbicide weed control	106,800
Pullman, WA	Biologically based weed management; Herbicide based weed management; Integrated weed management; Develop biological weed control using soil Microorganisms; jointed goatgrass, *Aegilops cylindrical*	411,800
Reno, NV	See Albany, CA	
Salinas, CA	Cover cropping in organic production systems; Testing Halosulfuron, an herbicide for broadleaf weed control; Breeding lettuce for herbicide resistance	268,300
Sidney, MT	Biologically based weed management; Foreign exploration for natural enemies of Weeds; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; Canada thistle, *Cirsium arvense*; diffuse knapweed, *Centaurea diffusa*; leafy spurge, *Euphorbia esula*; Russian knapweed, *Centaurea repens* (=*Acroptilon repens*); saltcedar, *Tamarix* spp.; spotted knapweed, *Centaurea maculosa*; tall whitetop or perennial pepperweed, *Lepidium latifolium*; yellow starthistle, *Centaurea solstitialis*	1,757,300
Stoneville, MS	Biologically based weed management; Fate and behavior of herbicides; Herbicide based weed management; Integrated weed management; Host-specificity testing for weed biological control agents; Methyl bromide replacement for weed control; Natural compounds as herbicides; Post-release monitoring of target and non-target impacts; Risk analysis data for biological control agents; Weed biology and ecology; Weeds in soybeans, cotton, horticultural, and agronomic Crops; coffee senna, *Cassia occidentalis*; kudzu, *Pueraria lobata*; Sicklepod, *Senna obtusifolia*	4,580,900
Stuttgart, AR	Competition among red rice ecotypes; Gene flow biosafety of cultivated rice; Herbicide-resistant varieties; Rice yield reduction due to red rice; barnyardgrass, *Echinochloa crus-galli*; red rice, *Oryza sativa*	649,300

Location	Projects	FY 2008 Funding
Temple, TX	Biologically based weed management; Foreign exploration for natural enemies of Weeds; Global climate change impacts on weed populations; Herbicide based weed Management; Integrated weed management; Invasive brush and weeds; Long-term impacts of declining weed densities; Population dynamics of native riparian/ rangeland communities; African rue, *Peganum harmala*; camel thorn, *Algahi camelorum*; saltcedar, *Tamarix* spp.; Russian olive, *Elaeagnus angustifolia*	486,900
Tifton, GA	Effectiveness and phytotoxicity of herbicides; Weed-crop ecology; Weed seeds in soil; Methyl bromide alternatives for weed control; yellow nutsedge, *Cyperus esculentus*; purple nutsedge, *Cyperus rotundus*	1,492,900
Urbana, IL	Biologically based weed management and weed ecology; Cover cropping; Field crop and vegetable crop weed management; Herbicide persistence; Microbial inhibition in biodegradation of herbicides; Natural area weed management	1,263,800
Wapato, WA	Integrated weed management	693,100
Weslaco, TX	Biological control of aquatic and terrestrial weeds; Remote sensing of weed Populations	3,782,000
Wooster, OH	Integrated weed management	1,404,600
TOTAL		$52,656,400

OBJECT CLASS TABLE

Ms. DeLauro: Please provide a breakout of the Other Services-Object Classes for fiscal years 2006 through 2008, and proposed for 2009.

Response: A breakout of the Other Services-Object Classes includes both Salaries and Expenses and Buildings and Facilities.

25.2	FY 2006	FY 2007	FY 2008	FY 2009
Other Services:				
Training, Tuition, Fees, Etc	$2,032,512	$2,423,573	$1,400,000	$1,115,000
Fees	316,287	352,668	204,000	162,000
Participation Fees	101,281	60,160	35,000	28,000
Construction Contracts	134,098	689,879	398,000	317,000
ARCH & Engineering Contracts	2,130,629	3,433,591	1,983,000	1,579,000
Insurance Claims and Indemnities	488,436	1,314,191	759,000	604,000
Security Investigation Charges	300,670	445,158	257,000	205,000
Bank Services Fees and Other Fees	44,599	36,196	21,000	17,000
Consultant Fees	143,151	307,829	178,000	142,000
All Other Services (Accounting Adjustment)	-4,394,760	-889,940	-587,000	-468,000
Subtotal	$1,296,903	$8,173,305	$4,648,000	$3,701,000
12X1400 Multi-Funds Account	-33,468	287,364	73,000	0
Subtotal	$1,263,435	$8,460,669	$4,721,000	$3,701,000
Buildings and Facilities	267,521,000	71,305,381	71,000,000	44,000,000
Total	$268,784,435	$79,766,050	$75,721,000	$47,701,000

OFFICE OF PEST MANAGEMENT

Ms. DeLauro: Please update the Committee on the fiscal year 2007, 2008, and 2009 expenditures and staffing support for the Office of Pest Management. What are your specific needs for fiscal year 2009?

Response: Funding for the Office of Pest Management Policy (OPMP) in fiscal years 2007 and 2008 is $1,689,000 and $1,677,000. The President's fiscal year 2009 budget request is $1,677,000. Salary and expenses for ten staff are supported with this level of funding, along with some additional funds from the USDA Advisory Committee on Biotechnology and 21st Century Agriculture which receives staff support from OPMP. Specific needs for fiscal year 2009 are covered by continued salary and expense support. OPMP continues to work with the Environmental Protection Agency (EPA), USDA agencies, and agricultural producers to ensure the development and use of high quality agricultural information and data for pesticide risk assessment and risk mitigation. OPMP, in conjunction with the four USDA Integrated Pest Management Centers, also works with growers to develop and implement plans to transition to lower-risk pest management tactics. This effort has become increasingly important as EPA continues its implementation of the Food Quality Protection Act. In addition, OPMP is responsible for the interagency

coordination, stakeholder outreach, and planning for the National Plant Disease Recovery System required by Homeland Security Presidential Directive #9.

OGALLALA AQUIFER

Ms. DeLauro: Please update your response in last year's hearing record on ARS' effort in terms of funding and research plans with respect to the Ogallala Aquifer.

Response: ARS is leading a consortium of institutions in a coordinated research program to address seven priority topics related to the decline in the supply of water from the Ogallala Aquifer, the primary source of water for most of the Southern High Plains. The consortium includes ARS laboratories in Bushland and Lubbock, Texas; Texas Tech University; Kansas State University; West Texas A&M University; and the Texas AgriLife Extension Service Centers in Amarillo and Lubbock. Total funds allocated to each of the partners for research in fiscal years 2003 through 2007 were: Kansas State University, $2,353,128 (19 percent); Texas A&M University, $2,120,399 (17 percent); West Texas A&M University, $551,867 (5 percent); and Texas Tech University, $2,131,177 (18 percent). ARS retained $5,059,005 (41 percent) to conduct their portion of the research program and has assigned 4.3 scientific years of manpower to the project. Determination of funding levels to all ARS cooperators in fiscal year 2008 is in progress. Final information will be available after September 30, 2008, when all extramural agreements have been executed.

Seven high-priority research priority areas have been identified for the overall Ogallala Aquifer project: 1. irrigation and precipitation management; 2. irrigation systems and technology; 3. hydrology/Climatology; 4. production systems; 5. confined feeding operations; 6. economic assessment and impacts; and 7. technology transfer, education, and training. Each year work plans are developed for each of the seven priority areas of the overall plan. These plans are written by the members of each priority area team and are designed to meet the objectives. Individual plans are made for one or two years, and funding is committed to those approved projects for the time period requested. Yearly workshops are held with stakeholders and these workshops are used to review progress and redefine research priorities. The latest stakeholder workshop was held March 11-13, 2008 in Amarillo, Texas.

This year established field plots will be used to calibrate crop water use models for management protocols in sorghum and cotton grown using water efficient irrigations systems. Variables include water application methods and timing, soil type, and tillage and nutrient management practices. Data will be added to last year's studies and used to test and improve model reliability and versatility. A newly developed selection technique will be used to screen over 3,000 lines of sorghum for improved water use efficiency. Irrigation decision support models are also being calibrated based on the second year field studies. Data collected from field studies is also contributing to calibration and improvement of ground water use and recharge models in order to improve reliability of decision support systems being developed for water use and energy balance validation at the sub-county, county and regional scales. Second-year evaluations will continue on corn, sorghum, sunflower and cotton crop rotations and tillage practices, and integrated crop and livestock management strategies. The objective is to

provide improved practices at the farm and district scales that that will minimize dependence on ground water use. All newly developed strategies are being incorporated into regional economic and social models. Automated deck washing systems have been built and will be tested and modified to provide cooling and sanitation objectives in concentrated animal feeding operations.

PATENTS AND ROYALTIES

Ms. DeLauro: How many patents does USDA currently have and how many are currently pending?

Response: USDA currently has 533 issued (currently active) patents and 296 patents are pending.

Ms. DeLauro: Please provide a table showing how much ARS has spent on filing patents in fiscal years 2005 through 2008 and expects to spend in 2009.

Response: ARS has spent $331,530 on patent filing fees from fiscal years 2005 through 2008, see the table for a breakdown by fiscal year. ARS expects to spend $125,000 in fiscal year 2009.

	FY 2005	FY 2006	FY 2007	FY 2008
Filing Fees	$67,314	$78,558	$80,658	$105,000

Ms. DeLauro: Please update the alphabetical list in last year's hearing record of all current patent licenses on products/processes that have been granted to industry partners since the establishment of CRADAs in 1986.

Response: Please find below a list of the current licenses on products/processes granted to industry partners since 1986.

1, 24 Dihydroxy Vitamin D 2
2-Ethyl Hexyl Oleic Estolide As A Hydraulic Fluid
A Method For The Control Of Insects
A Method Of Making A Soluble Dietary Fiber Composition From Oats
A Monoclonal Antibody Based Immunoassay For Ractopamine
A Multiple Embedded Nuclear Polyhedrosis Virus From Celery Looper With Activity Against Lepidoptera
A Plastic Bait Composition For Attracting And Killing Crop Pests
A Rapid, Simple And Humane Method Of Bleeding Mice
A Technique To Reduce Chemical Usage And Concomitant Drift From Aerial Sprays
Acapsular P. Multicida Hyae Deletion Mutants
Acoustical Apparatus And Method For Sorting Objects
Adherent Spray Formulations For Pesticides
Adherent Starch Granules For Encapsulation Of Pest Control Agents
Adjustable Flume
Alkaline Peroxide Treatment Of Nonwoody Lignocellulosics
Ant Bait Attractive To Multiple Species Of Ants
Antibodies For The Detection Of Prion Protein As An Indication Of Transmissible Spongiform Encephalopathies
Apparatus And Method For Measuring The Mass Of Vegetation Or Fruit Supported On A Trellis

Apparatus And Method For The Measurement Of Forest Duff Moisture Content
Apparatus And Procedure For Placement Of Bale Ties
Apparatus For Cleaning Cotton
Apricot Cv. Robada (K106-2)
Artificial Diets For Honey Bees
Artificial Media For Rearing Entomophages
Aspernomine, An Antiinectan Metabolite
Attenuated Revertant Serotype 1 Marek's Disease Vaccine
Attractant For Monitoring And Control Of Adult Scarabs
Attractants For The Rose Chafer, Macrodactylus Subspinosus (F)
Automated Tension Infiltrometer
Avian Leukosis Virus Subgroup J Hc Strain For Diagnosis And Vaccine
Avian Pneumovirus Diagnostic System
Avian Primordial Germ Cell Lines
Bannock Thickspike Wheatgrass
B-Glucan And Antioxident Modulation Of Dairy Calf Immune Function
Big Bluestem Niagara Grass
Bioactive Coating For Harvested Commodities
Biodegradable Polyester Compositions With Natural Polymers And Articles Thereof
Biological Control Of Plant Disease On Roots Of Conifer Seedlings
Biological Control Of Postharvest Diseases By Combining A Sugar Analog With An Antagonistic Yeast
Biological Control Of Postharvest Diseases Of Pome Fruit With Pseudomonas Syringae Pv. Lachrymans
Biologically-Identified Optimal Temperature Interactive Console (Biotic)For Managing Irrigation
Biopesticide Composition And Process For Controlling Insect Pests
Bison Buffalograss
Black Pearl Pepper
Blueberry Named Vernon
Bolivar Rice Variety
Boll Weevil Trap
Bradyrhizobium Japonicum Strain Bj5019: An Improved Inoculant For Soybeans
Brucella Abortus Antibody Detection Methods
Campy-Cefex Selective And Differential Medium
Canker-Resistant Aspen Tree
Catalysts And Processes For Formaldehyde-Free Durable Press Finishing Of Cotton Textiles With Polycarboxylic Acids
Charleston Greenpack Cowpea
Chemical Attractants For Moths
Chemical Attractants For Yellowjackets And Paper Wasps
Chemical Compositions That Attract Arthropods
Chemically Modified Vegetable Oil-Based Industrial Fluid
Chromium-Histidine Complexes As Nutrient Supplements
Chromobacterium Subtsugae Sp. Nov. and Use for Control of Insect Pests
Coby Products And A Process For Their Manufacture
Composition And Method For The Control Of Diabroticite Insects
Composition And Method For The Control Of Parasitic Mites In Honey Bees

Compositions For The Control Of Pepper Weevils
Construction Of Pasteurella Haemolytica And Pasteurella Multocida And Haemophilus Vaccines
Control Of Fire Blight On Pome Fruit Trees With Erwinia Herbicola
Control Of Kudzu With A Fungal Pathogen Derived From Myrothecium Verrucaria
Control Of Pests With Annonaceous Acetogenins
Control Of Plant Gene Expression
Corn Fiber Oil - Its Preparation And Use
Cotton-Based Wound Dressings Containing Protease Inhibitors
Cowpea, 'Petite-N-Green
Defect Detection System For Lumber
Delignification Of Wood Pulp By Vanadium-Substituted Polyoxometalates
Detection Of Bacterial Kidney Disease
Detection Of Infectious Haematopoietic Necrosis Virus
Development Of A Novel Trapping System For Fruit Flies
Device And Method For Its Use As An Aid In Control Of Ticks And Other Ectoparasites On Wildlife
Device For Automatic Extracting, Grading And Returning Lint To Gin System
Device To Reduce Bale Packaging Forces
Device To Reduce Fiber Waste By Lint Cleaners
Diagnosis Of Transmissible Spongiform Encephalopathies
Diagnostic Assays For Genetic Mutations Associated With Bovine Leukocyte Adhesion Deficiency
Dietary Fiber Gels For Preparing Calorie Reduced Foods
DNA Recomination In Eucaryotic Cells By The Bacteriophage Phic31 Recombination System
DNA Sequence Encoding Surface Protein Of Cryptosporidium Parvum
Effective And Defined Therapeutic And Prophylactic Competitive Exclusion Cultures For Food Borne Pathogens
Electronic Grain Probe Insect Counter (Egpic)
Electrostatic Reduction System For Reducing Airborne Dust And Microorganisms
Endogenous Wheat Endosperm Peroxidase That Catalyzes Dityrosine Formation
Enhanced Separation Of Contaminants From Fibers Such As Cotton, Kenaf And Flax
Enhancement Of Nitrogen Fixation With Bradyrhizobium Japonicum Mutants
Ferritin Formation As An Predictor Of Iron Availability In Foods
Fiber And Fiber Products Produced From Feathers
Fire Shelter
Food Products Containing Partially And/Or Totally Denatured Milk Proteins
Fungal Compositions And Methods For Bioremediation
Fungal Gene Encoding Resistance To The Phytotoxin Cercosporin
Fungal Lactate Dehydrogenase Gene And Constructs For The Expression Thereof
Gellable Ant Bait Matrix
Genetic Methods For Speciating Campylobacter
Genetically Engineered Swine Influenza Virus For Use As Vaccine And For Pharmaceutical Preparations In Animals
Glutenin Genes And Their Uses

Grapevine Denominated 'Autumn King'
Grapevine Denominated 'Scarlet Royal'
Grapevine Plant Denominated 'Sweet Scarlet'
Grazer Annual Ryegrass
Green Leaf Volatiles As Inhibitors Of Bark Beetle Aggregation Pheromones
Greenhouse Illumination System
Greenpack-Dg Cowpea
Guymon Bermudagrass
Hepatocyte Cell Line Derived from the Epiblast of Pig Blastocysts
Herbicide Tolerance In Maize Plants
Hidalgo Rice Variety
High Affinity Monoclonal Antibodies To Bowman-Birk Inhibitor And Immunoassay Methods
Hydrophobic Extracted Neem Oil A Novel Insecticide
Hypoallergenic Natural Rubber Products From Parthenium Argentatum (Gray) And Other Non-Hevea Brasiliensis Species
Identification And Map Location Of A Soybean Gene That Conditions Strong Resistance To The Soybean Aphid, Aphis Glycines
Impact Detection Apparatus
Improved Diagnosis Of Plant Viroid And Virus Diseases By Nucleic Acid Hybridization
In Vitro Screening For And Selection Of Glycine Max Resistant To Phialophora Gregata
Increasing Stability Of Fruits, Vegetables, Or Fungi
Inhibition Of Cytokine Production By Polymethoxylated Flavones
Insect Monitoring System
Interactions Between Genotype And Diet In Swine That Prevent E Coli Associaassociated Intestinal Disease
Introduction Of Bacteria In Ovo
Jacinto Rice
Lignin-Based Pest Control Formulations
Livestock Mucosal Exclusion Culture To Reduce Enteropathogenic Bacteria
Livestock Walk-Through Fly Trap
Low Phytic Acid Mutants And Selection Thereof
Low-Carbohydrate Digestible Hydrocolloidal Fiber Compositions
Materials And Methods For Control Of Pests
Merlot (Small Red Dry Bean)
Merozoite Proteins For Use In Detection Of Babesia Equi In Horses Using Immunological Techniques
Method And Apparatus For Controlling Animals With Electronic Fencing
Method And Apparatus For Edgewise Compression Testing Of Flat Sheets
Method And Apparatus For Evaluating The Drying Properties Of Un-Dried Wood
Method And Apparatus For Forming Three Dimensional Structural Components From Wood Fiber
Method And Apparatus For Measuring Oxygen Concentration And Its Subsequent Use In Estimating Nitrogen Fixation In Plants
Method And Apparatus For Real-Time Determination And Application Of Nitrogen Fertilizer Using Rapid, Non-Destructive Crop Canopy Measurements
Method And Apparatus For Stimulating Plant Growth

Method And Kit For Extracting Prion Protein
Method And System For Contaminant Detection During Food Processing
Method And System For Detecting Fecal And Ingesta Contamination On The Carcasses Of Meat Animals During And After Slaughter Using Visible Light Fluorescent Spectroscopy
Method And System For Measurement Of Intake Of Food Nutrients And Other Food Components In The Diet
Method For Controlling Yellow Nutsedge Using Puccinia Canaliculata
Method For Fiber Loading A Chemical Compound
Method For The Control Of Animal Intestinal Parasites
Method For The Development Of Delta Lactones And Hydroxy Acids From Unsaturated Fatty Acids And Their Glycerides
Method Of Increasing Biomass Plants
Method Of Removing The Hull From Corn Kernels
Method To Preselect The Sex Of Offspring
Method for Screening Bacteria and Application Thereof for Field Control of the Weed Downy Brome
Methods And Compositions For The Simultaneous Control Of Root Diseases Caused By Gaeumannomyces Graminis, Rhizoctonia, And Pythium
Methods And Compositions For Transformation Of Cereals Using Cultured Shoot Meristematic Tissue
Methods And Materials For The Control Of Insects Such As Pecan Weevils
Methods For Preserving Fresh Fruit
Methods For Removing And Decomposing Methyl Bromide From Fumigation Gases
Methods Of Altering Sphingolipid Metabolism And Detecting Fumonisin Ingestion And Contamination
Methods Of Improving Shrink-Resistance Of Natural Fibers, Synthetic Fibers, Or Mixtures Thereof, Or Fabric Or Yarn Composed Of Natural Fibers, Synthetic Fibers, Or Mixtures Thereof
Microorganism Strains That Produce A High Proportion Of Alternan To Dextranand Rapid Screening Method To Select Same
Modification Of Cereal Grain Hardness Via Expression Of Puroindoline Protein
Modified Live Edwardsiella Ictaluri Against Enteric Septicemia Of Catfish (Esc) In Channel Catfish
Modified Live Flavobacterium Columnare Against Columnaris Disease In Channel Catfish
Modified Plant Fiber Additive For Food Formulations
Monoclonal Antibodies Against Chicken T-Lymphocytes
Monoclonal Antibodies Against Potyvirus Associated-Antigens, Hybrid Cell Lines Producing These Antibodies, And Use Thereof
Monoclonal Antibodies And Antibody Cocktail For Detection Of Prion Protein As An Indication Of Transmissible Spongiform Encephalopathies
Monoclonal Antibodies To Bovine Haptoglobin And Methods For Detecting Serumhaptoglobin
Monoclonal Antibodies To Ceftiofur And Assays For The Same
Monoclonal Antibodies To Potato And Tomato Glycoalkaloids And Assays For The Same
Monoclonal Antibodies To Salinomycin And Method For Detecting The Same
Monoclonal Antibodies Which Discriminate Between Strains Of Citrus Tristeza Virus
Mucosal Competitive Excusion Flora
Mycobacterial Diagnostics

Mycoherbicidal Compositions And Methods Of Preparing And Using The Same
Naphtalene And Naphthenate Derivates As Bait Toxicants For Subterranean Termites
Navel Orangeworm Pheromone Composition
Non-Aflatoxigenic Aspergillus Parasiticus Strains And Their Use In Controlling Aflatoxin Contamination
Non-Edible Foraging Matrix Insert For Subterranean Termite Control
Non-Separable Starch-Oil Compositions
Novel Bisexual Attractants, Aggregants And Arrestants For Adult And Larvae Of Codling Moth And Other Species Of Lepidoptera
Novel H2N3 Influenza Virus in U.S. Pigs
Novel Methodology For Therapeutic And Prophylactic Bacteriophage Delivery And Amplification Using Apathogenic Non-Target Bacterial Hosts For Enteric Diseases
Novel Pyrrolizidine Alkaloid
Novel Selective Algaecides For Control Of Cyanochloronta
Novel Virus Compositions To Protect Agricultural Commodities From Insects
Nucleotide Sequence Of A Complementary DNA (CDNA) Clone Encoding A Maize 33kd Cysteine Proteinase
Octenol Lure For Mosquitoes And Biting Flies
Palmetto Blueberry
Passive Self-Contained Camera Protection And Method For Fire Documentation
Patheogen Resistance In Plants Using CDNA-N/Intron Constructs
Pcr Primers For Detection Of Plant Pathogenic Species And Subspecies Of Acidivorax
Peach And Nectarine Rootstock Named K146-43
Peach And Nectarine Rootstock Named P30-135
Peach Tree Named 'Crimson Rocket'
Peach Tree Named 'Sweet-N-Up'
Peptides Stimulating Sex Pheromone Production And Melanization In Moths
Phytomining Of Nickel From Soil
Piggybac Transposon-Based Genetic Transformation System For Insects
Plant Promoter Sequences And Methods Of Use Thereof
Plant Virus Resistance Gene And Methods
Pollen-Based Transformation Using Solid Media
Porcine Reproductive And Respiratory Syndrome Vaccine Based On Isolate Ja-142
Poultry Virus And Method
Powered Roll Gin Stand
Preenrichment Broth Medium For The Simultaneous Sampling Of Foods For Salmonella And Listeria
Preparation Of Secondary Ether Fatty Acids And Esters From Their Hydroxy Fatty Acid Equivalents
Preparation Of Soy Protein Isolate Using High Pressure Carbon Dioxide
Prevention Of Fescue Toxicosis
Prince Napiergrass (N241-8)
Princess - New White Seedless Table Grape Cltivar
Princess Napiergrass (N241-5)
Process And Apparatus To Improve The Properties And Value Of Forage Crops

Process For Converting Unsaturated Fatty Acids Into Estolides
Process For Dry Instantization Of Rice
Process For Rapid Sterilization Of Foods And Biomaterials And Shelf-Stable, Commercially Sterile Products Obtained By Implementing The Process
Process For The Continuous Removal Of Products From High Pressure Systems
Process For The Deagglomeration And The Homogeneous Dispersion Of Starch Particles
Process For The Enzymatic Conversion Of Podophyllotoxin Beta-Glucopyranosides And Other Podophyllum Glycosides To Their Corresponding Aglycons
Processes For Recovery Of Corn Germ And Optionally Corn Coarse Fiber (Pericarp)
Production Of Recombinant Proteins In Insect Larvae
Production Of Taxol Or Taxol-Like Compounds In Cell Culture
Pterostilbene As A New Agonist For The Peroxisome Proliferator-Activated Receptor Alpha Isoform
Quick Assay For Detection Of Salmonella
Rabbiteye Blueberry Named "Alapaha"
Rabbiteye Blueberry Named "Ochlockonee"
Rapid Single Kernel Grain Characterization System
Reaction Products of Magnesium Acetate and Hydrogen Peroxide for Imparting Antibacterial Activity to Fibrous Substrates
Real Time Trash Measurement System For Seed Cotton Or Lint
Recombinant Chitinase And Use Thereof As A Biocide
Resolution Of Complex Integration Patterns To Obtain Single Copy Transgenes
Restriction Enzyme Screen For Differentiating Porcine Reproductive And Respiratory Syndrom Virus Strains
Restructured Fruit And Vegetable Products And Processing Methods
Rice Flower Based Low Oil Uptake Frying Batters
Rps Gene Family, Primers, Probes, And Detection Methods
Ruminal Fluid Inoculation Of Calves
Rush Intermediate Wheatgrass
Saccharomyces Treatment To Diminish Campylobacter And Salmonella Populations In Poultry
Salmonella Selective Plating Medium
Sarcocystis Neurona Unique Amplification Primer 1470
Scolytid Repellant
Sequences For Production Of 2,4-Diacetylphloroglucinol And Methods
Serological Identification Of Cattle, Sheep Or Goats Infected With Anaplasma Species
Serotype 2 Marek's Disease Vaccine
Sierra Chickpea
Soluble Hydrocolloid Food Additives And Method Of Making
Soybean - Derry
Soybean - Tyrone
Species-Specific Genetic Identification Of Mycobacterium Paratuberculosis
Stable Germicidal Film-Forming Teat-Dip Solutions
Steadfast (Ars-2620); Lotus Corniculatus L. (Fabaceae); Rhizomatous Birdsfoot Trefoil

Steinernema Sp. Nematode For Suppression Of Helicoverpa Zea And Spodoptera Frugiperda
Strawberry Called Mnus 248
Strawberry Plant Called Mnus 210
Summer Royal - Black Seedless Grape
Sunscreens From Vegetable Oil And Plant Phenols
Suppression Of Foliar And Soilborne Pathogens
Synthesis Of (All-E)-2,7-Dimethylocta-2,4,6-Triene-1,8-Dial-13c4, A Precursor For The Preparation Of Stable Isotope (13c) Of Carotenoids
System For Producing Core/Wrap Yarn
Technology to Identify Plants Processing a Novel Soybean Gene that Conditions Strong Resistance to the Soybean Aphid, Aphis Glycines
Temperature Adaptable Textile Fibers And Method Of Preparing Same
Termite Bait Matrix
Thermostable Polymers From 1', 2', 3, 3', 4, 4', 6, 6'-Octa-O-Allylsucrose
Thlaspi Caerulescens Sub-Species For Cd And Zn Recovery
Three Dimensional Laminated Structures And Method Of Making Same
Tifblair
Tifeagle Bermudagrass
Tifleaf 3, Tift 93, And Tift 8593 Pearl Millets
Tifrunner (Experimental No. C34-24)
Tift 94' Bermudagrass
Treated Horticultural Substrates
Tri-State Potato Varieties
Trugold Peach
Use Of Alum To Inhibit Ammonia Volatilization In Poultry Litter
Use Of Chlorate Ion Or Preparations Thereof For Reduction Of Food Borne Pathogens
Use Of Enzymes To Reduce Steep Time And So2 Requirements In A Maize Wet-Milling Process
Use Of Nickel To Correct Growth Disorders In Plants
Use Of N-Methyl-Aspartic Acid For Enhancing Growth And Altering Body Composition
Use Of Sodium And Potassium Carbonate Treatments To Kill *E. Coli* And Other Pathogens In Fecal Materials
Vegetable Oil-Based Printing Ink
Virus Resistant Maize And The Production Thereof
Walnut Rootstock 'Rx1'
Walnut Rootstock 'Vx211'
Wastewater Treatment System
Waxy-Pen Wheat
Yeasts For Reducing Fusarium Head Blight In Cereals And Selection Thereof

Ms. DeLauro: Please update your response in last year's hearing record on the royalties ARS receives from patent licenses. What was the disposition of any royalties received in fiscal years 2007 and 2008?

Response: ARS' total royalties in fiscal year 2007 were $3,114,853. Determination of royalties for fiscal year 2008 has not yet been completed.

Final information will be available after September 30, 2008 when all royalties have been collected. The disposition of royalties is as follows:

	FY 2007
Inventor Awards	$990,344
Salaries	1,325,928
Patent filing preparation fees, and patent annuity payments	798,581
TOTAL	$3,114,853

PEANUT RESEARCH

Ms. DeLauro: Please provide an update on your work on peanuts, including 2006 through 2008 accomplishments, and plans for fiscal year 2009. By location, what is the funding for peanut research for fiscal years 2007, 2008, and 2009?

Response: ARS conducts peanut research at several locations to improve yield and water-use efficiency; reduce peanut production, processing, and handling costs; reduce yield losses to pests and diseases; enhance quality and flavor; develop new products and uses of byproducts; improve peanut safety by reducing aflatoxin contamination; and reduce allergenic potential. Fiscal year 2008 accomplishments will not be available until after the end of the fiscal year. Research projects at these locations include:

ATHENS, GEORGIA - During FY 2006 and FY 2007, ARS scientists demonstrated that peanut kernel moisture content can be determined by microwave measurements on unshelled peanut pods. Five different calibration algorithms were implemented. The sensor was designed for easy mounting in combines, grain elevators, chutes, etc. Accurate and rapid moisture content measurement of grain and seed is crucial information for safe handling and storage of plants.

DAWSON, GEORGIA - Peanut offers a superior choice for a biodiesel feedstock in the southeast United States, especially because of its low free fatty acid content compared with other oilseeds and high oleic acid cultivars that produce a better quality biodiesel product. During FY 2006 and FY 2007, ARS conducted research on peanut biodiesel production systems. Preliminary data indicate that peanuts can produce economically viable yields when grown with very limited inputs. In FY 2008 and subsequent years, further research will be conducted to refine production practices that maximize oil production in a low-cost farming system, thereby minimizing the per gallon cost of producing and processing peanuts into biodiesel. To complete the project, a scale biodiesel facility was constructed to demonstrate on-farm production. It will process 3,000-5,000 gallons of peanut oil per year, or about one-quarter scale of a typical farm operation. Additional research will be conducted into usages for co-products formed in the process, namely: hulls, peanut meal, and glycerin. Selling or using these as value-added products will make the price per gallon of peanut biodiesel decrease.

Researchers at Dawson developed Peanut Curing Management Software and released the equations to estimate peanut curing (drying) times and real time estimates of peanut moisture content. The software was evaluated at the National Peanut Research Laboratory by commercial drying facilities. The curing of over 100,000 tons of peanuts was managed using the software during each of the 2005 and 2006 crops with no changes to the prediction equations

between seasons. The software has been released for commercial use and operator training sessions held. Users have reported saving approximately 20 percent of peanut curing costs and improved quality and consistency of peanuts presented for marketing after curing. At an estimated curing cost of $20/ton, this correlates to at least $4/ton of peanuts dried. Assuming that 50 percent of the peanuts produced in the United States were cured using this software, this is an annual savings of $4 million in curing costs.

Water scarcity is projected to occur over the next two decades in west Texas where the Ogallala aquifer is the primary source of water. The National Peanut Research Laboratory in Dawson has developed irrigation schemes that maximize peanut production in the semi-arid environment of west Texas while reducing overall water consumption. Several irrigation schemes were identified that utilize deficit irrigation timed to peanut developmental stages to maintain yield and quality equal to full irrigation, but using less water. This research has provided growers a profitable way to combat declining irrigation supplies through improved water-use efficiency. Research will be expanded in FY 2008, particularly using furrow diking, targeted to enhancing water savings to the already drought-stricken Southeast, while increasing yield and economic returns.

GRIFFIN, GEORGIA - During FY 2006 and FY 2007, ARS researchers assayed peanut accessions, including the peanut mini-core collection, botanical varieties, and wild relatives of cultivated peanut, for genetic diversity and identification to botanical variety. The mini core collection, developed with country of origin serving as a measure of genetic diversity, had not been characterized by genetic markers. A total of 141 peanut accessions were assessed with 35 simple sequence repeat markers. Armed with genetic marker data, peanut breeders could exploit genetically divergent accessions to improve peanut cultivars, unique accessions could be collected to increase the genetic diversity of the peanut mini-core collection, and phylogenetic relationships among peanut accessions could be determined.

Disease resistance to tomato spotted wilt virus (TSWV) is a high priority for peanut breeding programs, but only a few peanut cultivars had been identified with resistance to TSWV. Field evaluation trials were conducted at Attapulgus, Georgia, to assess TSWV resistance in peanut botanical varieties. Compared to the cultivar Georgia Green, these accessions had fewer symptomatic plants. Six hirsuta accessions had apparently better resistance than the cultivar AP3. Three accessions of the botanical variety hirsuta appeared to contain the best resistance to TSWV. New sources of TSWV resistance were identified, thereby increasing the diversity of resistance available for crop improvement.

Disease resistance to *Sclerotinia minor* is a high priority for peanut breeding programs in the southwest. During FY 2008 and subsequent years, Spanish peanut will be regenerated by a cooperator in Oklahoma, evaluated for field resistance to *Sclerotinia minor* and, depending on the accessions' agronomic characteristics, will be included in Oklahoma and other peanut breeding programs. Selected cultivated and wild peanuts will be evaluated for resveratrol content to determine the effect of cultivar and abiotic stresses. Resveratrol has beneficial effects to human health. Users in the Southeast are interested in developing non-edible peanuts that are high in oil, and could be grown specifically for biodiesel production. To meet this research need, selected wild and cultivated peanut germplasm will be evaluated to determine the fatty acid content and percent oil. Germplasm with percent oil above 55 percent would be highly desirable for biodiesel production.

RALEIGH, NORTH CAROLINA - In fiscal years 2007, sample plans for fruity fermented off flavor were developed to assure appropriate identification of peanuts with the off flavor. Planar microwave application, including a continuous flow system, resulted in new microwave methodology for peanut curing. Preheating peanuts with microwaves before conventional curing resulted in increased drying rates (thus lowered costs) and improved peanut quality. By identifying compounds causing fruit fermented off flavor, test methods were developed to accurately detect the off flavor and the correlation of concentration and off flavor intensity, facilitating the estimation of the degree of the off flavor in lots.

STILLWATER, OKLAHOMA - During fiscal years 2006 and 2007, ARS scientists developed a molecular marker for *S. minor* resistance in Runner, Spanish, and Valencia peanut market types that effectively identified peanut germplasm with resistance to *Sclerotinia blight*. Simple sequence repeat (SSR) markers were applied to peanut lines with known levels of *S. minor* resistance to accelerate development of *Sclerotinia*-resistant peanut lines. In FY 2008, researchers determined differences in the marker genetic sequence between resistant and susceptible peanut lines. In FY 2008 and FY 2009, results will be expanded to locate the resistance marker on the peanut genomic map, which will accelerate resistance breeding for *Sclerotinia* genetic protection.

TIFTON, GEORGIA - Researchers developed high-yielding tobacco spotted wilt virus-resistant lines with and without nematode resistance. No peanut cultivars exist that have resistance to both TSWV and the peanut root-knot nematode. In FY 2008 and FY 2009, objectives will be to combine resistance to both pathogens in a single genotype.

The funding for peanut research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Ft. Collins, CO	$173,800	$172,600	$172,600
Gainesville, FL	244,300	310,500	310,500
Athens, GA	48,000	47,700	46,900
Dawson, GA	4,878,400	4,883,300	4,183,300
Griffin, GA	488,000	484,500	484,500
Tifton, GA	1,286,600	1,413,100	1,413,100
Beltsville, MD	71,400	70,800	70,800
New Orleans, LA	848,800	852,800	852,800
Raleigh, NC	1,090,500	1,083,000	1,083,000
Stillwater, OK	686,200	681,400	681,400
Florence, SC	--	326,800	326,800
Lubbock, TX	256,700	254,900	254,900
Headquarters	209,600	--	--
Total	$10,282,300	$10,581,400	$9,880,600

PEAS, LENTILS, AND LEGUMES

Ms. DeLauro: Please provide an update on your work on peas, lentils, and legumes, including 2007 and 2008 accomplishments, and plans for fiscal year 2009. By location, what is the funding and staff for peas, lentils, and legumes research for fiscal years 2007, 2008, and 2009?

Response: ARS conducts research on peas, lentils, and legumes at the following locations. These research programs are multidisciplinary and

nationally coordinated. Specific 2007 accomplishments and plans for fiscal year 2009 are described below for each location. Fiscal year 2008 accomplishments will not be available until after then end of the fiscal year.

ALBANY, CALIFORNIA: ARS, in collaboration with scientists from Washington State University, developed novel extrusion processing conditions and formulations and produced new value-added, shelf stable, tasty, and convenient snacks and cereal breakfast-type products high in protein and dietary fibers, low in fat, and gluten free, from peas, lentils, garbanzo, and other legume seeds. These extruded products had a low glycemic index based on human studies. The technology and products developed under this research was submitted for patentability. One national minority owned company, Health for All Seasons, LLC, has submitted a license application for the patent and various companies have expressed their interest in licensing this patent.

Research Plans for 2009 - Identify and begin collaboration with a commercial cooperator interested in marketing developed extruded lentil snack products. Complete antioxidant studies of extracts and phenolics from raw and processed lentils. Identify a commercial cooperator interested in marketing the pulse-beverage developed technology and products. Develop suitable extrusion processing conditions and formulations for the production of value added pulse-based snacks with improved dietary fiber and vitamin content and balanced amino acid profile. Perform sensory evaluation and public surveys to determine the pulse-based snacks' acceptability.

BELTSVILLE, MARYLAND: ARS, in collaboration with bean scientists from ARS Prosser, Washington, and the University of Nebraska, developed and registered a common bean of the great northern market class named ABC-Wehing, that was bred specifically with enhanced resistance to multiple diseases including common bacterial blight, bean rust, and bean common mosaic virus. Similarly, ARS, in collaboration with Colorado State University and the University of Idaho, developed and registered a drought-tolerant, rust-resistant, high-yielding pinto bean. ARS also found two genes that control resistance in common bean cultivar 'CNC' to the soybean rust pathogen.

Research Plans for 2009 - ARS continues to search genes in common bean for resistance to the devastating soybean rust pathogen that attacks soybeans and other legumes including dry and snap beans. In addition, ARS continues the search for molecular markers that will accelerate the introgression of disease resistance genes and the development of new beans with resistance to soybean rust.

CHARLESTON, SOUTH CAROLINA: ARS released the southernpea cultivars 'WhiteAcre-DG' and 'ZipperCream-CG' in January 2008. WhiteAcre-DG was developed for use by the frozen food industry as a replacement for White Acre, a small-seed, cream-type cultivar long popular as a processing cultivar throughout the southeastern United States. WhiteAcre-DG produces excellent yields of small, delicate peas. ZipperCream-CG was developed as a replacement for Zipper Cream, a large-seeded, cream-type crowder cultivar long popular with home gardeners and fresh market growers throughout the southeastern United States. The major attribute of both of the new cultivars is their persistent green seed color; both cultivars can be harvested at the dry stage of maturity without loss of the pea's fresh green color.

ARS scientists completed a study to evaluate cowpea genotypes for use as a weed suppressing cover crop. Several genotypes appear to be superior to the predominant cover crop cultivar Iron-Clay. These genotypes grow more rapidly, obtain greater final biomass, are less susceptible to foliar diseases, and persist later in the season than Iron-Clay.

Research Plans for 2009 - In FY 2009, ARS scientists will continue research to develop higher yielding pinkeye-type southernpea cultivars. A common complaint about pinkeye-type southernpea cultivars is that their yield potential is much lower than that of black-eyed bean cultivars.

ARS scientists will continue a research effort to identify sources of resistance in southernpea to Tomato spotted wilt virus, an emerging disease of southernpea, and for resistance to *Rhizoctonia solani*. The ultimate goal for this collaboration with the University of Tennessee is the release of a white-seeded snap bean breeding line that is highly resistance to *R. solani*. ARS scientists will continue efforts to evaluate cowpea genotypes selected for potential use as a warm season cover crop for eventual release to the public.

EAST LANSING, MICHIGAN: Research was performed on measuring the level of folate in a group of diverse commercial bean genotypes grown in the United States, and examination of an important food trait, the inheritance of color retention in two populations of black beans after thermal processing. The research findings would allow breeders to enhance some of the important nutritive/quality characteristics in beans.

Research Plan for 2009: Researchers will continue an examination of the color retention of black beans and other bean varieties and that relationship with thermal processing.

FARGO, NORTH DAKOTA: ARS is actively involved in the Sclerotinia Initiative through the release of the only white mold resistant snap bean and lentil breeding lines available. ARS also increased understanding of disease progression and the biochemical basis of disease resistance.

Research Plans for 2009 - Develop and evaluate biological control agents and fungicide management for *Sclerotinia* white mold of peas, lentils, and legumes. Sources of resistance within canola, common bean, pulse crops, soybean, and sunflower will be determined and techniques will be refined for resistance screening. Disease forecasting models developed will aid the producer in disease management strategies.

FREDERICK, MARYLAND: ARS established Soybean dwarf Luteovirus (SbDV) populations in clover, transferred the virus populations from clover to soybean, and performed multiple passages in soybean. Researchers also began to characterize SbDV virus populations in soybean aphids to identify any adaptations that occur in the insect vector.

Research planned for 2009: ARS researchers will perform nucleic acid sequence analysis on virus populations and virus from the soybean aphid to identify adaptations to the soybean aphid and soybean host, if any.

ITHACA, NEW YORK: ARS scientists showed that dietary inulin improves iron bioavailability to weanling pigs fed maize-soy diets. Experiments are planned to use a pig model to test the effectiveness of a high-inulin wheat line verses a low-inulin wheat line on improving iron status. Low bio-

available dietary iron is thought to be responsible for about 50 percent of iron deficiency globally.

Research Plans for 2009 - Metal speciation studies of the iron forms in bean hulls will continue to identify anti-nutrients and promoter substances in colored and white bean hulls. ARS will summarize results of the factors affecting iron and zinc bio-availability using a Caco-2 cell model and share results with cooperating Consultative Group on International Agricultural Research Centers for use in plant breeding programs. Experiments will be carried out to determine if a high-iron bean cultivar compared to a normal-iron bean cultivar can improve the iron nutritional status of anemic pigs used as models for humans. Studies will also be carried out to determine if the non-digestible carbohydrates in beans can promote the bioavailability of dietary iron as already shown for inulin.

MADISON, WISCONSIN: The bacterium *Pseudomonas syringae pv. syringae*, the causal agent of brown spot disease of snap beans, is an economically limiting pathogen in Wisconsin and other bean producing areas of the United States. ARS research has identified and characterized genes required for virulence in the bean pathogen by developing new methodologies for studying the molecular genetics of this organism.

Research Plans for 2009 — Molecular techniques will be used to further identify genes that are required by *P. syringae pv. syringae* to cause brown spot disease of bean. This will ultimately be helpful in developing new methods of disease management.

MAYAGUEZ, PUERTO RICO: ARS collaborated in the release of a multiple-disease resistant bean cultivar, 'Verano,' which was released by the University of Puerto Rico and is resistant to common bacterial blight (CBB), Bean golden yellow mosaic virus (BGYMV), and Bean common mosaic virus (BCMV). Verano also has tolerance to high temperature stress. Both phenotypic and marker-assisted selection approaches were employed.

Research Plans for 2009 - ARS will develop genetic populations for the study of heat and drought tolerance, generate DNA markers for marker-assisted selection for disease resistance, and test a molecular genetics approach in common bean. ARS will release germplasm with resistance to common bacterial blight and tolerance to high temperature stress, complete testing and optimization of the molecular approach in common bean, and continue development of populations for other molecular analysis of abiotic stress tolerance.

PROSSER, WASHINGTON: Modern molecular methods were applied to identify genetic markers that can be used to identify disease resistance traits in dry bean (pinto, kidney, black, etc). These innovative marker systems enhance marker-assisted selection as a useful tool for breeding dry bean and other crops. An inter-agency team developed genetic maps of biotic and abiotic stress resistance traits in dry bean. These maps provide a framework to plant breeders from which to initiate marker-assisted selection to combine specific traits in dry bean breeding programs.

Research Plans for 2009 - Genetic populations will continually be developed to identify novel genes conferring resistance to problematic diseases (curly top, clover yellow vein virus, halo blight, white mold, root rot), and for tolerance to drought, and other types of stresses. DNA markers will be generated to aid in selection of resistant lines of pea and dry bean.

Cranberry dry bean germplasm lines with improved resistance to anthracnose and common bacterial blight diseases, which plague production in the Midwest and Great Lakes regions, will be publicly released in the coming year.

PULLMAN, WASHINGTON: A new Café-type chickpea cultivar, 'Sawyer,' was released based on greater resistance to Ascochyta blight and high yield potential across a wide geographic area of the United States. This will provide producers with high yielding alternative to currently available varieties, and will allow for reduction in costly fungicides to control the disease. Two zero-tannin lentil cultivars were released based on the unique lack of pigmentation in the seed coat that will provide producers with alternatives to standard market classes of lentil to diversify their production systems. New germplasm was released for a green cotyledon pea cultivar with multiple disease resistance traits, *Pea enation mosaic virus*, Fusarium wilt race 1, and powdery mildew. A winter hardy green cotyledon dry pea with edible food quality traits was released.

A new disease, powdery mildew of chickpea, was identified for the first time in the U.S. Pacific Northwest. The disease occurred late in the growing season, so its economic impact was minimal in 2007. However, if the disease occurs early in the future growing seasons, we will need to develop management practices for controlling this new chickpea disease.

Research plans for 2009 - Genetic markers that identify key agronomic traits will be placed on the pea and chickpea genetic maps, including *Sclerotinia* white mold in pea and winter hardiness. Additional novel markers of lentil to increase marker density in lentil genetic maps will be developed. Available markers of lentil are limited; therefore additional markers are needed to improve breeding for quality traits. Different powdery mildew species vary in various growing conditions (greenhouse vs. field) and have caused problems in screening for resistant breeding materials. Determination of genetic diversity of these diseases of pea and lentil in the U.S. Pacific Northwest is the first step in solving the problem.

PLANT GENETIC RESOURCES CONSERVATION, RESEARCH AND INFORMATION MANAGEMENT, Pullman, Washington: A new method to germinate wild crop species of chickpea was developed to improve regeneration efficiency. Pea seed-borne virus (PSbMV) was found in pea accessions so collection material was ELISA tested for PSbMV. As a result, 1,317 *Pisum* accessions can now be distributed as virus-free. All 2,322 *Phaseolus* accessions regenerated during the last 5 years were characterized during regeneration and data entered into the Germplasm Resources Information Network (GRIN). Seed protein concentration was determined for the pea core collection making high and low protein accessions available for research and crop improvement. Large seed-size kabuli germplasm was identified and made available to chickpea plant breeders for crop improvement. Pea weevil and pod-boring *Lepidoptera* resistance, respectively, was discovered in accessions of the wild progenitors of pea and chickpea in the Western Regional Plant Introduction Station seedbank, and the resistance transferred to hybrid progeny. Genetic diversity of the pea core collection was described using molecular markers, and the data is being used to expand the diversity of the pea collection.

Research plans for 2009 - The ARS germplasm program will conserve, regenerate, characterize, and evaluate priority cool season food and forage legume, turf and forage grass, native rangeland, oilseed, vegetable, medicinal, ornamental, and other specialty and industrial crop genetic resources efficiently and effectively, and distribute samples and associated

information worldwide. ARS will continue to develop genetically-enhanced populations of priority crops to broaden the genetic base of breeding genepools.

The funding and staff for peas, lentils, and legumes research for fiscal years 2007, 2008 and 2009 is provided for the record.

Location	FY 2007	SYs	FY 2008	SYs	FY 2009	SYs
Albany, CA	$143,700	.4	$142,700	.4	$142,700	.4
Griffin, GA	244,000	.7	242,300	.6	242,300	.6
Tifton, GA	89,400	-	88,800	-	88,800	-
Beltsville, MD	214,500	.4	212,900	.4	212,900	.4
Frederick, MD	103,300	.2	102,500	.2	102,500	.2
Fargo, ND	517,000	.3	513,400	.3	513,400	.3
Ithaca, NY	172,600	.3	171,300	.3	171,300	.3
Charleston, SC	495,800	1.3	555,400	1.3	555,400	1.3
Prosser, WA	292,200	1.0	290,100	1.0	290,100	1.0
Pullman, WA	1,786,300	5.5	1,773,800	5.7	1,773,800	5.7
Headquarters	61,200	--	60,700	--	60,700	--
Total	$4,120,000	10.1	$4,153,900	10.2	$4,153,900	10.2

PECAN RESEARCH

Ms. DeLauro: Please describe the work you are doing in connection with pecans, by location, including 2007 and 2008 accomplishments and plans for fiscal year 2009. By location, what is the funding for pecan research for fiscal years 2007, 2008, and 2009?

Response: A description of the ARS pecan research program by location is provided for the record.

ARS research on pecans is focused primarily on two areas - genetic resources and improvement of pecan in College Station, Texas, and crop production and pest and disease management for pecan in Byron, Georgia.

COLLEGE STATION, TEXAS - CONSERVATION AND CHARACTERIZATION OF GENETIC DIVERSITY IN CARYA and GENETICS AND IMPROVEMENT OF PECAN.
ARS has the only national pecan breeding and genetics research program in the world, and as many as 85 percent of the pecan trees sold by some major nurseries are ARS cultivars. The ARS Pecan Breeding Program has developed 26 pecan cultivars bearing Native American tribe names. One or more of these are suited to all pecan production regions. "Wichita" is the highest yielding variety ever tested, and "Cheyenne" is the standard for nut quality throughout the world. "Pawnee", the most aphid-resistant cultivar tested, is planted worldwide due to early maturation of high quality nuts. "Caddo" produces high yields of high quality pecans, outperforming most of the other cultivars in the Southeast. Despite the success of current ARS varieties, new pecan varieties are needed to enhance production efficiency and profitability.

The ARS Pecan Breeding program is headquartered in College Station, with a worksite in Brownwood, Texas, where the program originated. A total of 360 acres is available for pecan research at College Station, maintained under an 80-year lease agreement with Texas A&M University (TAMU). In addition, the National Clonal Germplasm Repository for Pecans and Hickories maintains collections on 79 acres of USDA land at Brownwood, as well as at

the College Station headquarters, and is the largest and most thoroughly documented collection of pecan cultivars in the world. The program has led in the development of molecular genetic markers for cultivar identification and the verification of parentage, by developing microsatellite (simple sequence repeat) markers for both nuclear and chloroplast DNA. The program serves as a source of verified genetic material for researchers worldwide, and is actively involved in conservation and improvement of native pecan and hickory resources.

Nut production in pecans requires several-to-many years from tree planting to commercial nut production; thus, breeding efforts to develop improved cultivars is a slow but necessary process if new cultivars resistant to pests and diseases, and having superior nut yield and quality traits, are to be made available to producers. Scientists in the Crop Germplasm Research Unit at the Southern Plains Agricultural Research Center, College Station, in cooperation with scientists at Kansas State University, summarized and evaluated all available performance data on "Lakota" and, in consultation with other scientists, extension personnel, and growers, determined that this clone merited naming and release as a new USDA cultivar. This is an important accomplishment because it provides growers with a new and productive pecan cultivar that fills a market niche and that should increase production efficiency and grower profits. Lakota also has disease resistance characteristics that will lessen the need for pesticide applications which are expensive to the grower and potentially harmful to the environment.

Pecan requires tremendous amounts of water to be fully productive; however, pecans are grown in many arid environments where water is limited. Research is needed to establish if genetic variability in the structure of leaves of trees from different regions could be related to significant differences in water use efficiency, photosynthetic efficiency, and ultimate tree performance within a region. In 2007, scientists in the Crop Germplasm Research Unit at the Southern Plains Agricultural Research Center, College Station, in cooperation with TAMU scientists, evaluated stomatal density and epidermal cell density in seedlings grown from seed collected across Mexico and to the northern United States. They found similarities that unite open pollinated seedlings of a common seed stock, suggesting surprising levels of maternal inheritance, with greater differences between geographic populations than previously expected. This is important because it is consistent with earlier research from this program demonstrating regional differences in gross leaf structure and nutrient uptake, and provides additional measures of leaf fine structure that may be significant for adaptation to drought.

In early 2008, ARS and TAMU scientists worked cooperatively to identify pecan chloroplast markers to directly investigate patterns of maternal inheritance. Chloroplast markers based on single nucleotide polymorphisms (SNPs) have been developed that are consistent within a seed stock family, but polymorphic across seed stocks. These maternally inherited markers are important because they will contribute to efforts to characterize population structure, and have implications for breeding and deployment strategies. The maternal markers will integrate with the markers previously developed by this program that are capable of identifying cultivars and verifying parentage, adding the important dimension of clear resolution of maternal descent. The development of a molecular tool with resolution to associate maternal genotype with seedling performance would have tremendous applications in the development of improved rootstocks.

Typically, pecans grown in western Texas, New Mexico, Arizona, and California are irrigated fully. The quality of water used for irrigation in these states has deteriorated, and salt problems are likely to affect greater areas. Crop damage caused by elevated salinity in irrigation water and/or soils has been a common occurrence throughout the southwest and is increasing due to challenges with water availability and the seasonal use of variable quality water. One effective method of reducing salt injury is to use rootstocks tolerant to salinity. There is a great need to refine methods of screening seed stocks for differences in salt uptake to identify valuable sources of salt tolerance. This work is being cooperatively pursued with scientists from TAMU. Initial results in 2007 indicate differences between seed stocks in their expression of salt burn. This is being investigated through nutrient analysis of leaf tissue. The maternally inherited molecular markers mentioned above will be a valuable tool in this research.

To locate regions of the chromosome that hold the genetic information for valuable traits, it is critical to develop genetic maps. This long-term strategy is being pursued by making controlled crosses between one parent known to be very resistant to scab disease, and one parent known to be very susceptible. In 2007 and 2008, ARS scientists made reciprocal crosses between the resistant and susceptible parents, as well as self crosses between each parent. The progeny are being evaluated for disease expression at the College Station worksite. Progeny will be evaluated with the molecular genetic tools being developed to establish markers related to scab disease expression. The development of marker-aided selection is an important goal that will increase the discovery of valuable individuals in reduced time, providing more disease resistant cultivars to pecan producers. This will reduce pesticide applications and the cost of production, increasing profitability.

Pecan is a relatively minor specialty crop grown by generally undercapitalized producers. These producers have an ongoing need for critical information on significant issues affecting pecan production. The ARS Pecan Program is a primary information resource for pecan producers both in the United States and internationally. The Program Web site is generally the point of contact for producers, and requires regular upgrading and expansion to effectively meet producer needs. Scientists in the Crop Germplasm Research Unit at the Southern Plains Agricultural Research Center, College Station, in cooperation with scientists at TAMU, successfully upgraded the Pecan Program Web site that is housed within the University Horticultural Sciences Department. The work improved user access and expanded the site to include additional digital photos and information that can be interactively retrieved through a Filemaker database. Active user sessions on this Web site (www.ars.usda.gov/spa/pecan) increased from an average 7,400 per month in fiscal year 2006 to 10,900 per month in fiscal year 2007.

Research Plans for 2009 and subsequent years - Research objectives for the next 5 years include: enlist phenotypic breeding techniques, supplemented with molecular tools, to develop and release new pecan scion cultivars with high yield and quality, and improved disease and insect resistance; enlist traditional selection techniques and newly developed molecular tools, to develop superior pecan rootstocks with outstanding vigor and salt tolerance; and apply qualitative and quantitative techniques, in conjunction with molecular techniques, to elucidate the genetic control of key horticultural traits (such as yield level, nut size, time of nut maturity, salt tolerance, and disease and insect resistance) for pecans. Additional molecular markers will be developed, with emphasis on the development of allelic ladders to help standardize inter-laboratory use of the previously developed markers,

and refinement of chloroplast markers to study maternal inheritance. DNA from accessions in Repository collections will be extracted and archived; population structure of pecan will be investigated using the new molecular markers; historic collection, inventory, and evaluation data will be uploaded to the Germplasm Resources Information Network (GRIN); collections of *Carya myristiciformis* and *C. floridana* will be developed in conjunction with cooperators throughout the southeastern United States. ARS will finalize seasonal collection of nut maturity, yield, and other data on NPACTS (National Pecan Advanced Clone Testing System) tests. Across-year databases will be developed for relevant data on indicated parameters. Continue development and testing of the scab mapping population for future evaluation to find DNA markers for scab resistance.

BYRON, GEORGIA - DEVELOPMENT OF IMPROVED STRATEGIES FOR PRODUCTION (HORTICULTURE) AND PROTECTION (DISEASE AND INSECT PESTS) OF PECANS. Pecan research at the Southeastern Fruit and Tree Nut Research Laboratory, Byron, Georgia, emphasizes cultural and pest management practices that ensure profitable production and stable supply of quality pecans. The 1,200-acre federally owned research facility addresses a wide variety of production and protection associated problems of critical importance to U.S. pecan farmers dispersed among more than 24 states. Production-related research focuses on alternate bearing (the most important biological problem of the industry), return flowering, fruit drops, pre-harvest germination, and tree nutrition stress, and environmental stresses affecting production. Protection research on diseases focuses on pecan scab disease, leaf scorch, and shuck decline. Protection research on arthropods focuses on pecan weevil, black aphids, yellow aphids, shuckworm, nut case bearer, stinkbugs, and pecan leaf-scorch mites. Both disease and arthropod research efforts focus on the development of Integrated Pest Management practices that incorporate nontraditional, broad spectrum-based approaches to control the pests.

Selected Research Highlights:

Identified the optimum ratio in which trees should be managed for nitrogen and potassium (i.e. nitrogen:potassium ratio); thus, refining both the efficiency of nitrogen and potassium fertilizer management, reducing the likelihood of tree stress, and increasing nutmeat yield while reducing the severity of alternate bearing.

Discovered a new and key role for nickel in basic plant metabolic processes involving nitrogen cycling; thus, enabling increased efficiency in usage of expensive nitrogen fertilizer, enhancing natural tree resistance to disease pests (such as pecan scab in pecan), potentially reducing alternate bearing, and with potential for affecting nitrogen management in many other crops.

Determined uptake pattern for soil nitrogen by pecan trees; thus, enabling key refinements in timing of nitrogen fertilizer application to orchards so as to minimize loss into the environment and to minimize the cost of nitrogen management.

Developed an improved method for meeting long-term tree nutritional needs for zinc; thus, providing a means of improving tree yields while reducing the cost of zinc fertilization, and reducing chemical stresses that can trigger alternate bearing.

Demonstrated that improving tree boron and nickel nutrition reduces crop loss due to water-stage-fruit-split; thus, providing a management strategy that increases orchard profitability by reducing fruit-drop losses.

Discovered that improving tree nickel nutritional status during early spring enables trees to better resist damage by pecan scab disease; thus, reducing revenue loss due to the most important disease of pecan. Also, discovered that tank-mixing nickel with fungicides improves the efficacy of chemical pesticides against scab disease; thus, improving disease control in pecan orchards and improving nutmeat yield and quality.

Demonstrated that air-blast spray strategies used to control pests in pecan orchards could be improved upon by using less spray volume while also traveling at greater speeds; thus, greatly increasing the ability of orchard managers to control pests in orchards without purchasing extra equipment, and also reducing fuel costs for pest control.

Discovered mechanisms of establishment and interspecies interactions that affects efforts to introduce natural enemies to the Asian Ladybeetle; thus, providing insight needed in efforts to identify an effective natural enemy to Asian beetles and their control throughout the United States.

Feeding by the black pecan aphid (a major pecan pest) results in leaf chlorosis and eventual leaf abscission. Chlorotic pecan foliage is attractive to black pecan aphids, and is imperative to nymphs for normal development. Based on this discovery, researchers initiated a novel pest management approach for the black pecan aphid using certain plant growth regulators that prevent the black pecan aphid from inducing leaf chlorosis while feeding.

The pecan weevil is a key pest of pecans and is currently controlled with chemical insecticides. Due to regulatory and environmental issues alternative control measures must be sought. One possible solution is an environmentally-friendly pesticidal fungus. A variety of novel application methods for this fungus were compared and results demonstrated that application of the fungus directly to the tree trunk causes high levels of pecan weevil mortality.

Entomopathogenic nematodes (also known as beneficial nematodes) are used as natural bio-pesticides for a variety of insect pests, and are being researched as a tool for controlling pecan weevils. ARS researchers discovered a new species of these nematodes, named *Heterorhabditis Georgiana*, in a Georgia pecan orchard. Beneficial nematode strains and species differ in their ability to kill insects; therefore, the new nematode that we found may possess superior pest control properties for suppression of the pecan weevil and other insects.

Certain diseases in pecan such as scab and *Phytophthora* severely limit commercial productivity. Researchers in Byron have discovered that novel metabolites (by-products) produced by certain bacteria species can suppress these diseases in pecan. The researchers identified the most potent of these bacterial metabolites and a patent application has been submitted based on this unique technology.

Research Plans for 2009:

- Refine orchard management strategies for certain key micronutrients; thus, reducing stresses that enhance alternate bearing and reduce yield.

- Assess suitability of mechanized hedge-type pruning in commercial orchards and propose optimal strategy for controlling tree crowding in orchards and for stabilizing alternate bearing.
- Adapt ReTain, a commercial plant growth regulator, for reducing premature fruit-drop in pecan orchards; thus, improving crop-set and orchard yield.
- Reduce alternate bearing and increase fruit-retention by improving potassium nutrition of trees while also reducing the cost of potassium management.
- Develop an orchard management protocol that reduces the incidence of pre-harvest germination of pecan nuts while still on the tree; thus, providing a means of reducing yield losses.
- Determine if imbalances in the ratio of nickel to that of zinc and copper in trees is causing the increase in incidence and severity of the nickel associated orchard replant and mouse-ear maladies of commercial orchards and yard trees; thus, leading to refinements in orchard fertilization strategies for pecan and possibly for other crops.
- Determine the role of internal tree reserves for controlling alternate bearing and return flowering; thus, providing basic understanding of regulating physiology and insight into how to develop management strategies to stabilize yield and quality.
- Initiation of pecan scab disease management research that focuses on improving tree resistance to scab by reducing leakage of metabolites from foliage and fruit that causes the scab fungus to recognize the host, thus reducing infection by scab disease and associated crop losses.
- Initiate research on usage of agents that trigger systemic acquired resistance to scab fungi, thus reducing the need for fungicide application while also protecting against crop loss.
- Research will continue on developing novel approaches to controlling pecan aphids with natural product-based plant growth regulators rather than chemical fungicides, thus providing safer, more environmentally friendly, and more effective approaches to aphid control.
- Expand research on beneficial fungi in pecan orchards that may reduce pecan weevil damage, thus providing an alternative to synthetic chemical insecticides for the control of weevil pest in pecan and other crops.
- Expand research and development of beneficial nematodes as biological control agents for controlling pecan weevil and similar species attacking other crops, thus providing an environmentally friendly and efficacious means of preventing crop losses to weevils.
- Expand testing of bacterial metabolites for pecan disease control, thus providing critical insight needed to protect crops with natural product applications rather than synthetic chemical pesticides.

The funding for pecan research by location is provided for the record.

	FY 2007	FY 2008	FY 2009
Byron, GA	$2,303,300	$2,281,800	$2,281,800
New Orleans, LA	69,800	69,300	69,300
College Sta., TX	1,030,000	1,022,900	1,022,900
Total	$3,403,100	$3,374,000	$3,374,000

PFIESTERIA RESEARCH

Ms. DeLauro: Please provide an update on research activities related to *Pfiesteria*, including fiscal year 2007 and 2008 accomplishments, and plans

for fiscal year 2009. By location, what is the funding for *Pfiesteria* research for fiscal years 2007, 2008, and 2009?

Response: The ARS has undertaken several lines of research to combat and control *Pfiesteria*. Accomplishments for fiscal year 2008 will not be available until after then end of the fiscal year.

These efforts include work at the the Aquatic Animal Health Research Laboratories in Auburn, Alabama, and Chestertown, Maryland, to identify the role of *Pfiesteria*-like harmful algal blooms and other possible infectious agents involved in massive fish kills in the Maryland Chesapeake and Inland Delaware Bays. The laboratory conducts epidemiological and experimental investigations that resulted in the identification of the infectious agent(s), their possible source(s), immune capacity of the fish, environmental changes that favor harmful algal blooms (HABs) and the identification of HABs in estuarine systems. Previous accomplishments include isolation of bacteria associated with harmful algal blooms and determination that, contrary to presumptive reports, ammonia exposure does not seem to exacerbate fish kills. In 2007, the presence of *Bacillus licheniformis* was confirmed. Infectivity studies suggested this bacteria is not harmful to fish. In fiscal years 2008 and 2009 research will be conducted jointly with University of Maryland investigators on the interaction of HABs and disease focused on identifying modes of infection transmission, and abnormalities in fish immune systems when exposed to algal toxins.

A second research direction carried out by the Coastal Plain Soil, Water and Plant Research Center (CPSWPRC) in Florence, South Carolina has been to reduce nutrient inputs from swine production, especially phosphorus and nitrogen, into the watersheds surrounding sensitive water ecosystems. Scientists designed and demonstrated a second generation treatment system for swine waste that can achieve the high treatment performance standards of an approved environmentally superior technology (EST), yet it is four times more economical than earlier versions. Ammonia concentration in air of the barns was significantly reduced, and animal health and productivity were enhanced. Compared to the traditional lagoon management, the mortality decreased 57% with the new system, daily weight gain increased 11%, and feed conversion improved 5.4%. These results overall show that cleaner alternative technologies can have significantly positive impacts on livestock production and the environment. Consequently, in July 2007 the State of North Carolina enacted Senate Bill 1465 that made permanent the environmental performance standards of an EST as a requirement for the construction of new swine farms or expansion of existing swine farms in North Carolina. By reducing the nutrient input from swine production to watersheds, the potential for formation of harmful algal blooms is decreased.

Phytic acid is a major source of phosphorus in seeds, and it is indigestible by monogastric animals including fish. Intact phytic acid passes through the fish without absorption so it contributes to the environmental phosphorus load. This could result in the growth of HAB producing microbes in lakes, streams, and estuaries. Southern Regional Research Center (SRRC) researchers engineered an enhanced phytase with 266% greater hydrolysis of soy phytate. Feed trials established that the new phytase has significantly higher activity in animals than a currently marketed phytase. Now scientists from the SRRC and Cornell University are developing an improved version of phytase with both increased heat tolerance and higher specific activity for phytic acid. The scientists are also working on developing a phytase better adapted to the physiological conditions in the digestive tract of fish.

Without phytase supplementation, the fish will not be able to digest phytic acid present in their diet. Developing a cost-effective phytase through protein engineering will help maintain a robust level of poultry, swine, and fish production for American consumers without fouling the nation's ground and surface waters with excess phosphates.

Funding for Pfiesteria research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Auburn, AL	$203,300	$126,200	$126,200
New Orleans, LA	275,600	273,600	273,600
Florence, SC	338,000	335,800	335,800
Total	$816,900	$735,600	$735,600

PHYTOESTROGEN RESEARCH

Ms. DeLauro: Please update your response in last year's hearing record on the research being conducted and recent accomplishments associated with phytoestrogens. By location, what is the funding for phytoestrogen research for fiscal years 2007, 2008 and 2009?

Response: Phytoestrogens are compounds in plant foods that are metabolized by the human body to resemble naturally occurring estrogen and may reduce some of the adverse effects of this hormone. This is because they interact with the estrogen receptor but have very weak estrogen-like effects, thereby blocking the body's own estrogen.

The Arkansas Children's Nutrition Center (ACNC) in Little Rock, Arkansas, currently focuses on the health effects of dietary phytochemicals from soy in infants and children. Recent research shows infants fed breast milk, soy or cow's-milk formulas do not differ in brain processing of speech syllables at ages three and six months. This is important because one million US infants are fed soy-based infant formulas each year and there is ongoing concern about exposure of infants to high levels of soy protein and its phytoestrogens.

The phytoestrogen research at the Southern Regional Research Center in New Orleans, Louisiana, is in cooperation with Tulane and Xavier Universities and the University of Toledo in Ohio. Microbes and microbial components that influence synthesis of phytoestrogens in soybean are being used to manipulate levels of these compounds in edible portions of the plants. It was discovered that the microbe-inducible phytoestrogenic soybean compound, glyceollin, specifically inhibits the estrogen receptor and estrogen-dependent growth of a breast cancer cell line in laboratory bioassays, thus indicating a potential health-promoting role for this compound. Additional recent experiments in mice have substantiated these findings that glyceollins significantly suppress estrogen dependent breast as well as ovarian cancer cell growth, and without estrogenic effects on the uterus. In cooperation with Wake Forest University, it was shown that feeding glyceollins to postmenopausal monkeys given estrogen prevented activation of the estrogen receptor in breast tissue of the monkey – demonstrating potential use in women to decrease unwanted side effects of estrogen treatment.

Scientists at the Beltsville Human Nutrition Research Center are developing accurate analytical methods to measure phytoestrogens and other

phenolic compounds in foods. Knowledge of the concentrations of these compounds in common foods is scant and pure standards are in short supply. A method was developed and validated that measures 16 plant phenolics in a single run. This methodology and the resulting database on quantities of these compounds in foods will allow clinical and epidemiological studies to clarify the effects of phytochemicals on human health.

The information on funding for phytoestrogen research is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Little Rock, AR	$1,243,700	$1,234,900	$1,234,900
New Orleans, LA	1,543,900	1,533,100	--
Beltsville, MD	159,500	153,400	153,400
Total	$2,947,100	$2,921,400	$1,388,300

PIERCE'S DISEASE

Ms. DeLauro: By location, what is the funding for Pierce's disease research for fiscal years 2007, 2008, and 2009? What 2007 and 2008 accomplishments are you able to report?

Response: The funding devoted to Pierce's disease research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Davis, CA	$170,200	$169,000	$169,000
Parlier, CA	4,599,800	4,567,900	4,567,900
Ft. Pierce, FL	467,800	464,600	464,600
Fargo, ND	118,100	117,300	117,300
Weslaco, TX	916,800	910,400	--
Total	$6,272,700	$6,229,200	$5,318,800

Pierce's disease (PD) is a lethal disease of grapevines caused by the bacterium *Xylella fastidiosa* (*Xf*) that is vectored by a several leafhopper species. PD has been present in California, Texas, and the southeastern United States for many years. Since the late-1990's, PD became increasingly widespread in California, posing a serious threat to the $52 billion U.S. grape and wine industries following the introduction, spread and establishment of a more aggressive vector, the glassy-winged sharpshooter (GWSS). In November 2006, ARS updated its "Strategic Plan for PD/GWSS" to coordinate its national research effort to mitigate this threat.

At the agency's principal PD/GWSS research facility in Parlier, ARS has assembled a multidisciplinary team of scientists to develop comprehensive and integrated disease and insect vector management strategies. In cooperation with Brazilian researchers, completion of the sequencing of the genomes of *Xf* associated with PD, almond leaf scorch disease and oleander leaf scorch disease resulted in identification of (1) specific DNA sequences for improved molecular-based diagnostic methods, and (2) genes that are potential targets for mitigating infection and disease development. Table and raisin grape germplasm that is resistant to PD and has improved fruit quality has been developed. Coordinated with this work, ARS scientists at Weslaco, Texas, in collaboration with ARS scientists at the ARS South American Biological Control Laboratory in Argentina, have found egg parasites in south Texas and northeastern Mexico that may be useful in biological control of the

sharpshooter; additional explorations are being conducted in South America. Also, an ARS chemical ecologist in Weslaco is investigating whether the GWSS uses attractants to locate and aggregate on grape; if so, plans are to exploit these attractants for monitoring and control.

POTATO RESEARCH

Ms. DeLauro: In table format, please provide a brief summary of the work you are doing on potatoes, by location, and accomplishments over the past two years. By location, what is the funding for potato research for fiscal years 2007, 2008, and 2009?

Response: A description of ARS potato research programs and accomplishments by location is provided for the record. The program is a nationally managed, coordinated, multi-disciplinary approach to solving production and postharvest issues of potatoes. Research objectives are established for 5-year periods and may not change from year to year.

By location, ARS conducted research on potatoes in fiscal year 2007 and fiscal year 2008 at:

ARS Headquarters - Funds are used by ARS scientists with active potato programs for cooperative research with universities to address problems facing the potato industry. Research includes ring rot, early dying, late blight, scab, aphid and beetle control, marketing, and postharvest disorders.

Albany, California - Determine the molecular basis of disease resistance and other economically important traits in potato, and improve potato quality using genetic engineering techniques.

Aberdeen, Idaho - Develop potatoes with improved processing and consumer qualities and improved pest and disease resistance.

Peoria, Illinois - Discover and develop biological control agents for use against potato storage diseases.

Beltsville, Maryland - Evaluate and enhance germplasm and breed improved varieties; enhance tuber nutritional quality; process exotic germplasm introductions; describe pathogen-host interactions and genetics of pest resistance; and develop biological control of potato insects. Field trials in support of the breeding program are conducted at Presque Isle, Maine.

Fargo, North Dakota - Evaluate, manage, and improve processing quality and postharvest storage characteristics of potatoes, and improve the understanding of the biology of insects affecting potatoes.

Ithaca, New York - Develop practices for integrated management of nematode and virus diseases of potato and for biological control of insect pests using beneficial fungi.

Orono, Maine - Develop profitable and environmentally sound potato production systems and disease management practices.

Sidney, Montana - Develop improved management systems for irrigated and dryland cropping systems that increase productivity and minimize soil and water degradation.

Prosser, Washington - Develop sustainable production systems for the Pacific Northwest; evaluate and enhance potato germplasm, especially for disease resistance; and develop new varieties.

Madison, Wisconsin - Acquire, preserve, classify, characterize, evaluate, enhance, and distribute germplasm of potato and wild relatives; enhance disease resistance and other traits of potato by introgression of genes from wild germplasm.

Fairbanks, Alaska - Evaluate potatoes grown in northern climates, particularly in developing virus-free potato germplasm.

Selected ARS accomplishments for potato research for the last 2 years are as follows:

Wapato and Prosser, Washington; Weslaco, Texas - ARS is increasing its understanding of the cause of zebra chip disorder in potatoes and the role of the potato psyllid by conducting psyllid field exposure experiments and investigating potential plant pathogens involved in this disease. In addition, ARS is conducting laboratory controlled transmission studies to investigate if the psyllids are transmitting pathogens or just delivering toxins.

Viruses and nematodes present the potato industry with severe regulatory problems, especially in the Northeast. ARS scientists at Ithaca, New York, have developed a PCR-based assay to detect cyst nematodes. The new assay allows the evaluation of over 100 samples a day, which benefits potato breeding programs by greatly increasing their ability to screen for resistance. A 2-year survey of viruses affecting the New York and Maine potato crop identified the most prevalent strains. Current screening techniques failed to identify some necrotic strains of potato virus Y (PVY) and misidentified some others as necrotic, which would trigger unwarranted regulatory actions. Changes in inspection and certification programs may be needed to prevent necrotic strains from becoming widespread in the Northeast.

At Prosser, Washington, ARS scientists developed an improved rapid molecular test for distinguishing between ordinary and necrotic strains of PVY. This higher-throughput test will make it possible to screen more thoroughly and accurately the incidence of necrotic strains in fields, seed lots, and research materials and identify potential sources of inoculum. Scientists at Prosser, Washington, showed that corky ringspot disease, a serious viral disease of potato in the Pacific Northwest transmitted by a nematode, can be managed by rotation with weed-free alfalfa or Scotch spearmint. However, several weed species including hairy nightshade, prickly lettuce, henbit, and green foxtail were found to be suitable hosts of the nematode. Control of these weeds in alfalfa or Scotch spearmint will allow growers to use crop rotation as a means of eliminating corky ringspot disease from problem fields. Virus diseases are difficult to control, especially in crops propagated vegetatively like potato. These advances will make viral disease management simpler and more effective.

ARS conducts research to improve processing and postharvest quality and nutritional value of potatoes. ARS scientists at Aberdeen, Idaho, released a new potato variety, 'Blazer Russet.' This cultivar is notable for its early maturity, high yields, and desirable processing attributes, making it a candidate to replace acreage of 'Shepody' – the fourth most widely grown potato cultivar in the United States. In Fargo, North Dakota, ARS scientists

identified a new class of compounds that irreversibly inhibit a key enzyme controlling cytokinin levels in plants. These compounds offer potential to suppress sprouting during storage by decreasing cytokinins, which were earlier demonstrated to break dormancy. Also at Fargo, North Dakota, in the past year over 14,000 individual quality evaluations were performed on elite potato lines following storage under defined conditions. These efforts support potato breeding programs at 11 cooperating universities in North Dakota, Minnesota, Michigan, Ohio, Nebraska, Wisconsin, Idaho, Massachusetts, New York, Texas, and Colorado.

At Albany, California, ARS scientists characterized two genes that independently control accumulation of two major toxic glycoalkaloids in potato tubers. Manipulation of these two genes opens the possibility of constructing potatoes with decreased human toxicity and increased pest resistance. At Madison, Wisconsin, ARS scientists crossed potatoes with wild species to create tubers with high calcium, which not only enhances their nutritive value, but also improves processing and quality.

Potatoes require considerable inputs of fertilizers and pesticides, not just for pathogens, but also for insect pests. Integrated and sustainable management with non-chemical pest control is an important goal. At Peoria, Illinois, late blight was suppressed with beneficial gram-negative bacteria which also controlled dry rot and suppressed sprouting in postharvest potatoes. The consistency of their effects is an important feature of these biological control agents, as is their ability to simultaneously protect against three important potato storage problems - Fusarium dry rot, sprouting, and late blight. At Wapato and Prosser, Washington, ARS scientists proved that potato purple top disease is caused by a phytoplasma vectored by the beet leafhopper, and they developed a new PCR-based technique for rapidly detecting the pathogen in plants and leafhoppers. This information provides guidance for managing fields to minimize the disease. At Fort Collins, Colorado, and Prosser, Washington, ARS scientists developed improved guidelines for irrigation scheduling, for nitrogen management to reduce groundwater contamination, and for growing potatoes with reduced tillage of the soil. These discoveries and improved practices will all contribute to the reduction of pesticide use on potatoes and to the sustainable management of the crop with a smaller environmental "footprint."

ARS funding for potato research by location is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Fairbanks, AK	$605,200	$601,100	$601,100
Albany, CA	968,400	961,600	961,600
Aberdeen, ID	940,000	933,500	933,500
Peoria, IL	212,700	211,300	211,300
Beltsville, MD	5,386,600	5,168,900	4,642,400
Frederick, MD	103,300	162,100	162,100
Orono, ME	1,231,000	1,220,900	--
Sidney, MT	278,800	276,900	276,900
Fargo, ND	1,631,000	1,619,600	1,619,600
Ithaca, NY	1,191,500	1,184,100	1,184,100
Prosser, WA	1,933,900	1,920,100	1,920,100
Wapato, WA	899,300	892,700	892,700
Madison, WI	2,029,500	2,015,300	2,015,300
Headquarters	1,512,500	1,501,800	1,501,800
Total	$18,923,700	$18,669,900	$16,922,500

Ms. DeLauro: Please update the table in last year's hearing record on research funding devoted to ring rot, early dying, marketing, aphids, potato beetle, weeds, variety development, soils, and agricultural engineering for fiscal years 2007, 2008, and 2009.

Response: The funding for ring rot, early dying, marketing, aphids, potato beetle, weeds, variety development, soils, and agricultural engineering is provided for the record.

	FY 2007	FY 2008	FY 2009
Ring Rot	$280,500	$278,500	$278,500
Early Dying	191,900	190,600	190,600
Potato Scab	240,800	239,100	234,800
Marketing	1,928,500	1,914,900	1,914,900
Aphids	335,100	332,600	332,600
Potato Beetle	1,295,600	1,348,900	1,348,900
Variety Develop.	2,948,300	2,927,400	2,884,700
Soils	111,500	110,700	110,700
Total	$7,332,200	$7,342,700	$7,295,700

RESEARCH PROJECTS IN THE BUDGET PRESENTATION

Ms. DeLauro: Please provide a cross-walk table that shows the placement of research projects that were funded in fiscal year 2008 within the objectives ARS uses to describe the fiscal year 2009 budget request.

Response: In the past, a cross-walk table has been provided showing the placement of research projects (congressional add-ons) described in the prior year's Congressional hearings record. However, since no congressional add-ons were provided in fiscal year 2008, the cross-walk table will not be required.

RESEARCH PROJECT TERMINATIONS

Ms. DeLauro: Please provide a list of every proposed research project and program termination shown in the fiscal year 2009 budget justification, showing the fiscal year 2008 spending level, and list where the research is currently being conducted.

Response: A list of proposed research project terminations and associated spending levels in fiscal year 2009 by location, is provided for the record.

[The information follows:]

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Terminations

	Proposed Project Terminations	Total Gross
ALABAMA		
Auburn	Catfish Genome	871,854
	Improved Crop Production Practices	1,377,291
	Vaccines and Microbe Control for Fish Health	1,054,566
	TOTAL ALABAMA	**3,303,711**
ARIZONA		
Maricopa	Water Reuse in Agricultural Systems Offset (Remote Sensing/Water Management of Arid Lands)	2,103,174
	TOTAL ARIZONA	**2,103,174**
ARKANSAS		
Booneville	Center for Agroforestry	703,044
	Dale Bumpers Small Farms Research Center	1,922,448
	Endophyte Research	1,058,538
	Subtotal	**3,684,030**
Little Rock	Delta Nutrition Initiative	4,193,439
	Sorghum Research	143,985
	Subtotal	**4,337,424**
Pine Bluff	Aquaculture Fisheries Center	**553,101**
Stuttgart	Aquaculture Initiatives, Harbor Branch Oceanographic Institute	**1,701,009**
	TOTAL ARKANSAS	**10,275,564**
CALIFORNIA		
Albany	Food Safety Offset (Pathogens in Animal Waste)	**1,205,502**
Brawley/Riverside	Water Management Research Laboratory	**337,620**
Parlier	Crop Health Offset (Methyl Bromide Alternatives)	638,499
	Water Reuse in Agricultural Systems Offset (Management for Water Quality)	1,193,586
	Subtotal	**1,832,085**
Riverside	Water Reuse in Agricultural Systems Offset (Management of Chemically-Affected Soils)	**966,189**
Salinas	Crop Health Offset (IPM on Lettuce)	**226,404**
	TOTAL CALIFORNIA	**4,567,800**
COLORADO		
Akron	Central Great Plains Research Station	530,262
	Dryland Production	233,355
	TOTAL COLORADO	**763,617**
DISTRICT OF COLUMBIA		
USNA	U.S. National Arboretum, Downsize Gardens and Education Units	2,000,000
	Medicinal and Bioactive Crops (Research Unit)	118,167
	Crop Health Offset (Res Unit) (Control of Soil Borne Pathogens)	272,082
	TOTAL DISTRICT OF COLUMBIA	**2,390,249**
FLORIDA		
Brooksville	Applied Genomics to Enhance Livestock Production Offset (Subtropical Beef Germplasm)	817,239
	Water Reuse in Agricultural Systems Offset (Improved Cow-Beef Operations for Water Quality)	638,499
	Subtotal	**1,455,738**
Ft. Pierce	Crop Health Offset (Vegetable Resistance to Soil Borne Diseases)	**332,655**
Gainesville	Mosquito Trapping Research/West Nile Virus	1,229,334
	Termite Species in Hawaii	138,027
	Vector-Borne Diseases	218,460
	Crop Health Offset (Efficacy of Fumigants)	227,397
	Subtotal	**1,813,218**

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Terminations

	Proposed Project Terminations	Total Gross
Florida (conntinued)		
Miami	Crop Health Offset (Protection of Subtropical Commodities/Ornamentals)	1,321,683
	Water Reuse in Agricultural Systems Offset (Efficient Water Management of High Water Tables)	634,527
	Subtotal	**1,956,210**
	TOTAL FLORIDA	**5,557,821**
GEORGIA		
Athens	Quality and Safety Assessment Research	565,266
	Applied Genomics to Enhance Livestock Production Offset (Hormonal Control of Growth/Reproduction)	685,170
	Subtotal	**1,250,436**
Dawson	Water Use Reduction	700,065
	Bioenergy and Bioproducts Offset (Peanut Quality Research)	552,108
	Subtotal	**1,252,173**
Watkinsville	Southern Piedmont Conservation Research	**3,096,749**
	TOTAL GEORGIA	**5,599,358**
HAWAII		
Hilo	Tropical Aquaculture Feeds, Oceanic Institute	1,531,206
	TOTAL HAWAII	**1,531,206**
ILLINOIS		
Peoria	Crop Production and Food Processing	**837,099**
Urbana	Invasive Weed Management Research	1,263,751
	Bioenergy and Bioproducts Offset (Photosynthesis Research Unit)	1,944,294
	Subtotal	**3,208,045**
	TOTAL ILLINOIS	**4,045,144**
IOWA		
Ames	Swine Odor and Manure Management Research	1,907,434
	TOTAL IOWA	**1,907,434**
KANSAS		
Manhattan	Karnal Bunt	541,185
	TOTAL KANSAS	**541,185**
LOUISIANA		
Baton Rouge	Bioenergy and Bioproducts Offset (Soil and Water Quality Research)	**1,091,307**
New Orleans	Formosan Subterranean Termites Research Unit	3,336,785
	Diet Nutrition and Obesity Research (Pennington)	664,317
	Formosan Subterranean Termites Research	3,716,799
	Phytoestrogen Research	1,519,290
	Subtotal	**9,237,191**
	TOTAL LOUISIANA	**10,328,498**
MAINE		
Orono	New England Plant, Soil, and Water Research Laboratory	2,394,788
	TOTAL MAINE	**2,394,788**
MARYLAND		
Beltsville	Animal Biosciences and Biotechnology Laboratory	8,401,123
	Biomedical Materials in Plants (Biotech Foundation)	1,808,253
	Bioremediation Research	118,167
	Crop Genetic Improvement Offset (Systematics of Plant Pathogenic Fungi)	938,385
	Crop Health Offset (Biocontrol of Fungi, Fusarium Wilt, Soil Pathogens)	947,322
	Food Safety Offset (Microbes in Fresh Cut Produce)	1,045,629
	Foundry Sand By-Products Utilization	680,205
	Obesity Prevention Offset (Metabolism of Vitamin A/Carotenoids/Community-based Nutrition Initiatives)	1,937,649
	Potato Diseases	64,545
	Poultry Diseases	434,934
	Subtotal	**16,376,212**

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Terminations

	Proposed Project Terminations	Total Gross
MARYLAND (continued)		
NAL	Non-Digital Content/Document Delivery/Special Collections	3,000,000
	National Center for Agricultural Law	696,093
	Continued Improvement and Expansion of Products and Services by NAL Offset (Portion of Animal Welfare Information Center/Downsizing of Programs/Operations)	993,000
	Subtotal	4,689,093
	TOTAL MARYLAND	**21,065,305**
MICHIGAN		
East Lansing	Sugarbeet/Avian Disease & Oncology Labs	5,351,272
	TOTAL MICHIGAN	**5,351,272**
MINNESOTA		
Morris	Soil Management Research	3,064,496
St. Paul	Cereal Disease	308,823
	Wild Rice	322,725
	Subtotal	631,548
	TOTAL MINNESOTA	**3,696,044**
MISSISSIPPI		
Mississippi St	Waste Management and Forage Research	2,237,284
Oxford	Medicinal and Bioactive Crops	118,167
	Seismic and Acoustic Technologies in Soils Sedimentation Lab	353,508
	Subtotal	471,675
	TOTAL MISSISSIPPI	**2,708,959**
MISSOURI		
Columbia	Mid-West/Mid-South Irrigation	687,156
	TOTAL MISSOURI	**687,156**
NEBRASKA		
Clay Center	Applied Genomics to Enhance Livestock Production Offset (Sheep Genetics)	327,690
	Food Safety Offset (Control of E. Coli in Livestock/Pathogen Transmission from Manure to Meat)	2,665,212
	Subtotal	2,992,902
Lincoln	Emerging, Zoonotic, and Foreign Animal Diseases Offset (Stable Fly Control)	922,497
	TOTAL NEBRASKA	**3,915,399**
NEW YORK		
Greenport	Animal Vaccines	1,616,604
	TOTAL NEW YORK	**1,616,604**
NORTH DAKOTA		
Grand Forks	Obesity Prevention Offset (Minerals/Dietary Requirements for Good Health)	10,154,112
Mandan	Northern Great Plains Research Laboratory	61,566
	Precision Agriculture Research	481,605
	Subtotal	543,171
	TOTAL NORTH DAKOTA	**10,697,283**
OHIO		
Columbus	Source Water Protection Initiatives	744,750
Coshocton	North Appalachian Experimental Watershed Research	1,449,078
Wooster	Corn and Soybean Research	1,021,208
	TOTAL OHIO	**3,215,036**
OKLAHOMA		
Lane	Genetics and Production Research	2,281,445
	TOTAL OKLAHOMA	**2,281,445**
OREGON		
Pendleton	Bioenergy and Bioproducts Offset (Dryland Agriculture)	1,720,869
	TOTAL OREGON	**1,720,869**

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Terminations

	Proposed Project Terminations	Total Gross
PENNSYLVANIA		
University Park	Pasture Systems & Watershed Management Research	**4,901,295**
Wyndmoor	Arbuscular Mycorrhizal Fungi (Rodale Institute)	44,685
	Food Safety Offset (Effect of Intervention on Pathogens)	2,055,510
	Subtotal	**2,100,195**
	TOTAL PENNSYLVANIA	**7,001,490**
SOUTH CAROLINA		
Charleston	Crop Genetic Improvement Offset (Genetic Improvement/Pest Resistance of Sweet Potato, Beans & Peppers)	726,876
	TOTAL SOUTH CAROLINA	**726,876**
SOUTH DAKOTA		
Brookings	Biomass Crop Production	1,204,509
	TOTAL SOUTH DAKOTA	**1,204,509**
TEXAS		
Bushland	Sorghum Research	480,612
	Bioenergy and Bioproducts Offset (Renewable Energy for Water Resources)	438,906
	Water Reuse in Agricultural Systems Offset (Irrigation Water-Use Efficiency)	1,274,019
	Subtotal	**2,193,537**
Lubbock	Cotton Production and Processing Research	1,307,688
	Sorghum Cold Tolerance	262,152
	Water Reuse in Agricultural Systems Offset (Semi-Arid Crop Production)	914,553
	Subtotal	**2,484,393**
Weslaco	Kika de le Garza Subtropical Agricultural Research Center	**9,253,278**
	TOTAL TEXAS	**13,931,208**
WASHINGTON		
Wenatchee	Crop Health Offset (Control of Soil Borne Tree Diseases)	**344,571**
Pullman	Land Management and Water Conservation	**1,949,084**
	TOTAL WASHINGTON	**2,293,655**
WYOMING		
Laramie		
	Emerging, Zoonotic, and Foreign Animal Diseases Offset (Biology of Arboviruses/Control of RVF Arthropods as Disease Vectors)	3,643,317
	TOTAL WYOMING	**3,643,317**
HEADQUARTERS		
	Animal Health Consortium	872,847
	Biotechnology Research and Development Corporation	2,666,205
	Lyme Disease 4 Poster Project	745,743
	National Corn to Ethanol Research Pilot Plant	383,298
	NutriCore/Nutrition Interventions	90,363
	TOTAL HEADQUARTERS	**4,758,456**
	GRAND TOTAL	**145,824,432**

RESEARCH PROJECT TERMINATIONS / PROPOSED REDIRECTIONS

Ms. DeLauro: Please provide a list of every research project that is proposed for redirection in the budget request. Include the name of the current project, the name of the proposed project, and the amount.

Response: A list of every research project that is proposed for redirection in the budget request, including the name of the current project, the name of the proposed project, and the amount, is provided for the record.

[The information follows:]

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Research Projects Proposed for Redirection

Current Project		Proposed Project	
Bioenergy and Bioproducts:			
Georgia, Dawson Post Harvest Measurement and Management Systems to Improve Peanut Quality and U.S. Competitiveness Irrigation, Crop Rotation and Tillage Technologies and Decision Support Systems for Peanut Production	-552,000	**Georgia, Dawson** Integrated energy production in peanut-based systems	556,000
Illinois, Urbana Identifying and Manipulating Determinants of Photosynthate Production and Partitioning Chloroplast Genetic Engineering	-1,944,000	**Illinois, Urbana** Improving photosynthesis efficiency of plants to benefit bioenergy crop development	2,034,000
Louisiana, Baton Rouge Integrated Water, Agrochemical, and Crop Management Systems to Sustain Water and Soil Quality	-1,091,000	**Louisiana, Houma** Sustainable sugar and energy cane production systems	1,099,000
Oregon, Pendleton Soil Conversion Systems for Sustainability of Pacific Northwest Agriculture Cropping Systems and Precision Land Management in Dryland Pacific Northwest	-1,721,000	**Oregon, Pendleton** Sustainable systems for handling diverse cellulosic feedstocks	1,733,000
Texas, Bushland Remote Water Pumping and Electric Power Generation with Renewable Energy	-439,000	**Texas, Bushland** Renewable (solar and wind) energy for on-farm processing of cellulosic feedstocks	442,000
Applied Genomics to Enhance Livestock Production:			
Florida, Brooksville Evaluation of Beef Cattle Germplasm for the Subtropics of the United States	-817,000	**Nebraska, Clay Center** Identifying and characterizing the function of genes that affect efficiency of nutrient use in cattle, swine, and sheep	823,000
Georgia, Athens Role of the Adipose Tissue-Brain-Pituitary Axis in Growth and Reproduction	-685,000	**Nebraska, Clay Center** Identifying and characterizing the function of genes that affect efficiency of nutrient use in cattle, swine, and sheep	690,000
Nebraska, Clay Center Characterization and Use of Genetic Variation in Sheep	-328,000	**Nebraska, Clay Center** Using meta-genomics to elucidate the means for improved efficiency of nutrient use and environmental sustainability of livestock	330,000
Emerging, Zoonotic, and Foreign Animal Diseases:			
Nebraska, Lincoln Origin, Development, and Population Genetics of Stable Flies Affecting Pastured and Confined Livestock	-923,000	**Texas, Kerrville** Stopping the reinvasion of Texas Cattle Fever	929,000
Wyoming, Laramie Vector Competence and Protection of U.S. Livestock and Wildlife from Arthropod-Borne Diseases Countermeasures to Control and Eradicate Rift Valley Fever (RVF) Molecular Biology and Pathogenesis of Arboviruses	-3,643,000	**Iowa, Ames** Expanded research on emerging, zoonotic, and foreign animal diseases	3,669,000

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Research Projects Proposed for Redirection

Current Project		Proposed Project	
Crop Genetic Improvement:			
Maryland, Beltsville Molecular and Morphological Systematics of Plant Pathogenic Fungi	-938,000	**Maryland, Beltsville** Systematics of invasive and emerging plant pathogenic fungi	945,000
South Carolina, Charleston Genetic Improvement of Southern Peas and Peppers Genetic Improvement of Sweetpotato and Snap Bean for Multiple Pest Resistance	-727,000	**South Carolina, Charleston** Specialty crop genetic improvement	732,000
Food Safety Research:			
California, Albany Environmental and Genetic Factors Affecting Pathogen Persistence in Animal Waste	-1,205,000	**California, Albany** Researching antibiotic resistance and elimination of pre- and postharvest pathogen contamination	1,214,000
Maryland, Beltsville Microbial Food Safety of Fresh and Fresh-Cut Produce	-1,046,000	**Maryland, Beltsville** Elimination of pre- and postharvest pathogen contamination	1,053,000
Nebraska, Clay Center Prevention and Control of Shiga-Toxigenic *E. coli* in Livestock Prevention of Zoonotic Pathogen Transmission from Animal Manure to Human Food	-2,665,000	**Nebraska, Clay Center** Elimination of pre- and postharvest pathogen contamination	2,684,000
Pennsylvania, Wyndmoor Validation of the Effect of Interventions and Processes on the Persistence of Pathogens	-2,056,000	**Pennsylvania, Wyndmoor** Elimination of pre- and postharvest pathogen contamination	2,070,000
Crop Health Including Detection, Identification and Management of Emerging and Re-Emerging Soilborne Nematodes and Pathogens, Invasive Species, and Integrated Pest Management (IPM) to Control Pests and Diseases:			
California, Parlier Develop Postharvest Chemical and Non-Chemical Methyl Bromide Alternatives	-639,000	**California, Parlier** Controlling invasive species affecting plants	643,000
California, Salinas Disinfest Lettuce of Insects through Postharvest Treatments and Preharvest IPM	-226,000	**California, Salinas** Researching integrated pest management	228,000
District of Columbia, U.S. National Arboretum Biologically-Based Management Strategies for Control of Soil-Borne Pathogens	-272,000	**District of Columbia, U.S. National Arboretum** Controlling invasive species affecting plants	274,000
Florida, Ft. Pierce Vegetable Grafting for Resistance to Soilborne Diseases	-333,000	**Florida, Ft. Pierce** Researching integrated pest management	335,000
Florida, Gainesville Improving Efficacy of Fumigants by Promoting Uniform Dispersion in Soil and Minimizing Emissions to the Atmosphere	-227,000	**Florida, Gainesville** Researching integrated pest management	229,000
Florida, Miami Protection of Subtropical and Tropical Agriculture Commodities and Ornamentals From Exotic Insects	-1,322,000	**Florida, Miami** Identifying, characterizing, preventing, and controlling emerging plant diseases	1,331,000
Maryland, Beltsville Biological Control of Fusarium Wilt and Other Soil-Borne Plant Pathogenic Fungi Biological Technologies as Alternatives to Chemicals for Control of Soil-Borne Pathogens	-947,000	**Maryland, Beltsville** Researching integrated pest management Controlling invasive species affecting plants	954,000
Washington, Wenatchee Sustainable Systems for Control of Soil-Borne Diseases in Tree Fruit Agroecosystems	-345,000	**Washington, Wenatchee** Controlling invasive species affecting plants	347,000

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Research Projects Proposed for Redirection

Current Project		Proposed Project	
Obesity Prevention Research:			
Maryland, Beltsville Metabolism of Vitamin A and Carotenoids Quantitative and Qualitative Assessment of Community-Based Nutrition Programs and Interventions	-1,937,000	**Maryland, Beltsville** Developing a new nutrient database incorporating food composition data from the American food industry to support the *MyPyramid* food tracker module	1,951,000
North Dakota, Grand Forks Mineral Utilization and Bioavailability in the 21st Century, with Changing Diets and Agricultural Practices Role of Dietary Selenium on Gene Expression, Cell Cycle and Molecular Mechanisms in Cancer Risk Dietary Copper Requirements for Optimal Cardiovascular Function and Health Mineral Intakes for Optimal Bone Development and Health Micronutrient Roles in Physiology and Health	-10,154,000	**California, Davis** Conducting efficacy and translational research on the *Dietary Guidelines* in preventing obesity in the diverse American population	4,717,000
		Maryland, Beltsville Conducting efficacy and translational research on the *Dietary Guidelines* in preventing obesity in the diverse American population Developing a new nutrient database incorporating food composition data from the American food industry to support the *MyPyramid* food tracker module	5,509,000
Water Reuse in Agricultural Systems:			
Arizona, Maricopa Predicting Interactive Effects of CO2, Temperature, and Other Environmental Factors on Agricultural Productivity Remote Sensing for Crop and Water Management in Irrigated Agriculture	-2,103,000	**Arizona, Maricopa** Utilizing waste water to mitigate drought	2,118,000
California, Parlier Water Management to Improve Productivity and Protect Water Quality	-1,194,000	**California, Parlier** Developing water reuse best management practices	1,202,000
California, Riverside Decision Support Tools and Databases for Optimal Management of Chemically-Affected Soils	-966,000	**California, Riverside** Developing water reuse best management practices	973,000
Florida, Brooksville Optimizing Forage-Based Cow-Calf Operations to Improve Sustainability of Beef Cattle Agriculture and Water Quality Protection and Management	-639,000	**Arizona, Maricopa** Utilizing waste water to mitigate drought	643,000
Florida, Miami Water Management Evaluation in Regions with High Water Table	-635,000	**Tifton, Georgia** Utilizing waste water to mitigate drought	639,000
Texas, Bushland Irrigation Management and Automation for Increased Water Use Efficiency	-1,274,000	**Texas, Bushland** Developing criteria for the application of waste water	1,283,000
Texas, Lubbock Managing Limited Irrigation and Rainfall for Crop Production in Semi-Arid Environments	-914,000	**Texas, Lubbock** Developing criteria for the application of waste water	921,000

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
FY 2009 Research Projects Proposed for Redirection

Current Project		Proposed Project	
Continued Improvement and Expansion of Products and Services Delivered by the National Agricultural Library (NAL):			
Maryland, Beltsville (NAL) Animal Welfare Information Center Downsize selected programs/operations	**-993,000**	**Maryland, Beltsville (NAL)** Improving information services for veterinary practitioners Increasing content and scope of the NAL collection and Digitop Collaborative creation of digital content for AgSpace, the NAL digital repository, and AgNIC, with land-grant universities and other agricultural institutions	**1,000,000**

In addition, ARS proposes to redirect bee research from Weslaco, Texas ($1,877,000) to Tucson, Arizona ($685,000); Baton Rouge, Louisiana ($298,000); and Beltsville, Maryland ($894,000).

Ms. DeLauro: Please provide a list of research projects terminated in fiscal years 2007 through 2009.

Response: The following research projects were terminated in fiscal years 2007 through 2009.

FY 2007: None

FY 2008: None

FY 2009: Research projects totaling $145,824,000 are proposed for termination. The complete list of projects is provided in the response entitled "Research Project Terminations" preceding this question.

EXTRAMURAL ACTIVITIES

Ms. DeLauro: Please provide a list of all extramural activities that you discontinued in fiscal year 2008 and those you would discontinue in fiscal year 2009.

Response: There were nine extramural agreements terminated in fiscal year 2008 due to redirections approved by Congress. Those agreements include specific cooperative agreements with: Canaan Valley Institute in the amount of $358,006 funded from the Aquaculture Initiatives for the Mid-Atlantic Highlands at Leetown, WV; Biotech Foundation in the amount of $654,000 funded from the Biomedical Materials in Plants at Beltsville, MD; University of Central Florida in the amount of $489,195 funded from the Chloroplast Genetic Engineering Research at Urbana, IL; Citrus Research Center in the amount of $96,930 funded from the Citrus Waste Utilization at Winter Haven, FL; Stephen F. Austin State University in the amount of $52,156 funded from the Medicinal and Bioactive Crops at Oxford, MS; University of Maryland/Frostburg State College in the amount of $78,235 funded from the Medicinal and Bioactive Crops at the National Arboretum, Washington, DC; Pittsburg Plate Glass in the amount of $73,171 funded from the Salmonella, Listeria, E. coli and Other Food Pathogens at Wyndmoor, PA; University of Georgia in the amount of $256,985 funded from the Water Resources Management at Tifton, GA; and Albany State University in the amount of $243,074 funded from the Water Use Reduction at Dawson, GA. The extramural activities proposed for termination in fiscal year 2009 are provided for the record.

[The information follows:]

AGRICULTURAL RESEARCH SERVICE
FY 2009 Proposed Extramural Agreement Terminations
(Funding in Thousands)

Project	Funding Estimate
Advanced Animal Vaccines (Univ of CT/Univ of MO)	$1,177
Agricultural Law (Univ of AR/Drake University)	682
Agroforestry (Univ of MO/Shirley Community Development Corp.)	566
Animal Health Consortium	873
Aquaculture Init (Harbor Branch Oceanographic Institute)	544
Aquaculture Research (Univ of AR)	389
Biomass Crop Production (Michigan Biotech Institute/SD State Univ)	627
Biotechnology Research & Development Corp.	2,666
Catfish Genome/Vaccines and Microbe Control for Fish Health (Auburn Univ)	742
Crop Production and Food Processing (Purdue/Univ of IL)	387
Delta Nutrition Intervention Initiative (Various Cooperators)	3,000
Diet, Nutrition, and Obesity (Pennington)	202
Endophyte Research (OR State Univ/Univ of MO/Univ of AR)	915
Formosan Subterranean Termites (Various Cooperators)	2,900
Improved Crop Production Practices (Nat'l Soil Dynamics Lab)(Auburn/AL A&M/Tuskegee)	783
Karnal Bunt, Manhattan, KS (Various Cooperators)	285
Lyme Disease (Yale)	563
Mid-West/Mid-South Irrigation (MO Ag Expt Station)	318
Mosquito Trapping Research/West Nile Virus (CT Ag Expt Station)	615
National Corn to Ethanol Research Pilot Plant (Southern IL Univ)	383
Northern Great Plains Research Laboratory (ND State)	62
Phytoestrogen Research (Tulane/Univ of Toledo)	1,105
Small Farms (Univ of MO)	1,806
Termite Species in Hawaii (Univ of HI)	69
Tropical Aquaculture Feeds (Oceanic Institute)	1,531
Wild Rice (No. Central Ag Expt Station)	244
TOTAL	23,434

Ms. DeLauro: Please provide a list of every entity that receives extramural funding as well as the amount, for those items where extramural funds go to various locations.

Response: A list of every entity that receives extramural funding and the amount for FY 2007 is provided for the record.

[The information follows:]

United States Department of Agriculture
Agricultural Research Service
Extramural Funding Recipients
FY 2007

Recipient	FY 2007
AGRICULTURE CANADA	$35,000
AGRICULTURE DEVELOPMENT GROUP, INC	37,500
AGRONOMIC SCIENCE FOUNDATION	9,756
AKWESASNE TASK FORCE/ENVIRONMENT	5,000
ALABAMA AGRI & MECH COLLEGE	120,787
ALASKA PLANT MATERIAL CENTER	30,000
ALCORN STATE UNIVERSITY	348,205
AMERICAN MOSQUITO CONTROL ASSOCIATION	3,000
AMERICAN PHYTOPATHOLOGICAL SOCIETY	25,000
AMERICAN SOCIETY OF AGRONOMY	15,000
AMERICAN SOCIETY OF ANIMAL SCIENCE	5,302
AMERICAN WATER RESOURCE ASSOCIATION	4,878
AOAC INTERNATIONAL	2,000
ARIZONA STATE UNIVERSITY	18,639
ARKANSAS CHILDREN'S HOSPITAL	5,755,297
ARKANSAS TECH UNIVERSITY	2,000
ASSOC ADVANCEMENT INDUSTRIAL CROPS	5,000
AUBURN UNIVERSITY	1,332,175
AZ COTTON RESEARCH & PROTECTION COUNCIL	54,634
AZERBAIJAN NATIONAL ACADEMY SCIENCES	3,000
BAYLOR COLLEGE OF MEDICINE	11,574,918
BEET SUGAR DEVELOPMENT FOUNDATION	9,000
BEIJING BOTANICAL GARDEN	9,520
BIOTECH & BIOLOGICAL CONTROL AGENCY	15,000
BIOTECHNOLOGY FOUNDATION, INC.	654,000
BIOTECHNOLOGY RESEARCH & DEVELOPMENT CORPORATION	2,405,813
BIOVERSITY INTERNATIONAL	86,540
BOYCE THOMPSON INSTITUTE	334,679
CABI BIOSCIENCES, U.K.	216,000
CALIFORNIA INSTITUTE OF FOOD AND AGRICULTURAL RESEARCH	1,500
CANAAN VALLEY INSTITUTE	358,006
CAPECO	25,000
CARRINGTON AG EXPT. STATION (ND STATE UNIV.)	95,610
CENTRE FOR INTERNATIONAL (CIRAD)	119,000
CENTRO AGRON TROPICAL INVEST ENS	25,000
CHINESE ACADEMY OF AGRI SCIENCES	133,489

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
CHINESE ACADEMY OF SCIENCES	5,500
CIMMYT	27,805
CITY OF HOLLANDALE	71,500
CLEMSON UNIVERSITY	296,144
COCOA RESEARCH INSTITUTE - GHANA	40,000
COLD SPRING HARBOR LABORATORY	627,378
COLLABORATIVE TESTING SERVICES	31,500
COLORADO STATE UNIVERSITY	374,857
COLUMBIA UNIVERSITY	110,000
CONNECTICUT AG EXPT. STATION	824,616
CONSERVATION TECHNOLOGY INFO CENTER	6,500
CORNELL UNIVERSITY	3,213,594
COUNCIL FOR AGRIC SCIENCE & TECHNOLOGY	9,756
CSIRO	418,378
DARREL M. TEMPLE	38,500
DELTA HEALTH ALLIANCE	80,000
DREXEL UNIVERSITY	10,000
DUKE UNIVERSITY	85,000
EARLINE STRICKLAND	37,500
EAST AFRICAN VETERINARY RESEARCH ORGANIZATION	13,500
EASTERN MENNONITE UNIVERSITY	15,000
ENVIRONMENTAL RESOURCE COALITION	170,516
FAR EAST FORESTRY RESEARCH INSTITUTE	25,000
FLEISSNER GMBH & COMPANY	10,000
FLORIDA AGRI & MECH UNIVERSITY	129,039
FLORIDA STATE UNIVERSITY	36,977
FOUNDRY INDUSTRY RECYCLING STARTS TODAY	52,000
FROSTBURG STATE COLLEGE (UNIV. OF MD)	78,235
FUND DE ESTUDOS AGR LUIZ QUEIROZ	75,000
FUNDACAO PAU BRASIL (FUNPAB)	32,000
FUTURE HARVEST - CHESAPEAKE ALLIANCE	15,000
GEISINGER MEDICAL CENTER	171,567
GEORGIA COASTAL PLAIN EXPT. STATION (UNIV. OF GA)	48,780
HARBOR BRANCH OCEANOGRAPHIC INSTITUTE	611,164
HAWAII AGRICULTURE RESEARCH CENTER	725,855
ICARDA	10,000
ILLUMINA INC.	360,890
IMPERIAL CONSULTANTS OF LONDON	50,000

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
IMPERIAL VALLEY CONS RES CTR COM	134,181
INDIANA UNIVERSITY - PURDUE	25,000
INSTITUTE FOR TECHNOLOGY DEVELOPMENT	589,406
INSTITUTE OF BIOLOGICAL CONTROL	18,519
INSTITUTE OF BOTANY	10,000
INSTITUTE RANGE ECOLOGY LAB	3,000
INSTITUTO DE CULTIVOS TROPICALES	101,000
INSTITUTO NACIONAL DE INVESTIGACIONES FORESTALES (INIFAP)	39,500
INSTITUTO NACIONAL DE TECNOLOGIA AGROPECUARIA	64,890
INSTITUTO UNIEMP	10,000
INTERNATIONAL CENTER FOR RESEARCH IN AGROFORESTRY	10,000
INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY & ECOLOGY	50,000
INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE	38,000
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE	60,000
INTERNATIONAL POTATO CENTER	7,000
INTERNATIONAL RICE RESEARCH INSTITUTE	50,000
INT'L MAIZE & WHEAT IMPROVE CENTER	106,000
IOWA STATE UNIVERSITY	359,121
IRENE ANIMAL PRODUCTION INSTITUTE	3,000
J. CRAIG VENTER INSTITUTE, INC.	579,600
JAMES FISCHER	501,000
JOHNS HOPKINS UNIVERSITY	704,707
KANSAS STATE UNIVERSITY	1,528,847
KENYA AG RESEARCH SERVICE	7,968
KENYA MEDICAL RESEARCH INSTITUTE	10,000
LOUISIANA AGRICULTURAL EXTENSION SERVICE (LA STATE UNIV.)	4,878
LOUISIANA STATE UNIV. AG. CENTER	1,203,996
LOUISIANA STATE UNIVERSITY	191,975
MALPAI BORDERLANDS GROUP	5,000
MBI INTERNATIONAL	278,000
MCNABB MARKETING RESOURCES	3,000
MEDSTAR RESEARCH INSTITUTE	176,590
METHYL BROMIDE ALTERNATIVE OUTREACH	14,634
MIAMI UNIVERSITY	40,000
MICHAEL FIELDS AGRICULTURAL INSTITUTE	157,624
MICHIGAN STATE UNIVERSITY	1,037,673
MID DELTA COMMUNITY CONSORTIUM	68,000
MID-FLORIDA RESEARCH & EDUCATION	100,000

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
MILWAUKEE PUBLIC MUSEUM	141,356
MISS AGRI & FORESTRY EXPT. STATION (MS STATE UNIV.)	6,768,880
MISSISSIPPI STATE UNIVERSITY	2,046,180
MONTANA STATE UNIVERSITY	221,054
MONTGOMERY BOTANICAL GARDEN	3,914
MOUNT DESERT ISLAND BIOLOGICAL LABORATORY	2,000
MOUNTAIN STATE UNIVERSITY	204,439
NASA GODDARD SPACE FLIGHT CENTER	40,000
NATIONAL ACADEMY OF SCIENCES	35,000
NATIONAL AG RESEARCH CENTER	243,902
NATIONAL CENTER FOR GENOME RESOURCES	850,000
NATIONAL COTTON COUNCIL OF AMERICA	232,012
NATIONAL WILDLIFE RESEARCH CTR.	5,000
NEBRASKA AG EXPT. STATION (UNIV. OF NE)	1,123,600
NEW MEXICO STATE UNIVERSITY	635,372
NICHOLLS STATE UNIVERSITY	20,000
NORTH AMERICAN STRAWBERRY GROWERS ASSOCIATION	3,000
NORTH CAROLINA STATE UNIVERSITY	754,952
NORTH CENTRAL AG EXPT. STATION (UNIV. OF MN)	264,140
NORTH DAKOTA STATE UNIVERSITY	2,019,256
NORTHERN MOSQUITO & TERMITE CONTROL BOARD	400,433
NORWALT DESIGN, INC.	146,500
OHIO STATE UNIVERSITY	998,151
OKLAHOMA STATE UNIVERSITY	442,995
OKLAHOMA WATER RESOURCES BOARD	75,650
OREGON DEPARTMENT OF AGRICULTURE	10,000
OREGON STATE UNIVERSITY	1,720,942
ORTON MEMORIAL LIBRARY	3,000
PARMA BRANCH AG EXPT. STATION (UNIV. OF ID)	27,200
PASTEURIA BIOSCIENCE	48,519
PENNINGTON BIOMEDICAL RES CENTER	477,695
PENNSYLVANIA STATE UNIVERSITY	585,945
PHILIPPINE ANIMAL HEALTH CENTER	487,652
POLISH ACADEMY OF SCIENCES	17,000
POTATO VARIETY MANAGEMENT INSTITUTE	14,237
PPG INDUSTRIES, INC.	73,171
PRACTICAL FARMERS OF IOWA	42,829
PURDUE UNIVERSITY	2,045,489

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
ROCHE DIAGNOSTIC/APPLIED SCIENCE	42,975
RODALE INSTITUTE RESEARCH CENTER	159,211
RUTGERS UNIVERSITY	97,242
SEOUL NATIONAL UNIVERSITY	20,000
SHIRLEY COMMUNITY DEVELOPMENT CORPORATION	83,649
SIMON FRASER UNIVERSITY	25,000
SMITH HELICOPTERS, INC	50,000
SOCIETY FOR INDUSTRIAL MICROBIOLOGY	3,902
SOCIETY FOR TROPICAL VETERINARY MEDICINE	3,415
SOIL & WATER CONSERVATION SOCIETY	10,000
SOUTH DAKOTA STATE UNIVERSITY	540,978
SOUTHERN ILLINOIS UNIVERSITY	282,881
SOUTHERN UNIV & A&M COLLEGE	225,000
ST JOSEPH RIVER WATERSHED INITIATIVE	49,049
STATE UNIVERSITY OF NEW YORK	30,000
STEPHEN F AUSTIN STATE UNIVERSITY	57,156
STUDENT CONSERVATION ASSOCIATION	44,000
SUGAR PROCESSING RESEARCH INSTITUTE	60,000
SUNSHINE STATE CARNATIONS, INC.	6,678
TARLETON STATE UNIVERSITY (TIAER)	10,000
TEL AVIV UNIVERSITY	12,951
TENNESSEE STATE UNIVERSITY	470,131
TEXAS A&M UNIVERSITY	1,615,049
TEXAS AG EXPT. STATION (TX A&M UNIV.)	41,000
TEXAS TECH UNIVERSITY	600,250
THE AUDUBON INSTITUTE	150,500
THE CONSERVATION FUND	1,631,140
THE OCEANIC INSTITUTE - MAKAPUU POINT	1,015,175
THE UNIVERSITY OF SCRANTON	22,950
TRUMAN STATE UNIVERSITY	9,756
TUFTS UNIVERSITY	6,296,673
TULANE UNIVERSITY	427,930
TUSKEGEE INSTITUTE	10,000
UNITED TRIBES TECHNICAL COLLEGE	16,150
UNIVERSITY OF ADELAIDE	132,000
UNIVERSITY OF ALABAMA	55,000
UNIVERSITY OF ALASKA	1,389,256
UNIVERSITY OF ALBERTA	42,979

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
UNIVERSITY OF ARIZONA	489,814
UNIVERSITY OF ARKANSAS	1,162,059
UNIVERSITY OF BUFFALO (SUNY)	24,200
UNIVERSITY OF CALIFORNIA	4,275,368
UNIVERSITY OF CAMBRIDGE	55,000
UNIVERSITY OF CONNECTICUT	1,798,531
UNIVERSITY OF DELAWARE	20,025
UNIVERSITY OF FLORIDA	790,544
UNIVERSITY OF GEORGIA	536,117
UNIVERSITY OF GUELPH	23,902
UNIVERSITY OF HAWAII	3,069,878
UNIVERSITY OF IDAHO	884,458
UNIVERSITY OF ILLINOIS	2,438,415
UNIVERSITY OF IOWA	15,039
UNIVERSITY OF KENTUCKY	1,315,127
UNIVERSITY OF MAINE	53,000
UNIVERSITY OF MARYLAND	1,645,345
UNIVERSITY OF MEMPHIS	14,634
UNIVERSITY OF MIAMI	27,409
UNIVERSITY OF MINNESOTA	1,085,063
UNIVERSITY OF MISSISSIPPI	5,242,745
UNIVERSITY OF MISSOURI	2,777,934
UNIVERSITY OF NEBRASKA	584,551
UNIVERSITY OF NEW HAMPSHIRE	20,342
UNIVERSITY OF NORTH CAROLINA	10,000
UNIVERSITY OF NORTH DAKOTA	1,025,300
UNIVERSITY OF NORTHERN IOWA	32,664
UNIVERSITY OF PENNSYLVANIA	60,736
UNIVERSITY OF PITTSBURGH	26,744
UNIVERSITY OF PUERTO RICO (MAYAGUEZ)	31,612
UNIVERSITY OF READING	123,005
UNIVERSITY OF SOUTHERN MISSISSIPPI	300,000
UNIVERSITY OF TENNESSEE	729,250
UNIVERSITY OF TOLEDO	537,756
UNIVERSITY OF VERMONT	265,685
UNIVERSITY OF WASHINGTON	150,000
UNIVERSITY OF WEST INDIES	40,000
UNIVERSITY OF WISCONSIN	967,235

Extramural Funding Recipients
FY 2007

Recipient	FY 2007
UNIVERSITY OF WYOMING	265,000
UPPER MIDWEST AEROSPACE CONSORT.	205,000
UTAH STATE UNIVERSITY SPACE DYNAMICS LAB	441,220
UTAH STATE UNIVERSITY	312,713
VETERINARY LABORATORIES AGENCY	55,000
VIRGINIA POLY INST & STATE UNIV	910,991
WASHINGTON STATE UNIVERSITY	1,533,705
WASHINGTON UNIVERSITY	101,318
WEST TEXAS A&M UNIVERSITY	177,450
WEST VIRGINIA STATE UNIVERSITY	40,000
WEST VIRGINIA UNIVERSITY	1,118,003
WESTERN ILLINOIS UNIVERSITY	75,000
WESTERN KENTUCKY UNIVERSITY	877,232
WESTERN UNIVERSITY OF HEALTH SCIENCE	3,000
WORLD FOOD PRIZE FOUNDATION	30,000
XAVIER UNIVERSITY	15,610
YALE UNIVERSITY	507,607
	119,396,235

SCIENTIFIC STAFFING

Ms. DeLauro: Please provide the number of permanently assigned scientists on-board and vacant scientific positions, by location, as of January 2008. Please provide the number of encumbered post-doctoral positions as of January 2008.

Response: The information is submitted for the record.

	Scientists on Board As of January, 2008	Vacant Scientific Positions
Beltsville Area		
Beltsville, MD	**245**	**12**
North Atlantic Area		
Beaver, WV	14	0
Wyndmoor, PA	80	4
Frederick, MD	13	0
Geneva, NY	11	0
Boston, MA	4	0
Ithaca, NY	27	0
Kearneysville, WV	17	0
Leetown, WV	7	3
Newark, DE	6	0
Orono, ME	7	0
Orient Point, NY	8	1
University Park, PA	13	0
	207	**8**
Mid West Area		
Ames, IA	89	11
Columbia, MO	23	1
Columbus, OH	5	0
Coshocton, OH	3	0
East Lansing, MI	10	1
Madison, WI	33	3
Morris, MN	7	0
Peoria, IL	95	4
St. Paul, MN	19	0
Urbana, IL	15	0
West Lafayette, IN	22	0
Wooster, OH	12	0
	333	**20**
Pacific West Area		
Aberdeen, ID	14	1
Albany, CA	92	2
Boise, ID	6	0
Burns, OR	8	0
Corvallis, OR	31	3
Davis, CA	22	4
Dubois, ID	5	0
Fairbanks, AK	9	1

Hilo, HI	12	4
Kimberly, ID	10	2
Maricopa, AZ	23	2
Parlier, CA	23	4
Pendleton, OR	6	0
Prosser, WA	9	0
Pullman, WA	42	2
Riverside, CA	13	0
Salinas, CA	11	1
Shafter, CA	4	0
Tucson, AZ	12	0
Wapato, WA	9	1
Wenatchee, WA	7	0
	368	**27**
Northern Plains Area		
Akron, CO	5	0
Brookings, SD	10	0
Cheyenne, WY	5	0
Clay Center, NE	48	4
Fargo, ND	37	3
FT. Collins, CO	25	2
Grand Forks, ND	11	3
Laramie, WY	6	1
Lincoln, NE	18	2
Logan, UT	27	1
Mandan, ND	9	1
Manhattan, KS	25	2
Miles City, MT	8	1
Sidney, MT	14	2
	248	**22**
Southern Plains Area		
Beaumont, TX	3	0
Booneville, AR	5	0
Bushland, TX	14	1
College Station, TX	40	0
El Reno, OK	16	0
Fayetteville, AR	5	0
Houston, TX	4	0
Kerrville, TX	14	1
Lane, OK	6	0
Las Cruces, NM	16	0
Little Rock, AR	3	1
Lubbock, TX	21	5
Pine Bluff, AR	2	0
Stillwater, OK	10	2
Stuttgart, AR	19	1
Temple, TX	9	0
Weslaco, TX	24	1
Woodward, OK	2	2
	213	**14**

South Atlantic Area

Athens, GA	54	6
Brooksville, FL	4	0
Byron, GA	7	0
Canal Point, FL	5	1
Charleston, SC	10	1
Clemson, SC	4	0
Dawson, GA	12	0
Florence, SC	11	0
Ft. Lauderdale, FL	6	0
Ft. Pierce, FL	20	1
Gainesville, FL	31	2
Griffin, GA	6	0
Mayaguez, PR	5	0
Miami, FL	10	0
Raleigh, NC	25	0
Tifton, GA	21	1
Winter Haven, FL	8	1
	239	**13**

Mid South Area

Auburn, AL	21	0
Baton Rouge, LA	8	1
Bowling Green, KY	6	0
Lexington, KY	6	0
Mississippi State, MS	23	2
New Orleans, LA	64	10
Oxford, MS	24	2
Poplarville, MS	6	2
Stoneville, MS	60	9
	218	**26**

HQ

Montpellier, FR	**3**	**1**

The total number of encumbered Post-Doctoral positions in ARS, as of January 2008, is 285.

SOIL AND WATER RESEARCH

Ms. DeLauro: By location, what is the funding and staff associated with research laboratories working on soil and water research for fiscal years 2007 through 2009? Please provide an update on fiscal years 2007 and 2008 accomplishments in soil and water research and plans for fiscal year 2009.

Response: The dollars and scientist staff years for soil and water research for fiscal years 2007 through 2009 are provided for the record.

[The information follows:]

Agricultural Research Service
Soil and Water Research

	FY 2007		FY 2008		FY 2009	
	Funds	SY	Funds	SY	Funds	SY
Akron, CO	$1,335,300	3.60	$1,326,000	3.00	$867,800	2.00
Albany, CA	535,600	1.16	531,800	1.16	531,800	1.16
Ames, IA	5,110,200	12.30	5,074,400	11.47	5,074,400	11.47
Athens, GA	1,907,500	4.86	1,370,900	3.38	--	--
Auburn, AL	2,650,800	5.50	2,632,200	5.50	1,943,600	4.50
Baton Rouge, LA	659,400	1.20	654,800	0.60	654,800	0.60
Beaver, WV	1,716,800	3.95	1,703,200	3.95	1,703,200	3.95
Beltsville, MD	9,367,200	21.47	9,034,000	18.91	8,574,500	18.91
Boise, ID	1,560,500	4.20	1,549,700	4.20	1,549,700	4.20
Booneville, AR	562,800	0.50	583,700	0.40	85,700	--
Bowling Green, KY	1,142,800	2.40	1,134,800	2.40	1,134,800	2.40
Brookings, SD	438,900	1.38	435,800	1.32	435,800	1.32
Brooksville, FL	--	--	511,000	1.52	--	--
Bushland, TX	6,036,300	9.96	5,994,600	9.96	5,833,200	9.96
Canal Point, FL	305,000	0.79	302,800	0.79	302,800	0.79
Cheyenne, WY	621,800	1.47	617,400	1.47	617,400	1.47
Columbia, MO	1,691,300	3.52	1,990,900	3.50	1,542,000	3.50
Columbus, OH	818,600	2.46	812,900	2.48	366,100	1.48
Corvallis, OR	668,900	1.91	664,200	1.69	664,200	1.69
Coshocton, OH	875,800	1.80	797,000	1.65	--	--
El Reno, OK	1,736,000	4.52	2,160,800	5.56	2,160,800	5.56
Fayetteville, AR	211,100	0.40	342,100	0.80	209,700	0.80
Florence, SC	1,563,800	3.86	1,335,600	3.30	1,335,600	3.30
Ft Collins, CO	5,237,400	12.44	5,038,200	11.21	5,038,200	11.21
Ft Lauderdale, FL	1,381,800	3.00	1,371,700	3.00	1,371,700	3.00
Ft Pierce, FL	407,400	1.00	404,600	1.00	404,600	1.00
Gainesville, FL	114,500	0.35	113,700	0.35	113,700	0.35
Headquarters	469,900	--	466,600	--	466,600	--
Ithaca, NY	372,600	0.55	369,700	0.55	369,700	0.55
Kimberly, ID	2,561,800	7.78	2,537,900	7.68	2,537,900	7.68
Leetown, WV	271,800	--	--	--	--	--
Lincoln, NE	2,268,700	7.80	2,252,700	7.14	2,252,700	7.14
Lubbock, TX	2,274,500	6.10	2,258,700	6.10	2,258,700	6.10
Madison, WI	1,477,600	2.22	964,900	1.56	964,900	1.56
Mandan, ND	568,400	1.35	1,294,000	3.05	1,146,400	3.05
Manhattan, KS	1,083,200	4.00	1,075,700	3.00	1,075,700	3.00
Maricopa, AZ	2,716,300	7.95	2,929,700	8.55	3,440,700	8.55
Miami, FL	638,800	2.00	634,000	2.00	--	--
MS State, MS	691,800	1.96	687,000	1.96	--	--
Morris, MN	920,100	2.48	913,700	2.30	--	--
New Orleans, LA	266,700	0.63	264,800	0.63	264,800	0.63
Orono, ME	438,200	1.26	434,700	1.26	--	--
Oxford, MS	8,914,100	17.98	9,000,700	17.95	8,647,200	17.95
Parlier, CA	1,118,900	2.85	1,111,100	2.85	1,111,100	2.85
Pendleton, OR	1,016,300	3.05	1,009,300	2.85	1,009,300	2.85
Peoria, IL	69,600	0.26	69,200	0.26	69,200	0.26
Prosser, WA	401,400	0.97	398,500	0.97	398,500	0.97
Pullman, WA	1,477,600	4.16	1,467,300	4.45	--	--
Riverside, CA	3,486,500	8.20	3,488,600	7.40	3,151,000	7.40
Salinas, CA	116,900	0.30	116,100	0.30	116,100	0.30
Sidney, MT	836,500	2.40	830,600	2.40	830,600	2.40
St Paul, MN	450,200	1.62	447,100	1.62	447,100	1.62
Stillwater, OK	1,025,900	3.00	1,045,600	3.00	1,045,600	3.00
Stoneville, MS	450,800	1.20	447,600	1.20	447,600	1.20
Temple, TX	1,660,900	4.90	1,517,700	3.90	1,517,700	3.90
Tifton, GA	3,339,100	7.21	3,599,000	6.78	4,232,900	6.78
Tucson, AZ	2,885,700	7.76	2,865,400	7.68	2,865,400	7.68
Univ Park, PA	2,259,400	5.15	2,040,900	4.81	--	--
Urbana, IL	140,300	0.44	139,400	0.44	--	--
Weslaco, TX	1,297,200	3.04	1,288,200	3.08	--	--
West Lafayette, IN	2,944,300	8.74	2,923,200	6.84	2,923,200	6.84
Wyndmoor, PA	254,100	0.60	252,100	0.60	238,700	0.60
	$99,823,600	239.91	$99,630,500	229.73	$86,345,400	199.48

Since this question was asked of us most recently at the beginning of FY 2008 and we have not yet received the accomplishments for FY 2008, the answer has not changed significantly since our last reporting. By location, the 2007 accomplishments, and 2009 plans are as follows that correspond to the funding and staff listed in the previous question:

Akron, CO
Accomplishments: In field research with long-term alternative crop rotations we found that increasing permanent vegetation and limiting wheel traffic improved the soil physical condition (reduced deep compaction) and resulted in greater crop yields. These changes took 10 to 15 years to develop. The research documents that wheel traffic and compaction issues are vital elements in designing long-term, sustainable, cropping systems.

Plans: Develop sustainable dryland (rainfed) cropping systems using minimal or no tillage management, crop sequencing, and crop residue management, and provide recommendations for economic stability while minimizing environmental risk, increasing carbon sequestration, and enhancing long-term productivity of the soil and water resource.

Albany, CA
Accomplishments: One expectation in controlling saltcedar is to increase water flow. To determine if this does happen, ARS scientists conducted a detailed study in western Nevada of water use by saltcedar before and during attack by insects introduced for biological control. Saltcedar plants continued to transpire water at rates similar to pre-defoliation throughout attack by the biocontrol agents until all leaves were dropped from the plant after which water savings appeared to be substantial. Therefore, partial control of saltcedar does not substantially increase water flow so managers need to ensure full defoliation.

Plans: Research will continue on the ecology and water management effects of controlling aquatic weeds using biological control agents. Research will also continue on determining how cheatgrass invasions affect soil nutrients, water relationships and community ecology so improved management practices can be developed for preventing the spread of this invasive weed and controlling it in areas already invaded.

Ames, IA
Accomplishments: Investigations of the effect of a rye/oat cover crop on changes in soil inorganic nitrogen following fall injection of liquid swine manure indicate that cover crops can be an effective tool for enhancing retention of manure nitrogen when used in combination with manure injection. The rye/oat cover crop reduced nitrate concentrations in surface soil (0-7 inches) in the injection band within 21-42 days after manure application. The rye/oat cover crop also reduces nitrate concentrations beneath the manure band to a depth of approximately three feet. Control of soil inorganic nitrogen through cover crops and manure injection application will help reduce agricultural contributions to hypoxia in the Gulf of Mexico.

Plans: Determine the mechanisms and efficiency of riparian buffers and other management practices to reduce contaminant loads to streams for tile-drained and other landscapes. Determine the relationships between variation within the field and between years and how management practices can be controlled to increase profitability and reduce environmental impacts. Evaluate the effects of alternative agricultural practices on greenhouse gas exchange and soil carbon sequestration.

Athens, GA
Accomplishments: On dairy farms relying on high-quality silage crops as a feedstock, harvesting silage less often and leaving more crop residue on the soil surface was found to be beneficial to most soil properties, and thus creates a more optimum balance between agronomic production and environmental quality.

Plans: Develop integrated crop and livestock production systems that increase cotton productivity and profitability for the Southeast. Information on high-residue conservation tillage systems, including integrated livestock-row crop production systems will be transferred through field days, producer meetings, and personal information requests by phone and e-mail and by popular press articles to producers, commodity groups, and action agencies.

Auburn, AL
Accomplishments: A study of the effects of elevated atmospheric carbon dioxide on bahia pasture grass showed no effect in the absence of nitrogen, but increased biomass (21%) when nitrogen was added, thus revealing that while pastures might increase productivity in a carbon dioxide-enriched environment, they will only do so provided sufficient nitrogen is available.

Plans: Develop improved soil management techniques that reduce risk from short-term drought, reduce weeds competition for water and nutrients in conservation systems, and increase farm profits. Results explaining plant responses (especially belowground) to increased amounts of carbon dioxide in the atmosphere and management of carbon storage in agricultural systems (to lessen future impacts of the greenhouse effect) will be made available to other scientists and policymakers.

Baton Rouge, LA
Accomplishments: Field study results showed that about 50% less nitrate (N) was lost in discharge from subsurface drains installed at a 4.25-ft. depth that had the outlet water level controlled at a depth of 2.0-ft. below the soil surface, compared to discharge from an uncontrolled 4.25-ft. deep subsurface drains. The shallow-controlled deep drainage system also reduced N loss in discharge more than from the shallow 2.0-ft. deep drainpipe systems. These results are important because they indicate that millions of feet of deep subsurface drains already installed in the Midwestern U.S. States can be retrofitted with outlet control structures to reduce N loss in subsurface drainage rather than needing to replace the systems with shallow drainpipes. Thus, controlled-drainage (drainage water management) can be applied broadly in the Midwest to significantly reduce the nitrate load carried down the Mississippi River System to the Hypoxic Zone in the Northern Gulf of Mexico.

Plans: The Soil and Water Research Unit is undertaking new research to develop crop production practices for sugarcane varieties to be used as a bio-mass source for bio-fuels. The research will evaluate and develop energy-cane crop and cultural management practices that will protect the quality of soil and water resources from degradation and pollution. Improved methods will be developed to apply and manage agrochemicals (fertilizers and pesticides) in an integrated manner with controlled-drainage water management practices to reduce losses of these agrochemicals in drainage runoff from the cropland, thus improving drainage water quality discharged to streams and water bodies in the Lower Mississippi River Basin.

Beaver, WV
Accomplishments: Soil amendments of fluidized bed combustion residue (FBC) and wall-board quality gypsum (by-products of coal-fired power plants) were surface-applied to slopes that had been treated to simulate highway embankment preparation. FBC was shown to raise soil pH and EC, increase vegetation-cover biomass, and alleviate runoff of sloped acid soils. The FBC was as effective as polyacrylamides (PAM) in reducing runoff. Also, the combination of FBC and PAM improved the effectiveness of PAM alone. The use of FBC in combination with PAM promotes vegetation growth and decreases runoff, and as such can be an effective amendment in stabilizing structurally disturbed (sloped) acid soils.

Plans: Design forage-based finishing systems and discover new information about soil and processes that will improve pasture establishment and productivity in Appalachian hill-land grazing ecosystems. Develop management practices and decision tools supporting turf grasses used in K-12 school yards, parks, and residential settings, with an emphasis on reducing the need for purchased chemical inputs and water. Agronomic and environmental (water quality) advice will be provided to producers and advisory personnel in the small-scale farming community. Scientists will participate in producer-oriented workshops, seminars and field days and communicate practical information to a range of end-users.

Beltsville, MD
Accomplishments: Effectively managing agricultural drought requires soil water availability information at finer spatial scales than existing drought monitoring techniques can provide. To improve the spatial resolution of agricultural drought information, data from the Landsat and Terra polar orbiting satellites operated by NASA were used in a model to map evapotranspiration and moisture stress at 60m-1km spatial resolution. These high-detail maps can be nested within a coarser resolution product covering the continental U.S. at 10km resolution, generated with data from the Geostationary Operational Environmental Satellites (GOES). At the finer resolutions, individual fields can be resolved facilitating assessment of vegetation stress by crop type at the sub-county level. This type of information may be extremely useful for improving yield projections and for administering crop insurance and drought assistance programs. Paired with drought assessments on the continental-scale coarse grid, these local evaluations can be placed within a regional context, which reflects larger scale climatic conditions.

Plans: Continued development of novel remote sensing and modeling tools to better characterize key hydrologic and constitutive flux pathways operating within agricultural watersheds. An overarching theme of the project is that the integration of remote sensing products into models can enhance the utility of models for critical agricultural applications.

Boise, ID
Accomplishments: Hydrologic models and methodologies were developed that will lead to more reliable predictions of streamflow timing and amount and evaluation of management and climate scenarios on plant response and plant water use. Models were tested and improved for post-fire erosion and seedling germination that may improve fire rehabilitation and restoration practices.

Plans: Provide simulation models and remote sensing technologies that assess the impacts of land use, fire and global change on Intermountain rangeland watersheds with snow and frozen soil problems. Assess impacts of fire and

invasive plants on rangeland health and sustainable resource management in the Columbia Plateau and Great Basin. The scientists will continue to participate in outreach programs for a wide variety of educational, producer, and agency organizations.

Booneville, AR
Accomplishments: Deep-rooted trees managed in silvopastures could be used to enhance livestock feed growth during dry summer months to broaden forage options, reduce costs, and increase livestock gain. When black locust trees were fertilized with nitrogen, browse yields were higher than without fertilizer. Thornless honey locust had less agronomic potential than black locust because of its slower growth, low yield, poor drought tolerance, and a slight tendency for reversion to a thorny type. Black locust should be considered for livestock browse when drought induces semi-dormancy of herbaceous forages.

Plans: The value of black locust as a control measure for internal parasites of goats and sheep will be determined. A new coordinated research plan will be developed with the University of Missouri Agroforestry center to support integrated management of lower Mississippi River watershed landscapes for increased economic return to producers and enhanced environmental benefits.

Bowling Green, KY
Accomplishments: More than 85% of poultry litter used in agriculture is applied to pastures. Research documented that subsurface banding of broiler litter into perennial grassland significantly reduced nutrient and pathogen losses by runoff events compared to the traditional practice of surface broadcasting of manure. Research on use of poultry litter for cotton production showed that cotton can effectively use nitrogen in the litter without posing an environmental risk, but phosphorus may buildup to detrimental levels in soil through long-term application of litter.

Plans: Research will continue on development of management practices and decision tools to make effective use of manure nutrients for crop production while protecting environmental quality. Management practices and control technologies will be developed to reduce formation and emission of malodorous compounds in animal production facilities and manure storage areas. Methods to control and predict fate and transport of pathogens from animal production operations will be developed.

Brookings, SD
Accomplishments: While use of no-till soil management and diverse crop sequences can improve soil resource conservation, soil health, and interrupts pest cycles, Northern Corn Belt producers growing corn on cool soils with little internal drainage will have reduced corn yields, especially when corn follows winter wheat. Also, there is wide-spread anecdotal information that plant residue from some genetically modified corn hybrids may be resistant to degradation, and therefore require additional tillage to enhance breakdown. However, research shows no differences in the decomposition rates of the chopped residue from four corn hybrids tested that had either Bt+ or Bt- traits.

Plans: Research into residue management systems will be conducted to develop crop and soil management systems that address this problem. Also, additional studies are underway to determine alternate explanations for the perceived toughness of Bt+ containing corn residue.

Bushland, TX

Accomplishments: Profitability of irrigated agriculture in the High Plains is constrained by high pumping costs and by the loss of nutrients and water due to over irrigation, resulting in decreased yields and increased expenses. Scientists in the Soil and Water Management Research Unit, Bushland, Texas, collaborated with the Texas Agricultural Experiment Station to create the new Texas High Plains Evapotranspiration Network (TXHPET) and automated mailing list server, which delivered advanced, updated, standardized, precision irrigation scheduling data and associated meteorological data to producers, irrigation districts, and university and ARS researchers daily. The number of weather stations grew to 19 (http://txhighplainset.tamu.edu). Savings in pumping costs, if irrigation is reduced by only one inch, translate to more than $12 million in the irrigated Texas High Plains; and increased profits of many more millions of dollars are expected from increased yields reported by cotton and corn producers using the network.

Plans: Develop new technologies for irrigation, tillage and crop rotation management that increase profitability while improving water and nutrient use efficiency. Develop wireless sensor systems that will aid commercial application of automated irrigation technologies developed at the center. Design and test soil water content sensors for crop water use determination that will aid irrigation scheduling both alone and in conjunction with automated methods. Integrate these technologies with tillage and rotation management systems that conserve soil water and capture precipitation effectively for profitable crop production with reduced irrigation and pumping costs and more efficient nitrogen fertilizer use.

Canal Point, FL

Accomplishments: Mill mud is a by-product from the sugarcane milling process that can be applied to fields as an aid in sustaining sugarcane yields without purchasing additional fertilizers. Effects of mill mud on soil chemical properties indicated that although soil pH, organic matter, macronutrients were increased in the surface soil there was no indication of significant movement into the subsurface soil horizons, suggesting that mill mud does not pose a large risk to groundwater pollution. A field experiment also indicated that one large application of mill mud prior to planting can sustain sugarcane yields for three years compared to more frequent fertilizer application based on soil test recommendations.

Plans: Determine processes affecting soil organic matter oxidation potential and develop water management treatments that reduce oxidation of organic soils while maintaining crop yields under different cropping systems and water management regimes. Information on effects of 21-day floods prior to harvest on sugarcane yields was published. Results showed that further research is warranted on flooding before harvest. However, for these results to be useful, economic studies are needed to determine economic feasibility of using public funds to reimburse sugarcane growers for environmental benefits of these floods.

Cheyenne, WY

Accomplishments: Research was conducted on the potential of agriculture to mitigate the problem of greenhouse gas emissions through practices which reduce emissions from rangelands. It was determined that dry conditions in grasslands of the Northern Great Plains lead to small annual emissions of CO_2, and wetter years lead to its assimilation. Further, the emission of greenhouse gases (GHG) from Wyoming sagebrush steppe may increase with cheatgrass invasion due to fundamental changes in nutrient cycling. The

results of this work suggest that weather and the presence of weeds need to be considered in determining the feasibility of management practices for enhancing carbon storage in rangelands.

Plans: Develop livestock grazing management strategies that minimize emission of GHG and determine their effects in elevated carbon dioxide atmospheres on nitrogen (N) and carbon (C) cycling and invasive weed populations in range plant communities. A new type of Free Air C02 Enrichment (FACE) System, Gradient FACE, was designed to deliver a range (gradient) of CO2 concentrations across a field will be used in multi-level CO2 enrichment experiments in future years.

Columbia, MO
Accomplishments: Documented that grass buffers comprised of switchgrass, smooth bromegrass, or tall fescue reduced soil nitrate levels and reduced nitrate leaching to shallow groundwater. Further, documented that switchgrass also reduced phosphate leaching. Developed two analytical techniques with substantially improved detection limits and sensitivity: for atrazine and its byproducts in plants, and for isoxaflutole and its two primary metabolites in plants and soils. Using the latter method, showed that the herbicidal metabolite of isoxaflutole, which has been detected in surface waters, is broken down by chlorine used in surface drinking water treatment plants. The breakdown products were shown to be below toxicity levels.

Plans: Develop techniques for irrigation system management in southeast Missouri using site-specific management technologies. Develop sensing technologies to measure impact of variable soil and landscape properties important in precision agriculture on water quality. Provide tools that reduce the environmental impact of agriculture at the watershed scale.

Columbus, OH
Accomplishments: Three field scale water management systems have been established in northwest Ohio on farmer-operated cropland to capture, treat, store, and reuse drainage water. When properly managed, these systems collect and recycle runoff and drainage waters, thus reducing the amount of sediment and agricultural nutrients lost from croplands to surface waters. The systems have the potential to produce zero discharge to streams, thereby helping to improve water quality and reduce peak flow discharges. Other benefits include increased wetland habitat, greater crop yields, and maybe, decreased flooding potential downstream.

Plans:
Initiate hydrologic and water quality monitoring at two field sites. Obtain corn and soybean yield data. Identify farmer cooperators and field sites to monitor flow, water quality parameters, and crop yields. Complete spring, summer, and fall irrigation studies. Identify field site locations for soil quality assessment. Conduct laboratory soil column experiments. Greenhouse and field screening of soybean cultivars. Monitor wetland inflow and outflow amounts and water quality. Conduct laboratory tests of flow-cell filter materials for nitrate and atrazine removal from water. Develop and implement a precision nutrient management special Environmental Quality Incentives Program (EQIP) program with the Natural Resources Conservation Service (NRCS) and Delaware soil and water conservation district (SWCD) in designated treatment watersheds. Inventory existing conservation practices in paired watersheds. Complete 3rd year of data collection and analysis for select pesticides in paired watersheds. Assess status of current pesticide management contracts. Complete 2nd year of measurement of hydrology and water

chemistry indices in different land use watersheds. Sample instream habitat and aquatic communities from four watersheds in spring, summer, and fall. Sample geomorphology, instream habitat, riparian habitat, aquatic communities from headwater streams and agricultural drainage ditches. Parameterize Soil and Water Assessment Tool (SWAT) model for paired watersheds and larger Upper Big Walnut Creek watershed.

Corvallis, OR
Accomplishments: Improved weather data for flood prediction are available, but the most appropriate model to use those data needs to be identified. The ARS SWAT model that simulates hydrology and agricultural practices effects on water quality. An automated calibration was used to simultaneously optimize 130 SWAT variables to predict flooding using hourly radar data provided by the National Weather Service (NWS) from five study watersheds. The predictions from the calibrated models using NWS data were among the best compared with results from other national modeling teams. This research makes the SWAT model easily accessible for problem solving in any watershed

Plans: The new model approach applicable to different landscape scales is being developed with USDA Economic Research Service to determine the effects of removing cellulosic feedstock for biofuel production on water quality in the Pacific Northwest and Midwest States regions.

Coshocton, OH
Accomplishments: 1) A 9-yr study revealed that 60 to 99% of the losses of four herbicides were the result of just 5 of the ~1800 storms during this period, not necessarily due to big storms. Knowledge of the overwhelming effect of infrequent events on herbicide losses in runoff will promote the development of land practices that minimize losses. 2) Duration curves of soil-water content (plots of the percent of time particular soil-water content is exceeded) were shown as a simple way to characterize pore sizes that will fill with water in the soil. 3) A multi-disciplinary management-intensive grazing project compared a continuous cattle-grazing system with a daily rotation grazing system with regards to forage quality, animal health and human health benefits, and environmental impacts. Early results indicate that intensive grazing allowed more grazing days during the summer than continuous grazing, and there was excess forage early in the season from the intensive grazing that was baled for hay. Calf weaning weights favored the continuous grazing system. Insufficient data have been collected to observe environmental response trends. These preliminary results have been of major interest to stakeholders. 4) Biofuel production, including that which is produced from plant residue, is seen as a possibility to reduce the use of petroleum based fuels. Results show that if more than 25% of the corn residue is removed, reduced soil carbon and reduced soil structural stability can occur in as little as one year. This research indicates that the amount of plant residue that can be removed without detrimental impacts on soil properties due to conservation tillage may be limited. 5) Data are continuing to be collected for other ongoing studies such as urbanization, duration curves for watershed runoff and water quality, water quality of tile lines under pastures used for grass-based dairies, paper mill sludge on surface mines, performance of filter socks for controlling water quality, and manure application on frozen soil are continuing.

El Reno, OK
Accomplishments: ARS scientists from the Grazinglands Research Laboratory, El Reno, Oklahoma, demonstrated that a subset of measurements of soil water content can be used to validate the soil moisture products derived from the

recently deployed Advanced Microwave Scanning Radiometer (AMSR). The study was conducted using data derived from a distributed soil water content measurement network deployed on the Little Washita River Experimental Watershed, located in south western Oklahoma. Large-scale hydrologic modeling, such as that being undertaken in the Conservation Effectiveness Assessment Program, can be improved by incorporating estimates of soil Water content over the study area. Additional impacts include improved drought monitoring and crop yield forecasting, and improved flood forecasting.

Standardized model calibration and validation guidelines are needed to establish a common system for judging model performance and comparing various models for the 14 ARS benchmark and 35 NRCS special emphasis watersheds of the Conservation Effects Assessment Project(CEAP). Scientists from multiple ARS locations (El Reno, OK; Temple, TX; Oxford, MS; University Park, PA) established model evaluation guidelines for systematic quantification of accuracy in CEAP-WAS simulations. These guidelines will assist CEAP-WAS modelers in calibrating and validating region-specific watershed models. The calibrated and validated models, and the corresponding model output uncertainty resulting from spatial and temporal resolutions of input data sets, will be used to develop decision support tools for selection and placement of conservation practices on the landscape to meet desired environmental endpoints. In addition, the established standardized model performance guidelines will increase accountability and public acceptance of models to support scientific research and to guide policy, regulatory, and management decision-making.

Plans:
Complete analyses of first 3 yrs of bi-weekly water quality data. Develop 2005 land use / land cover data set. Collect meteorological data. Collect stream gauge stage data. Baseflow and storm event flow water quality sampling at USGS stream gauges. Conduct rapid geomorphic assessment. Complete sediment source tracking. Complete Soil Management Assessment Framework (SMAF) soil sample collection and begin SMAF sample analysis. Begin collection of soil cores at SMAF sites. Complete model calibration/ validation for selected watersheds. Build Soil Water Assessment Tool (SWAT)-MOD project and complete model calibration/validation study. Build SWAT project (surface runoff study) Build SWAT-MOD project (ground water study). Build SWAT project using NRCS SSURGO data as detailed soils input data layer. Analyze simulation results using SSURGO as input data layer

Fayetteville, AK
Accomplishments: Phosphorus runoff from biosolids negatively impacts water quality. A new best management practice using water treatment residuals such as alum sludge has been developed to help eliminate this problem. Addition of alum sludge to biosolids significantly reduces phosphorus losses in runoff after the biosolids have been applied to agricultural land.

Plans: A long-term study will be conducted on the impacts of various pasture management strategies on pasture hydrology, nutrient runoff, soil erosion and forage production. The results of this study will be utilized to revise the Arkansas Phosphorus Index (a decision tool to identify areas on a farm that are susceptible to phosphorus losses). Another long-term study will be conducted to determine the effects of pasture renovation and soil incorporation of poultry litter on phosphorus in runoff, ammonia emissions and forage yields.

Florence, SC
Accomplishments: While variable rate irrigation provides farmers with a tool to spatially allocate limited water resources along with potentially increasing profits, management of these irrigation systems requires rapid and reliable data. ARS scientists conducted variable rate irrigation experiments to evaluate methods of obtaining these irrigation management data, under the variable-rate, center pivot irrigation system developed at ARS-Florence, that has the capacity to variably irrigate 144 treatment plots. The treatments consisted of 4 irrigation timings and 2 crop planting dates, imposed on 4 soil mapping units. Two types of sensors were employed: 1) Vegetative-index sensors mounted on both tractor and aircraft were used to estimate plant biomass; and 2) Infra-red thermometers mounted on a tractor were used to measure crop canopy temperatures. Preliminary results indicate that vegetative-index sensors adequately determined spatial canopy biomass, and were also effective in determining site-specific plant water needs. The infra-red thermometers identified field areas experiencing water stress, indicating they could be used to control site-specific irrigations. Results from this study can help farmers develop variable rate irrigation management systems -- saving water and money.

Plans: Develop water management strategies in humid areas that optimize spatial and temporal water applications. Develop and explore spatial nutrient management for irrigated and non-irrigated crops in humid areas. Develop practices that increase crop water use efficiency in rainfed/irrigated cropping systems in relation to tillage, irrigation, and crop management practices. Develop practices and technologies that enhance denitrification in riparian buffers and wetlands for improving water quality in streams.

Ft. Collins, CO
Accomplishments: A new N index tool, derived from advances in simulation modeling and field data from multiple countries, was developed in spreadsheet form to quickly assess N losses and suggest alternative management practices to conserve environmental quality.

Plans: Determine the best management approaches that improve soil quality and nutrient-use-efficiency that will also decrease residual soil nitrate for irrigated, high-value crops grown on saline soils. Assess simulation and remote sensing technology to improve crop performance for the Midwest, Great Plains, and Southwest and integrate into a decision support system for NRCS to maximize economic returns and minimize environmental impacts on farms and ranches.

Ft. Pierce, FL
Accomplishments: ARS team research efforts have led to the discovery of efficient and effective systems for protecting water quality, promoting water conservation, and improving nutrient use efficiency for humid-climate container nursery crop production. Nursery substrates amended with clay instead of sand required less irrigation and leached lower levels of phosphorous from containers. Constructed wetland and bacterial-based bioreactor systems were found to be an effective way for remediating nursery runoff water of nitrogen, but not phosphorous. An algal-based photo-tubular bioreactor also showed possible applications in removing nutrients in runoff, but this system is probably more applicable to greenhouse production operations. Simulated nursery beds were constructed to assess bed construction materials and slope on both surface and seepage of runoff

volumes. A nutrient-ion calculator was developed as a tool to assist in producing nutrient solutions based on specific ions rather than salts.

Plans: Improve water conservation and reduce nutrient and pesticide accumulation in the irrigation of field and container-grown crops. Determine the fate and transport of nutrients and pesticides used on horticultural crops and potential for contamination of aquatic environments. Develop management practices that reduce losses of nutrients and pesticides into water resources. Assess the potential of aquatic plants and algal species to purify horticultural runoff of excess nutrients and pesticides.

Gainesville, FL
Accomplishments: Planting beds covered with virtually impermeable film (VIF) was more effective than other row covers or barrier films primarily because VIF decreased the volatilization losses to the atmosphere. These findings indicate that VIF film row covers can increase the efficacy of fumigants and might decrease the required amount of material to be applied for strawberry and vegetable crops. Shank injection appeared to be better than either roto-tilled incorporation or drip-tube application of methyl bromide fumigants in Florida soil conditions.

Plans: Determine the efficiency of various barrier films, and absorbents, catalysts, and or reactants applied to the film or soil surface. Improve efficacy of methyl bromide alternative fumigants by promoting uniform dispersion and solubility in the liquid phase in soil. The soil scientist on this project has retired, and research related directly to soil, water, and air resource evaluations will be discontinued in 2006 and 2007.

Ithaca, NY
Accomplishments: Acid soils comprise up to 50% of the world's arable lands, and on these soils aluminum (Al) toxicity is a major factor limiting crop production. Identified two major Al tolerance quantitative trait loci (QTLs) in Arabidopsis that involve the Al-activated release from the roots of the Al detoxifying organic acid genes as the underlying mechanism.

Plans: This work is providing key information that ultimately will be used to isolate Al tolerance genes to use via biotechnology, to develop more Al tolerant food crops.

Kimberly, ID
Accomplishments: Potatoes planted with five or seven rows per 12-ft wide bed had greater yield of U.S. No. 1 grade tubers compared to potatoes conventionally planted in four hilled rows in the first year of this study. Potatoes planted with seven rows per bed produced yields equivalent to conventional planting with 20 percent less water applied. Bed planting potatoes increased water and nitrogen use efficiency and increased gross return up to $300 per acre.

Plans: Optimum plant spacing for bed-planted potatoes will be investigated. Development of improved tools for controlling and predicting irrigation-induced soil erosion will continue.

Lincoln, NE
Accomplishments: Factors affecting availability of stover for use as a biomass feedstock for ethanol production and the stover requirements for maintenance of soil organic C have been identified, thus providing NRCS with

information needed to produce technical notes for conservation practices used by producers harvesting crop residue for off-farm use.

Plans: Develop site-specific management strategies that enhance soil carbon storage on farms in the western Corn Belt and central Great Plains regions that use optimal fertilizer application and nutrient cycling to maximize nutrient recovery and minimize water quality impact under difficult irrigated conditions.

Lubbock, TX
Accomplishments: ARS scientists from Lubbock, Texas, and Akron, Colorado, compared soil microbial properties under different native pastures and different intensities of cropping after 15 years of management in Akron, Colorado. The native pasture and undisturbed grass plots showed higher soil carbon due to soil microbes in the topsoil when compared to the cropping systems. For long-term agricultural activities in semiarid regions, the combination of no-tillage and continuous cropping with reduced fallow frequency has positive effects on soil quality parameters.

Plans: Define plant and soil surface properties that impact wind erosion processes at the field-scale level to provide recommendations for mitigation strategies so agricultural practices can be developed that control wind erosion. Develop procedures to use climate condition and weather variability predictions for new management strategies that will allow agriculture to remain productive and profitable while reducing its dependence upon the irrigation water from the Ogallala.

Madison, WI
Accomplishments: Nutrient management plans for livestock operations must account for rates and timing of manure application to cropland, as well as how manure is integrated with other nutrient sources. Little is known about when, where and how much dairy manure farmers apply to their fields and if application practices conform to recommendations and regulations. Methods were developed and implemented to track fertilizer, manure, legume nitrogen and phosphorus applications to cropland. A study on 33 Wisconsin dairy farms revealed that: farmers were integrating fertilizer-manure-legume management much more than previously thought; relatively few farms would need to change current practices to meet proposed Wisconsin Nutrient Management Standards; and only a small number of farmers were employing nutrient management practices that would be detrimental to water quality. Policy makers are using this information to strategically allocate cost-sharing funds to cropland areas and farmer practices where water quality improvements can be made.

Plans: Determine the effects of manure and crop management practices on nutrients, sediment and pathogens in surface runoff. Determine the effects of season, dairy diet, and field management of manure on gaseous emissions of ammonia, nitrous oxide, carbon dioxide, methane and volatile organic compounds. Determine the effects of land application of dairy manure on nutrient uptake and nutritional characteristics of annual and perennial forages.

Mandan, ND
Accomplishments: Crop diversification in the northern Great Plains has resulted in the use of crop species that leave significantly less residue on the soil surface relative to traditional cereal grains. There is concern that increased crop diversification may compromise critical soil functions linked to residue retention on the soil surface, such as water infiltration and

storage, nutrient conservation, and resistance to erosion. Crop residue coverage of the soil surface was quantified for 10 crops (buckwheat, canola, chickpea, corn, dry pea, grain sorghum, lentil, sunflower, proso millet, and spring wheat) on two sites in west central North Dakota. Crop sequences composed of spring wheat, proso millet, and grain sorghum possessed greater crop residue coverage of soil compared to other crops. This information can help mitigate potential negative agronomic and environmental impacts as agricultural producers managing fragile soils should sequence crops providing higher residue coverage, before crops providing lower residue coverage.

Plans: Develop long-term, diverse cropping systems integrating optimal combinations of alternative and conventional crops, tillage practices, crop sequences, crop rotations, residue management, and soil fertility that improve crop production, soil quality, precipitation use, weed, and disease control, and reduce pesticide use.

Manhattan, KS
Accomplishments: Accuracy of predicted wind erosion from the wind erosion prediction system (WEPS) model was improved by accounting for differences in wind speed distributions on wet and dry days, and developing theory and code that account for continual modifications to soil surfaces that occur during erosion events. It was also found that in spite of temporally limited wind data, it is possible to use WEPS to estimate wind erosion hazard and the relative effectiveness of various conservation practices, thus providing a tool that can be used to design improved conservation practices for mitigating soil wind erosion.

Plans: The enhanced user-friendly, science-based WEPS will be in every NRCS Farm Service Center in the United States and many countries throughout the world, to provide recommendations on how to reduce the particulate emissions from the soil and their deleterious effect on air quality. Scientists will continue to improve WEPS for range, forest, and disturbed lands to help identify practices that reduce particulate emissions from wind erosion processes.

Maricopa (formerly Phoenix), AZ
Accomplishments: Water and sediment samples were analyzed to determine the reason for die-off of bull rushes in a constructed wetland used to reclaim effluent from a sewer treatment plant in Phoenix, AZ. The die-off was caused by both nutrient and water stress. This has implications for expanded use of these constructed wetlands for water quality improvement. New software, WinSRFR version 2, for helping to improve the performance of surface irrigation systems was released in late 2007. The software can be used to determine the existing conditions and performance for an irrigated field, and then to provide recommendations for improved performance. The prior version is being used by NRCS to evaluate proposed surface irrigation improvement under EQIP. The new version of the software should make this easier and the results more reliable.

A new training tool was developed for canal operators who utilize SCADA systems (Supervisory Control and Data Acquisition). These systems are becoming increasingly more common for water and irrigation districts. The training tool replaces the actual canal with a simulation model of the canal and its gates. When properly configured, the operator should not be able to tell whether (s)he is operating the real canal or the simulated canal. The system allows training of new operators and can be used to evaluate operator response under extreme conditions that are unsafe to test on the real canal.

Plans: The ability to predict soil erosion from surface irrigated fields and additional surface irrigation design features will be added to the WinSRFR software. Recommendations will be provided to the Arizona Department of Water Resources on their trial Agricultural Best Management Practices program for management of groundwater. Field studies will be conducted on cotton and camolina to test the use of remote-sensing based crop coefficients for irrigation scheduling. Lysimeters will be installed and monitored to determine the fate of pathogens and pharmaceuticals when treated wastewater effluent used for irrigation of turf grass.

Miami, FL
Accomplishments: The USDA-ARS, Everglades Agro-Hydrology Model (EAHM) was developed to assist farmers and user agencies in predicting the possible effect of Everglade's restoration on crop production and water quality in South Florida. The model is being linked with the South Florida regional model for use in future planning for the "Sustainable South Florida project". In 2007, the project was expanded into two groups--the Hydrology Group and the Agronomy Group--to cover regional water quality and plant water use efficiency issues.

Plan: Develop an inexpensive, readily available potting substrate from commercial nursery waste and construction debris. Identify commercially marketable plants that can act as biological accumulators for use in border strips to reduce offsite movement of hazardous materials generated by nursery operations. Determine soil physical and hydrological characteristics of containerized horticultural and floricultural production systems for the development of on- and off-site water quality decision support systems.

Mississippi State, MS
Accomplishments: When broiler litter is applied to a crop based on nitrogen requirement the phosphorus applied is above crop needs. Increasing phosphorus levels in soil can increase the potential for pollution of surface water through runoff. A field study indicated that phosphorus-based broiler litter application produced similar forage yields as nitrogen based litter application, but significantly reduced phosphorus accumulation in soil thus reducing phosphorus in runoff. Alternative harvesting methods can be used to optimize recovery of broiler litter nutrients in bermudagrass hay. Changing the cutting height from 9 cm to 3 cm resulted in a 24-30% increase in phosphorus uptake. Changing the harvest interval from 29 days to 49 days increased phosphorus uptake by 27%.

Plans: Measure water quantity and quality in runoff from nine watersheds as a function of presence or absence of grazing and presence or absence of poultry litter fertilization. Determine manure nutrient fate in soil and changes in soil quality resulting from long-term fertilization with poultry litter or swine effluent.

Morris, MN
Accomplishments: A study was conducted to measure how quickly Isoxaflutole, a relatively new pre-emergence herbicide used in corn production, was degraded in soil, and to what extent the herbicide and its breakdown product, diketonitrile (DKN), were transported through soil under typical field conditions in a moist, cool environment. Herbicide measurements and simulation modeling showed that little of the herbicide moved deeper than the plant root zone, and that herbicide uptake by plants may be an important route of herbicide dissipation. The results of these studies will help guide additional research to quantify the processes affecting pesticide dissipation

under field conditions, and will be useful to federal and state regulatory agencies and pesticide manufacturers when evaluating pesticide labeling requirements and application restrictions.

Orono, ME
Accomplishments: Dairy cattle manure is a source of nutrients for plant growth, however, the rate at which these nutrients become plant available depends on many factors. ARS found that difference in microbial populations present in different soil types before manure was ever applied was the factor that most greatly influenced nitrogen transformation rates. This research showed that the commonly overlooked differences in microbial communities across soils must be considered for developing accurate predictions of manure nitrogen availability to crops. Also, many current manure nitrogen (N) management recommendations focus on efficient use of manure N for warm-season corn silage or grain production. However, cool-season small grain crops like barley and wheat are increasingly being grown on organic dairy farms in the Northeastern U.S., so there is a need to expand the scope of manure nutrient recommendations to include these kinds of crops. This research showed that problems with limited retention of N from fall-applied manure with minimal uptake the following spring could be overcome with banded applications of liquid manure in the spring. This approach resulted in both increased crop growth and nutrient uptake by reducing gaseous nitrogen losses.

Oxford, MS
Accomplishments: Vegetated wetlands located at field edges may provide low-cost, natural means to clean sediments and chemicals in runoff from fields. A constructed wetland was subjected to an artificial runoff event dosed with agricultural insecticides. Bioassays and chemical analyses of water and sediments showed that bottom sediments initially removed insecticide from the water, but later released the trapped insecticide back into the wetland water. In a related experiment, significant fractions of insecticides were tied up in plant roots, leaves and stems of aquatic plants. This research provided information about trapping mechanisms that is foundational for designing wetlands as agricultural pollution controls.

Plans: A series of experiments will be conducted to determine the potential for a variety of native aquatic plant species in mitigating effects of pesticides or nutrients in runoff from fields. In other studies, quality of recovered irrigation water (tailwater) following treatment through a wetland system will be evaluated for potential reuse of the tailwater for cropland irrigation or to be released into aquatic receiving systems.

Parlier, CA
Accomplishments: The water requirements for irrigated garlic were determined for a garlic crop grown in a saline soil on the West side of the San Joaquin Valley. It was determined that irrigating at less than 100% of the crop evapotranspiration would result in significant yield losses, but application in excess of 100% evapotranspiration did not result in increased yields. Alfalfa was found to use in excess of 50% of its water requirement from shallow groundwater provided that the electrical conductivity was less than 2 dS/m. Different plant and tree species have been evaluated for their ability to tolerate irrigation with poor water quality and growth in shallow water table sites high in salinity, selenium, and Boron.

Plans: Complete study on crop coefficient and water requirement for garlic and start the onion crop study. Initiate micro-plot and field studies on growing alternative crops on saline soils and with poor quality waters.

Determine water use study by peach trees using infrared canopy temperature and energy balance approaches.

Pendleton, OR
Accomplishments: The prospect of storing carbon in soil provides an opportunity for agriculture to contribute to the reduction of carbon dioxide in the atmosphere, but models for predicted results are needed. The CQESTR model, a tool for evaluating soil carbon storage or loss was modified to fully utilize cumulative degree-days and thus improved its predictions for the Southeastern U.S. and subtropical areas. With this recent modification, CQESTR now has the potential to be used nationwide to assess long-term effects of cropping systems or crop residue removal on carbon storage/loss in agricultural soils.

Plans: Determine the effects of carbon on soil aggregate stability and how it influences surface soil hydrology, soil erosion, and crop production. Develop new harvest technologies that properly size crop residue for optimal no-till drill performance and that segregate grain by quality to add value.

Peoria, IL
Accomplishments: A variety of odorous chemicals are produced by the anaerobic bacteria that occur in stored swine manure. One of the more odorous and potentially health-threatening of these compounds is hydrogen sulfide. The primary producers of this compound are sulfate-reducing bacteria, but little is known about the presence of these bacteria in stored swine manure. This research resulted in the isolation and identification of sulfate-reducing bacteria from swine manure and development of methods for detection and quantification of different groups of these bacteria. The information gained from this and additional studies will be useful in isolating, identifying, and quantifying other microbial groups involved in the anaerobic production of volatile emissions from stored manure.

Plans: Develop fundamental knowledge concerning the microbial populations of swine manure and the swine intestinal tract. Apply this knowledge to understand the relationship between microbial populations and the production of odorous compounds. Develop improved methods to quantitate changes in bacterial populations in feces and stored manure and correlate these changes with odorous compounds produced.

Prosser, WA
Accomplishments: Switchgrass has the potential to sequester soil carbon and supply a portion of U.S. energy needs. The export of essential plant nutrients were measured to determined in the irrigated Pacific Northwest where potatoes are the primary crop. Above ground switchgrass biomass yields averaged 22 metric tons/ha/year which required 1 kg of nitrogen to produce each 83 kg of biomass. Bioenergy crop producers can use this information to adjust fertilization rates to meet their feedstock production goals. In addition, these data can be used in the development of secondary markets, such as C-trading or by ethanol producers interested in nutrient recovery for production of fertilizer or animal feed supplements.

Plans: Determine how to optimally incorporate energy crops into potato-based production systems and determine the mechanisms that control carbon and nitrogen cycling and trace gas fluxes under reduced tillage.

Pullman, WA
Accomplishments: In no-tillage cropping systems in the 300 mm rainfall zone, soil organic carbon and soil aggregates increased to approach levels found in undisturbed, native soil. No tillage cropping systems without summer fallow provide protection against wind erosion and show potential to improve soil quality. Also, lower PM10 emissions resulted from using an under-cutter tillage implement during primary tillage rather than a conventional disk or sweep implement. This technology could potentially reduce dust emissions and improve air quality throughout the Columbia Plateau. For most cold or heavy snow areas, accumulation and snow melt timing estimates can be obtained using the Soil-Plant-Air-Water (SPAW) model with the daily temperature and precipitation values from Revised Universal Soil Loss Equation Version 2 (RUSLE2) databases. This approach enables the development of RUSLE2 erosivity databases for estimating erosion caused by both snowmelt and rainfall.

Riverside, CA
Accomplishments: Researchers demonstrated that agricultural drainage water from the west side of the San Joaquin Valley can be used to reclaim an existing marginally productive saline-sodic soil and increase forage yield and quality. The project utilized previously developed electromagnetic sensor technology for soil electrical conductivity to accurately monitor soil salinity and related soil properties. This 5 year research project confirms the short-term viability of drainage water reuse as an alternative water source and as a means of reducing drainage volumes, thereby reducing the need for evaporation ponds or drainage conveyance systems in the San Joaquin Valley.

Plans: Develop knowledge and resultant decision support tools including guidelines and user friendly software for salinity and toxic element control, monitoring methodology, information on crop response to specific water compositions, crop selection, and management practices to enable reuse of agricultural and municipal waste waters for irrigation. Quantify processes that affect the efficiency of pesticides and fumigants and their transport to surface and ground water.

Salinas, CA
Accomplishments: Cover crops are important in organic vegetable rotations not only because they increase soil organic matter, but also reduce nitrate leaching and suppress weeds. Seeding cover crops at higher than standard seeding rates increased weed suppression and early-season biomass production by the cover crops. They also found that there was no benefit to planting cover crops in a more uniform grid-like pattern with two tractor-passes over each field because not only was weed suppression not increased, but also there were increased fuel use and labor costs.

Plans: Continue to identify management strategies that increase the productivity and competitive ability of organic cool-season vegetable producers. Determine the cumulative effects of cover crops on weed suppression, soil quality, nutrient availability and yield in organic vegetable production systems.

Sidney, MT
Accomplishments: Three years of strip tillage research on sprinkler irrigated sugarbeets has realized substantial fuel savings with this system by greatly reducing the number of tractor field passes compared to conventional practices. Percent sucrose in the beets was consistently higher in the strip tilled plots with equivalent yields, than conventional tillage methods. About

5000 acres were strip tilled in 2007 by growers in the MonDak region. It was also found that less intensive tillage, such as no-till or strip tillage, along with careful irrigation management reduces soil CO2 evolution from land being converted from perennial forages to annual crops.

Plans: Determine the economic and environmental benefits from improved soil and water management, diverse crop rotations, reduced tillage, and the bundling of specific groups of cultural practices on plant, soil and water resources. Calibrate existing models and integrate meteorological networks, remote sensing, and GIC soil characteristics and yield monitor maps to regionally extend research results.

St. Paul, MN
Accomplishments: Researchers developed an improved method for measuring near surface soil water flow. The design of improved reduced tillage, cover crop, and companion crop systems would be facilitated by more accurate measurements of heat and water flow near the soil surface. One potentially applicable method is the heat pulse ratio method. This method has been tested in saturated soil, but additional testing is needed for unsaturated soil, and some limitations on the accuracy of the method need to be resolved. Developed a new way to process heat pulse ratio data to obtain more accurate measurements of soil water flow. The potential impact for this accomplishment is that it will lead to more accurate data for scientists who apply the method in field studies of soil water flow.

Plans: Conduct field research to determine the efficacy of a winter rye cover crop in reducing nitrate concentrations in drainage water from fields where dairy manure is injected following corn silage harvest. Develop practices to reduce pesticide contamination of runoff from turf grass.

Stillwater, OK
Accomplishments: A specific hydraulic model study and preliminary summary report for a proposed spillway for Renwick Dam in North Dakota, was completed. The beta version of the computer engineering application tool WIDAM, as a cooperative effort between the Hydraulic Engineering Research Unit Laboratory, Natural Resources Conservation Service, and Kansas State University, has been completed. The software will allow users to evaluate overtopping limits of vegetated embankments without failing the vegetation, and also determine the amount of flow through the principle spillway(s), auxiliary spillway(s), and over the vegetated or rock rip-rap protected earthen embankment. Finally, a series of tests were conducted in the laboratory using jet erosion test equipment to measure the change in erosion resistance of soil materials at different water contents and compaction energy. The results indicate that the type of soil (i.e. sand, silt, and clay), compaction water content, and compaction energy are all important in determining erosion resistance of a soil and can effect erosion resistance by more than 1000 times. This research is important for engineers when specifying compaction requirements for construction of earthen embankments and will have important implications in improving embankment and levee safety during flooding events.

Plans: Improve understanding of the erosion processes of earth spillways, embankments, and channels subjected to extreme flood conditions. Develop predictive tools for use in evaluating the performance of embankment dams and related structures subjected to hydraulic attack in excess of design conditions. Assist NRCS in implementing tools and developing criteria for

engineering practices related to stabilizing streambeds, stream banks, and sediments, and/or delay embankment breach.

Stoneville, MS

Accomplishments: The highest returns and lowest relative risks of economic loss for cotton production on Mississippi Delta alluvial soils were obtained with a traditional no-till production system. Neither cover crops nor subsoiling increased yield sufficiently to offset the additional expenses associated with these practices. Conventional production practices, while giving relatively high returns, also had the greatest risk of economic loss. Also, an easy-to-use irrigation scheduling method was developed for cotton production in the Mississippi Delta. The irrigation scheduling tool, nicknamed the UGA EASY Pan, allows producers to visually measure the amount of evaporation that occurs on their farms. Calibration of the system to crop water use measured with soil water sensors established a baseline trigger level for irrigation of cotton in clay soils. Use of the system indicated a potential savings in frequency of irrigations. Research results indicate that planting soybean in narrow rows rather than wide rows can reduce transport of the herbicide metolachlor from runoff, thereby protecting surface water quality. This is a significant advance since producers are rapidly adopting narrow-row cropping systems.

Plans: Assessment of crop water needs for conservation management practices are needed so producers can more economically implement conservation practices. However, tools to monitor crop water use and indicate water stress are not available. Monitoring systems will be developed to determine the onset of water stress for irrigation scheduling in conservation-based systems. Development of remote imaging technologies will benefit farmers by providing rapid, accurate, area-wide monitoring of crop water use, and indicate the need for supplemental irrigation. Assess weed management and conservation practice affects on soil biological, chemical, and physical properties and determine how soil spatial variability can be used to develop site specific management strategies. Determine how herbicide movement and microbial degradation affect weed management to improve management strategies that minimize non-target herbicide effects in watersheds.

Temple, TX

Accomplishments: The U.S. Environmental Protection Agency (EPA) and state environmental agencies have identified approximately 15,000 water quality impaired water bodies in the U.S. Agricultural production has been identified as a major nonpoint source of water contamination. At the same time, USDA is mandated to conduct a thorough analysis of the risks and benefits of USDA's conservation programs to human health, safety, and environment, determine alternative ways of reducing risk, and conduct cost-benefits assessments. Models at various spatial scales, from field to river basin, are required to predict the impact of land management alternatives on the environment and agricultural production. Scientists at the Grassland, Soil and Water Research Laboratory, Temple, TX, developed a river basin scale model called SWAT (Soil and Water Assessment Tool) that integrates hydrology, soil erosion, plant growth, and nutrient cycling with off-site processes such as channel erosion/deposition, pond and reservoir processes, groundwater flow, and climate variability. Numerous interfaces have been developed for the model to assist users in obtaining model inputs and interpreting model outputs. The model was calibrated and validated, and uncertainty analysis was performed on the CEAP Benchmark Watersheds and other watersheds around the world. In general, the model compared well with measured stream flow, sediment and nutrient loads and concentrations. The model is being used

across the country by EPA to assess water quality concerns and by USDA to assess the environmental impact of conservation programs. Scientists around the world are contributing to model development, and over 350 articles on SWAT development and application are found in the refereed literature.

Plans:
Establish data collection sites at the Riesel and Mustang Creek watersheds. Compile available phosphorus (P) index data. Establish grass plots at three TX sites. Complete SWAT model input development on the Leon and Riesel watersheds. Identify model components that need refinement. Conduct a literature review on plant nutrient uptake from dairy and poultry manure. Develop all input files for SWAT for the U.S. Deliver the SWAT model to Conservation Effects Assessment Project (CEAP) Group 4 for linkage with economic optimization model. Complete training on OMS (Object Modeling System).

Tifton, GA
Accomplishments: Long-term (up to 37 yr) stream flow and water quality data have been collected on the Little River Experimental Watershed (LREW) in south-central Georgia, U.S. A database, containing the hydrologic and water quality data, geographic spatial data layers for terrain, soils, geology, and vegetation, and conservation practices installed upon the watershed was developed and documented in six published manuscripts and the data made available via a public ftp site. The accuracy of the SWAT watershed model simulations for flow patterns in Southeastern Coastal Plain Watersheds has been significantly improved.

Plans: Determine water quality impacts of conservation buffers and best management practices at field, farm, and watershed scales on nutrient, pesticide, microorganisms from animal wastes, and sediment transport and incorporate information into models that quantify the impact of buffer systems on water quality for Suwannee Basin and other Coastal Plain watersheds. Develop remote sensing procedures to better estimate watershed and landscape-scale implementations and effects of conservation practices on carbon sequestration, water use efficiency, and disease and nutrient management.

Tucson, AZ
Accomplishments: In fiscal year 2007, version 1.5 of the PC-based Automated Geospatial Watershed Assessment (AGWA) tool, developed by the Southwest Watershed Research Center in Tucson, with the Enivironmental Protection Agency (EPA) National Exposure Research Laboratory in Las Vegas and the University of Arizona, was accepted as a tool within EPA's Better Assessment Science Integrating point & Non-point Sources (BASINS) tool and the EPA Council for Regulatory Environmental Modeling (CREM) models knowledge base. AGWA has also been adopted by NASA's Applied Sciences Directorate as part of the agencies Earth Science Enterprise. The Arizona Non-point Education for Municipal Officials Program, in cooperation with the Arizona Department of Environmental Quality, is using AGWA to assist in the development of watershed-based plans for the major drainages in Arizona. It is utilized by the USDA and the U.S. Department of the Interior, by non-government agencies and private industry; and as a research and teaching tool by many universities, such as the University of Arizona, University of Wyoming, University of Nevada Las Vegas, University of New Mexico, New Mexico State University, and San Diego State University. Currently there are more than 1400 registered users. For this, AGWA has been awarded the EPA Bronze Medal Award. The Bronze Medal is the highest award that can be achieved within the

EPA Office of Research and Development and it symbolizes superior acts of accomplishment.

Plans: AGWA will be reprogrammed to utilize the more powerful geographic information system capabilities of ARCGIS and it will be formally released at the American Water Resources Association Annual Meeting. The beta version of the internet version of AGWA (dotAGWA) will also be released. Model capability will be expanded to treat a number of rangeland best management practices for use in the NRCS Rangeland CEAP project.

University Park, PA
Accomplishments: A series of tests of laboratory protocols and runoff studies involving twelve ARS and university laboratories culminated in the recommendation of a universal test for manures and biosolids that is readily carried out by commercial and research laboratories. This universal test supports phosphorus-based management efforts in North America, particularly the sustainable land application of livestock manures and biosolids from waste water treatment plants and has already been adopted by a variety of commercial and state testing facilities.

Urbana, IL
Accomplishments: Factors controlling atrazine degradation were examined in soil from an atrazine spill, using soil process and microbial ecology measurements. The soil exhibited a high rate of atrazine degradation accompanied by accumulation of degradation products (hydroxyatrazine and cyanuric acid), and biodegradation was limited primarily by bioavailability.

Plans: Identify mechanisms of herbicide persistence associated with carryover damage and offsite movement and determine the role of microbial inhibition in biodegradation of herbicides with anti-microbial properties. Discover how microorganisms access weed seeds and the factors that regulate decay.

Weslaco, TX
Accomplishments: ARS scientists at Weslaco, TX, used a recently-developed airborne electronic imaging system with visible/near-infrared/middle-infrared sensitivity for a variety of natural resource applications. Giant reed is an exotic grass that invades riparian sites in the southwestern U.S. ARS scientists at the Kika de la Garza Subtropical Agricultural Research Center, Weslaco, and the Grassland Protection Research Unit, Temple, TX, used QuickBird satellite imagery to distinguish giant reed infestations along a portion of the Rio Grande River in southwest TX. Both false color and normal color satellite imagery were evaluated for distinguishing giant reed. Accuracy assessments performed on computer classification maps of both types of imagery had producer's and user's accuracies for giant reed that ranged from 86% to 100%. Both false and normal color satellite imagery did an excellent job in distinguishing giant reed infestations. Waterhyacinth and waterlettuce are two floating aquatic weeds that invade freshwater waterways in the U.S. ARS scientists at Weslaco, TX, analyzed the potential of using QuickBird satellite imagery for distinguishing infestations of these two weeds in a south Texas reservoir. User's and producer's accuracies for waterhyacinth ranged from 74% to 100%. High resolution satellite imagery coupled with image analysis techniques can be useful tools for mapping these two aquatic weeds over extensive and inaccessible areas. Eurasian watermilfoil is a perennial aquatic weed that invades freshwater waterways throughout the U.S. ARS scientists at Weslaco, TX, conducted a cooperative study with Bureau of Reclamation scientist at Denver, CO, to evaluate remote sensing techniques for distinguishing Eurasian watermilfoil in TX waterways.

Field reflectance measurements showed that Eurasian watermilfoil could be spectrally distinguished from other associated plant species on both color-infrared aerial photography and videography, where it had a grayish-pink or faint pink image tonal response. Airborne videography was integrated with global positioning and geographic information system technologies to develop a map showing the distribution of Eurasian watermilfoil infestations along a stretch of the Rio Grande River in southwest Texas.

West Lafayette, IN
Accomplishments: Scientists at the ARS National Soil Erosion Research Laboratory observed in the Cedar Creek watershed, the largest tributary of the St. Joseph River, that unless intensive (i.e. daily or weekly) water sampling strategies are used, MCL exceedance my not accurately represent the actual pesticide levels in water used as drinking water sources. Water quality analysis also indicated that dredging of drainage ditches resulted in short-term (days to weeks) increases of nutrient and pesticides in water, but dredging could lower nutrients in water over longer periods (months to year). The SWAT and AnnAGNPS models were calibrated for hydrology and pesticides for the Cedar Creek watershed.

Plans: Develop a combined wind and water erosion model to determine soil erosion rates due to changing climatic drivers and impacts on agricultural production. Instrument and monitor tile drains in the Cedar Creek watershed to better understand contaminant transport and hydrology in the pot-hole topography of the Eastern Corn-belt. Quantify the effects of best management practices on pollutant loading to surface water sources at the Cedar Creek watershed.

Wyndmoor, PA
Accomplishments: Arbuscular mycorrhizal (AM) fungi are beneficial soil fungi that colonize crop plant roots and help them take up nutrients from the soil. These fungi are dependent on unknown factors received from the plant for their growth and reproduction. One factor from the plant which stimulates fungus growth has been identified, 2-hydroxytetradecanoic acid. This compound acts in synergistic fashion with other compounds isolated from root exudates to stimulate a substantial increase in branching of the thread-like hypae growing from germinating spores of AM fungi. Future studies of how this compound alters gene expression in the fungus may allow for growth of AM fungi in the absence of plants. This would result in abundant inoculum for farmers and a potential decrease in fertilizer application to agricultural soils.

Plans: Develop a practical and inexpensive arbuscular mycorrhizal fungus inoculum production system for utilization by small conventional farms, organic farms, and nurseries. Determine the contribution of AM fungi to carbon sequestration in agricultural soils. Measure glomalin concentrations from organic and conventionally farmed plots.

SOYBEAN RESEARCH

Ms. DeLauro: By location, please provide a brief description of the work you are doing on soybeans, accomplishments for the past two years, and the funding for fiscal years 2007 and 2008 and proposed for 2009.

Response: ARS conducts research on soybeans at many locations as part of a nationally managed, fully coordinated, multi-disciplinary approach to

solving soybean production and post-harvest problems. The objectives of this research are briefly described below, by location.

AUBURN, ALABAMA: Organic waste management systems in the southeastern United States are developed to preserve and improve the soil and environmental quality, and provide superior soil management techniques to reduce risk to crop production, including soybeans, from short-term drought.

ALBANY, CALIFORNIA: This site conducts research on transgenic alteration of oil composition of soybeans and other crops, and on improving food processing technology.

FT. COLLINS, COLORADO: This site is responsible for long-term storage, monitoring, and documentation for the base collection of all plant germplasm, including soybeans, within the U. S. National Plant Germplasm System and other organizations. It also conducts research key for developing optimal germplasm preservation methods.

NEWARK, DELAWARE: Research is focused on determining the ecological and genetic bases for strategies of host specificity of insect parasitoids and herbivores being introduced for biological control, including Chinese soybean aphid.

GAINESVILLE, FLORIDA: This site investigates the biological basis for yield loss due to high temperature, photosynthetic acclimation, and elevated CO2, and system analysis tools for understanding and predicting soybean and other crop responses to environmental stresses.

ATHENS, GEORGIA: This site develops radio-frequency and microwave technology to improve the reliability and accuracy of moisture content in seeds, including soybeans.

AMES, IOWA: Research at this site includes bioinformatic systems and curation of SoyBase and Legume Information System databases; characterization of the structure of the soybean genome and the function of its constituent genes, genetic characterization of germplasm, including sterility systems, for hybrids. Candidate genes for resistance to Asian soybean rust are also discovered.

PEORIA, ILLINOIS: At this site, researchers improve functional properties of oils by various methods to produce foods low in trans acids; improve combustion characteristics and fuel properties of vegetable oils; develop biocatalytic processes for producing enhanced industrial functionality of soybean oil; convert vegetable oils and phospholipids to skincare cosmetics, nutriceuticals, and chemical intermediates; vegetable oil use in printing ink, paint, hydraulic fluids, and lubricants; develop supercritical CO2-extraction methods; maintain a public genetic database for soybeans with altered seed composition; and improve quality and oxidative stability of edible commodity vegetable oils.

URBANA, ILLINOIS: Researchers at this site identify mechanisms of herbicide persistence in soils; biodegradation of herbicides; define regulatory elements controlling photosynthate production and partitioning, mechanistic basis for limitations on photosynthesis by stress, analyze photosynthetic productivity of soybean at elevated atmospheric CO2; elucidate genetic mechanisms of quantitative resistance and symbiosis, quantify genetic diversity in exotic germplasm; conserve the U.S. National Collection of

soybean germplasm; identify germplasm with resistance, biocontrols, and integrated pest management systems for soybean cyst nematode and Asian soybean rust; and develop biobased weed management strategies.

WEST LAFAYETTE, INDIANA: This site identifies and characterizes genes and gene products that control storage protein and oil accumulation during seed development and seed flavor in mature soybean, and develops soybeans with resistance to root rot pathogens such as *Phytophthora sojae* races and *Fusarium solani f.* sp. *glycines*.

MANHATTAN, KANSAS: ARS scientists conduct research to reduce cross-contamination and grain dust emissions from grain handling operations and methods for on-line quality assessment of whole grain.

NEW ORLEANS, LOUISIANA: Research at this site focuses on enzymatic control of phosphorus in feeds and animal waste; use of antifungal flavonoids as crop protectants; conversion of agricultural residues to value-added products; biological regulation of isoflavone synthesis in legumes, including soybean.

BELTSVILLE, MARYLAND: Soybean research at this location includes the impact of the environment and global change on crop nutritional value; metabolic and regulatory mechanisms that mediate plant tolerance to elevated tropospheric ozone or prolonged water stress; new forage cultivars for enhanced crop residue production to reduce soil erosion; genes involved in *Bradyrhizobium japonicum* symbiosis with soybean for enhanced nodulation competitiveness; maintains the ARS National *Rhiozobium* Germplasm Resource; genetic tools to identify and control defense-related gene expression associated with infection by soybean cyst nematode; discovery and mapping new SNP gene markers; analyses of linkage disequilibrium and discovery of quantitative trait loci via genetic association analysis; biocontrol agents for nematodes; and discovery of candidate genes and function of genes for resistance to Asian soybean rust.

FREDERICK, MARYLAND: This ARS BSL3 facility focuses on foreign and emerging fungal pathogens of major U.S. crops, pathogenic and genetic variability and host resistance; diagnostic tests for identification, detection, and comparative analysis of pathogen strains, control/management strategies, and for pest risk assessment, including soybean rust.

MORRIS, MINNESOTA: Researchers here focus on tillage and cropping practices that will minimize soil and water erosion and risk/benefits of organic and minimum tillage production systems.

ST. PAUL, MINNESOTA: ARS researchers at this site develop cropping systems to enhance carbon sequestration, develop management practices that reduce loss of nutrients and herbicides to surface and ground waters in north-central U.S. climates.

COLUMBIA, MISSOURI: Researchers develop tools or best management practices that reduce environmental impact of agriculture on soil and water quality in watersheds; develop genetic, genomic, and proteomic methods to improve productivity and seed value by improving protein, oil, and/or nutritional content; elucidate molecular genetic regulation of allergens in seed protein of soybean and other crops; characterize the expression of novel compounds for biobased products; and develop biocontrol strategies for integrated pest management of insect and weed pests.

STONEVILLE, MISSISSIPPI: ARS research here focuses on modern genetic and plant pathological approaches to enhance soybean resistance to relevant foliar diseases in no-tillage production systems; improve water management technologies by exploring alternate irrigation practices; develop weed management and conservation practices on soil properties; breed early-maturing soybean genotypes with improved pest resistance, seed quality, and yield potential for the Early Soybean Production System; develop soybean germplasm with resistance to soybean cyst nematode, stem canker, and tolerance to abiotic stress; construct bioinformatics and genomic tools/databases to support genomics research; aspects of weed biology and ecological changes in weed populations due to cultural practices; develop technologies to identify resistance and control insect pests in corn and soybean; evaluate alternatives to methyl bromide; and conduct fungicide research and breeding research to manage Asian soybean rust.

RALEIGH, NORTH CAROLINA: ARS researchers at this site improve soybean breeding approaches and breed productive varieties with value-added traits, elucidate the biological basis for genetic variation in cellular metabolism and the biological bases for mutations in genes that determine fatty acid and protein composition; breed soybeans with enhanced drought tolerance; develop diverse genetic resources exhibiting traits that enhance quality and productivity of soybean, develop biocontrol strategies for resistance to fungal toxins, and develop strategies to reduce nitrogen and phosphate in livestock wastes.

FARGO, NORTH DAKOTA: This site coordinates the *Sclerotinia* Initiative, and develops molecular marker systems for identifying species/strains of *Sclerotinia* exhibiting phenotypes that impact IPM systems.

LINCOLN, NEBRASKA: Researchers at this site focus on soil-based, site-specific management strategies and tools for optimum fertilizer application and nutrient cycling in spatially variable irrigated lands.

COLUMBUS, OHIO: Research here encompasses best management practices, drainage water management, and recycling practices in a wetland Reservoir Sub-irrigation System.

WOOSTER, OHIO: ARS research at this location develops genomic approaches to enhancing soybean germplasm for disease resistance and other traits.

WYNDMOOR, PENNSYLVANNIA: Researchers here develop cost-effective technologies for processing protein fractions into non-food products; processing technologies for converting animal fats, vegetable oils, and greases into biofuels, additives, lubricants, and biopolymers.

FLORENCE, SOUTH CAROLINA: This research site develops irrigation water management practices for agricultural crops, and focuses on improving the quality of stream and ground waters.

BROOKINGS, SOUTH DAKOTA: This site is a center for developing ecologically-based crop and pest management expert systems; evaluating population modeling and pest control tactics.

COLLEGE STATION, TEXAS: Researchers develop ecologically-based tactics which emphasize complex pest interactions with the biotic and physical environment for more efficient management or suppression of pests of field crops, including soybeans.

WESLACO, TEXAS: ARS researchers develop biological control approaches for arthropod pests of food and fiber crops, onsite management programs with foreign scientists, biological control-based management of aquatic and terrestrial weeds.

A brief description of major research accomplishments at selected locations during FY 2007 and plans for FY 2008 and future years follows:

Fiscal year 2008 accomplishments will not be available until after the end of the fiscal year.

SOYBEAN RUST PROTECTION. ARS scientists at Beltsville, Maryland; Urbana, Illinois; Ft. Detrick, Maryland; and the Monsanto Company have identified a genetic marker that is 99.2 percent accurate in predicting soybean breeding lines that carry resistance to Asian soybean rust. Four genes in soybean confer resistance to Asian soybean rust, but the utility of these genes in crop improvement has been impeded by a lack of genetic markers. The new genetic marker will be useful for integrating effective resistance into modern cultivars.

Soybean rust, *Phakopsora pachyrhizi*, may drastically reduce yields and/or increase production costs for U.S. producers. Since the report of soybean rust in Hawaii in 1994, ARS has enhanced its support for soybean rust research. ARS scientists at Ft. Detrick, Frederick, Maryland, screened more than 16,000 soybean accessions in the USDA Germplasm Collection at Urbana, Illinois. These soybean accessions were evaluated for resistance to soybean rust in Biosafety Level 3 containment greenhouses. Many new sources of resistance were discovered, and may provide the resistance genes needed for future development of resistant soybean cultivars. This information will be critical to developing durable resistance to soybean rust.

INCREASING SOYBEAN PROTECTION FROM CYST NEMATODES. In FY 2007 and FY 2008, ARS researchers at Stoneville, Mississippi, released a soybean germplasm line with high levels of resistance to multiple races of soybean cyst nematode. The researchers have developed a new soybean germplasm line that is highly resistant to nematode race 14, and also resistant to stem canker and moderately resistant to frogeye leaf spot. This new line had excellent yield in the USDA Southern Regional Uniform tests in FY 2008 and will be advanced in further breeding trials.

During FY 2007 and FY 2008, ARS researchers at Beltsville, Maryland, determined which soybean genes – of approximately 35,000 soybean genes in total – are expressed in roots resistant to soybean cyst nematode (SCN), as compared to susceptible soybean. The less than 100 genes that are highly expressed in resistant roots, but not in susceptible roots, are promising candidates for gene transfer experiments to determine if they will broaden resistance of soybean to the nematode. In FY 2008 and subsequent years, researchers will expand their characterization of the candidate genes and identify those that are expressed in resistant soybean lines.

ADDRESSING CHARCOAL ROOT. Researchers at Stoneville have developed a common system for classifying soybeans, and their reaction to the pathogen that causes charcoal rot, based on a colony forming unit index. New germplasm with charcoal rot resistance was released, and has been used to develop an advanced genetic population. The population is being evaluated in field experiments in FY 2008, so as to determine the inheritance of charcoal rot resistance and to identify molecular markers linked to resistance.

VIRUS PROTECTION. ARS researchers in Urbana, Illinois, evaluated soybean cultivars for resistance to two soybean mosaic virus strains. Soybean viruses can adversely affect soybean production. More than 40 viruses infect soybean, yet resistance has been reported for only a few. Ancestral soybean lines were evaluated for resistance to Bean pod mottle virus (BPMV), Soybean mosaic virus (SMV), Tobacco ringspot virus (TRSV), and Tobacco streak virus (TSV). Seven ancestors were resistant to SMV-G1, 16 were resistant to SMV-G5, only one ancestor, Tanner, was resistant to TSV, and all 52 ancestors tested were susceptible to BPMV and TRSV. In FY 2008 and subsequent years, they anticipate incorporating genes that can increase the yield of the cultivated soybean, as well as incorporating valuable genes for disease resistance and other traits from wild relatives of soybean into cultivated soybean.

IMPROVING SOYBEAN PROTEIN LEVELS AND ECONOMIC VALUE. Increasing protein concentration will help to keep U.S. soybeans competitive in the world market and provide varieties for specialty markets. Understanding the genetic control of protein may help to increase protein concentration without reducing seed yield. ARS researchers in Peoria identified chromosomal regions controlling seed protein concentration in high protein lines derived from exotic sources. From 48 to 52 percent protein was measured in lines from Japan, Russia, and South Korea. This information will help soybean breeders develop new varieties with increased protein concentration and other scientists to determine the genetic control on seed composition.

IDENTIFYING SOYBEAN ALLERGENS. In FY 2007 and FY 2008, ARS researchers in Columbia and St. Louis, Missouri, identified the soybean food allergen that causes allergic reactions in young pigs. Soybean meal, the byproduct of soybean oil extraction, is the main protein source for pig diets globally. In the U.S., 8.6 million metric tons of soybean meal was used in swine rations in 2004. The soybean beta-conglycinin alpha-subunit was implicated as a potential food allergen for young piglets. In FY 2008 and future years, the researchers will continue to conduct research on both non-allergenic soybean meal immunotherapy and the potential production of hypoallergenic soybean plants.

SOYBEANS WITH ENHANCED VITAMIN E. The vitamin E component of soybean seeds is important for conferring oxidative stability to the extracted vegetable oil in food processing and bio-based lubricant applications. Soybeans were engineered by ARS St. Louis researchers to co-express genes for two key enzymes in the vitamin E biosynthetic pathway. Seeds obtained from the genetically enhanced plants had up to 10-fold higher levels of vitamin E and also accumulated novel forms of vitamin E, some with greater antioxidant capacity than those typically found in soybeans. Research is underway to continue improving soybeans for superior vegetable oil and improved food properties.

NEW GENETIC TOOLS, MARKERS, AND MAPS FOR SOYBEAN BREEDERS. In FY 2007 and FY 2008, ARS researchers at Ames, Iowa; Beltsville, Maryland; and the University of Nebraska completed a new molecular genetic map of the soybean genome, which incorporates more than 3,000 DNA markers. These markers assist soybean geneticists and breeders with soybean improvement, gene isolation, and variety identification. Discovery of genes controlling important traits in soybeans is laborious and time-consuming because many individuals must be assayed with many DNA markers. In FY 2008 and subsequent years, ARS researchers at Beltsville will develop new rapid genetic analytical techniques to identify markers and will add them to the soybean genome map. This application of "high throughput" DNA marker analysis is opening many

opportunities for the rapid discovery of genes for important stress resistance, seed quality, and productivity traits in soybean.

In FY 2008 and subsequent years, new DNA sequencing technologies will be applied to characterizing the soybean genome. ARS researchers at Ames, Beltsville, and collaborators at the National Center for Genome Resources, Santa Fe, New Mexico, are comparing new sequence information from the newly assembled DNA sequence of the soybean genome from the Department of Energy to identify more than 20,000 new DNA markers in soybean.

A genetically anchored physical map of chromosomes is essential for isolating genes for agronomically important quantitative traits. In FY 2008, ARS scientists at Ames, Iowa, built a relational database to hold all of the physical and genetic map data for soybean which can display the physical map overlayed onto the genetic map. In addition, an online tutorial for the Web-based map displays and databases was developed. This database will be useful for interpreting whole-genome sequence data being generated by Department of Energy.

ADVANCES IN SOYBEAN PRODUCTION SYSTEMS. During FY 2007, ARS researchers at Beltsville, developed a genomics-based Multi-Locus Sequence Typing (MLST) for *Rhizobium*, the microbial symbiont of soybeans that enables nitrogen fixation. This genomics technology permits precise identification of each rhizobial genome either within the environment or in commercial preparations. Applications include microbial ecology research and mapping genomes; increased efficiency of germplasm resource collections; precise identification of proprietary strains used commercially; quality control of rhizobial inoculants (especially for the export market, where foreign government standards require demonstration that the strains identified on the packet are in the product).

In FY 2008, a method to characterize the genes coding for the different rhizobia that form symbios with various soybean and other legumes was developed. This new method can be applied to evaluating the efficiency of nitrogen-fixers, which is relevant to soybean growth and yield. American "soybean" rhizobia evolved with local legume species (not soybean) and, thus, may be less efficient nitrogen-fixers, reducing the potential yield of soybean. Implementation and management of the legume symbiosis to promote biological nitrogen fixation may lower dependence on fertilizer and reduce fossil fuel consumption in agriculture.

Funding for fiscal years 2007, 2008, and 2009, by location, is provided for the record:

Location	FY 2007	FY 2008	FY 2009
Auburn, AL	$469,800	$466,500	$328,700
Albany, CA	128,100	127,200	127,200
Ft. Collins, CO	426,400	423,400	423,400
Newark, DE	212,800	211,100	211,100
Gainesville, FL	87,800	87,200	87,200
Athens, GA	48,000	47,700	46,900
Ames, IA	3,135,500	3,113,500	3,113,500
Peoria, IL	7,275,700	8,049,700	6,621,500
Urbana, IL	2,746,500	3,049,800	2,925,000
W. Lafayette, IN	741,200	735,900	735,900
Manhattan, KS	61,300	60,900	60,900
New Orleans, LA	2,868,000	2,847,800	1,314,700
Beltsville, MD	5,079,000	4,959,300	4,959,300

Frederick, MD	1,351,100	1,340,200	1,340,200
Morris, MN	239,100	237,400	--
St. Paul, MN	512,300	512,100	512,100
Columbia, MO	2,926,700	2,906,100	2,700,000
Stoneville, MS	6,230,700	6,186,800	6,186,800
Raleigh, NC	2,129,100	2,114,300	2,114,300
Fargo, ND	172,300	171,100	171,100
Lincoln, NE	79,200	--	--
Columbus, OH	164,500	163,400	163,400
Wooster, OH	492,500	489,100	121,600
Wyndmoor, PA	1,060,300	1,051,800	1,051,800
Florence, SC	109,700	--	--
Brookings, SD	850,500	844,600	844,600
College Station, TX	201,100	199,700	199,700
Weslaco, TX	115,700	114,800	--
Headquarters	1,731,100	1,052,500	1,052,500
Total	$41,646,000	$41,563,900	$37,413,400

SOYBEAN RUST

Ms. DeLauro: Please update your response in last year's hearing record on the funding and research carried out on soybean rust, by location. Please provide accomplishments and funding for fiscal years 2007 and 2008.

Response: Asian soybean rust is the most serious threat to soybean production in the United States. In 2007 and 2008, ARS scientists developed DNA markers that distinguish soybean rust pathogen isolates and plants with Rpp alleles for resistance. Disease reactions in soybean populations each segregating for one of four known resistance alleles led to the discovery of an SSR marker for the Rpp1 allele which may give an immune response for soybeans to U.S. isolates of soybean rust.

ARS scientists developed rapid diagnostics assays to accurately identify this pathogen for early warning and control measures. ARS scientists are continuing to screen commercial soybean lines for resistance and test fungicidal compounds for control. Ongoing research focuses on developing a better understanding of the diseases, its causal agent, and potential control.

The funding and locations for ARS Soybean Rust research are provided for the record.

Location	FY 2007	FY 2008	FY 2009
Ames, IA	$547,700	$543,800	$543,800
Urbana, IL	294,600	292,600	292,600
Beltsville, MD	880,000	873,700	873,700
Frederick, MD	1,247,800	1,237,700	1,237,700
Stoneville, MS	892,400	886,100	886,100
Headquarters	795,000	789,400	789,400
Total	$4,657,500	$4,623,300	$4,623,300

STEEP RESEARCH/WATER QUALITY IN THE PACIFIC NORTHWEST

Ms. DeLauro: Please provide an update on the work you are doing in connection with STEEP, by location, including 2007 and 2008 accomplishments and plans for fiscal year 2009.

Response: STEEP III (Solutions To Environmental and Economic Problems) is a collaborative effort between the Agricultural Research Service (ARS), and the Agricultural Experiment Stations and Cooperative Extension Services in Washington, Oregon, and Idaho. STEEP III continues the emphasis of STEEP I (economical soil erosion control) and STEEP II (economical soil erosion control plus water quality) and increases the research scope to include soil quality and direct seeding. This program, more than its predecessors, emphasizes the involvement of producers in on-farm research and demonstration of natural resource conservation and management practices.

The STEEP program has generated much interest among growers of the Pacific Northwest. Attendance at the annual conference and tradeshow sponsored by STEEP and the Pacific Northwest Direct Seed Association typically averages more than 500 persons. Annually, several reports and technical publications are produced that highlight the accomplishments from STEEP. Two ARS locations are involved in STEEP III research: Pendleton, OR and Pullman, WA.

PENDLETON, OREGON:

Long-term research at Pendleton has been directed at reducing runoff and soil erosion, and improving soil quality and economic viability of dryland cropping systems for agro-climatic zones receiving low (less than 12-in) and intermediate (12- to 18-in) annual rainfall. Tillage methods, cropping systems, and precision agriculture practices are being identified that improve soil quality, reduce soil erosion, and increase productivity through the use of long-term tillage studies, and watershed-scale field experiments. Conventional- versus conservation-tillage are compared in terms of economic returns, soil carbon storage, soil infiltration, water runoff, stream sediment loading, soil erosion, and nutrient loss. Alternative, one-pass harvesting systems that harvest the crop, chop residue into small pieces, and segregate grain by kernel density are being developed to improve crop residue management, no-till seeding performance, and consistency of grain quality. The soil sequestration model (CQESTR) is being tested and modified for improved performance in natural resources management programs. The Pendleton long-term research infrastructure will continue, but an emphasis of new research and applications will be integrating sustainable production of feedstocks for biofuel production.

Summary of 2007-2008 accomplishments at Pendleton, OR:

The prospect of storing carbon (C) in soil, as soil organic carbon, provides an opportunity for agriculture to contribute to the reduction of carbon dioxide in the atmosphere. CQESTR was modified to fully utilize cumulative degree-days to improve its predictions for regions such as Southeastern and subtropical areas. With the current modification, CQESTR integrated into the ARS Soil Water Assessment Tool (SWAT) to be used for nationwide assessments of the long-term effects of cropping systems or crop residue removal on soil organic carbon (SOC) storage or loss in agricultural soils. The model will be valuable for land managers, USDA-NRCS personnel, and policy makers to predict the amounts of soil C that will result from various

management practices at the field scale and for management planning for C credits.

Winter wheat-summer fallow using conventional tillage is the predominant dryland cropping system in the low and intermediate rainfall areas of the Pacific Northwest. However such a system increases the rate of soil organic matter oxidation which has an adverse effect on soil quality. A field experiment comparing conventional tillage-based summer fallow with no-till summer fallow and direct-seeding was conducted at the Columbia Plateau Conservation Research Center to evaluate the effects of tillage and nitrogen (N) fertilization rates on winter wheat yields and economic returns. The winter wheat grain yields were similar in the conventional tillage and the no-till-direct-seed system. Costs were roughly equal for the different tillage systems. Yield and partial net return were greatest at 120 lbs N/acre in the conventional tillage plots.

The introduction of on-combine near-infrared (NIR) sensors gives growers the opportunity to measure and map wheat grain protein concentration during harvest across farm fields. However, information is lacking on how well this technology would perform under the harsh operating conditions found on a combine harvester. An in-line, NIR reflectance-type spectrometer was tested for use on a combine to measure the protein concentration of soft white wheat. The results demonstrated conclusively that in-line, on-combine NIR sensing of grain protein is accurate to within 0.5%. This finding strongly supports the use of on-combine NIR sensing during harvesting or handling to segregate grain based on protein concentration, thus enabling growers to better capture price premiums in value-added markets that pay premiums for quality.

Hard red wheat is an intensely managed crop in which it is important to assess the plant's N status at mid-season. Exhaustive field sampling needed for acquiring broad-scale information on in-season crop N status will be constrained by high cost and lack of time. Remote sensing for rapidly detecting and mapping crop N deficiencies across whole fields at once could greatly improve nitrogen application efficiency for optimal crop quality performance. Ground reference measurements of crop canopy reflectance were converted to the band equivalent reflectance of the RapidEye™ satellite series. A new vegetation index, developed from the red-edge band, was found to be highly correlated with leaf chlorophyll and leaf nitrogen contents, and overcame limitations of conventional indices that is confounded by crop growth variation caused by differences in plant available soil water. The novel index enables estimation of wheat nitrogen status and decisions about fertilizer nitrogen management at mid-season without having to rely upon costly ground methods.

A major drawback with intermittent agricultural chemical spray application systems, which automatically spray only when weeds are present, is that they don't provide any feedback to the user when one of the spray units is actively spraying. This limitation makes it difficult to determine if the sensors are functioning properly, particularly on wide boom, multi-sensor unit sprayers. To overcome this problem, ARS researchers developed a low cost trigger-on indicator that provides visual feedback to the operator. The device performed reliably over a 150-hr test period. This development will help speed the adoption of herbicide-reducing intermittent spray systems on large acreage farms.

Plans at Pendleton, OR for fiscal year 2009:

- Determine crop and tillage management impacts on carbon (C) and nitrogen (N) cycling and related soil biophysical properties, particularly as related to optimal management of PNW dryland landscapes.
- Determine tillage and cropping system effects on soil organic and inorganic N and C dynamics, and greenhouse gas emission, particularly as related to cellulosic feedstock removal for biofuel production.
- Determine guidelines for biomass removal for biofuels production and its impacts on important soil properties and processes across Inland Pacific Northwest precipitation zones.
- Evaluate performance of modified CQESTR to estimate tillage, crop rotation, and amendment effects on long-term C sequestration, and integrate into the SWAT model framework.
- Develop conservation cropping and tillage systems that improve agroecosystem performance (production, stability and sustainability) and minimize adverse environmental impacts to air, water, and soil resources.
- Develop and evaluate tillage and crop residue management practices for successful conservation systems.
- Compare crop yield and economic returns from a four-year crop rotation under conventional, inversion tillage, and no-tillage.
- Develop alternative harvesting technology that harvests the crop and sorts the grain by density, sizes crop residue for optimum no-till drill performance under heavy residue conditions, and collects harvested residue for production of biofuels.

PULLMAN, WASHINGTON:

At Pullman, research is being conducted in cooperation with Pendleton, OR to diversify the area's crop production by developing new integrated crop management systems to meet producer productivity, economic, soil quality, and air and water quality goals. In the high precipitation zone, rotation and cropping systems research is being conducted on one-pass seeding systems to minimize soil disturbance for reduced erosion, improve soil quality, and reduce fuel usage. In the intermediate and low precipitation zones, research is being conducted on integrated, no-till spring cropping systems to replace the traditional winter wheat/fallow system that is characterized by high soil erosion, persistent weeds, and diseases. National water and wind erosion models such as Soil Plant Air Water (SPAW), Revised Universal Soil Loss Equation-II (RUSLE-II), Water Erosion Prediction Project (WEPP), and Wind Erosion Prediction System (WEPS) are being tested and modified for improved performance in estimating the effect of crop management systems in meeting environmental goals in the Pacific Northwest.

Summary of 2007-2008 accomplishments at Pullman, WA:

Airborne particulate PM10 emissions were measured from contrasting tillage systems that are being tested on highly erodible agricultural land in south central Washington. PM10 emissions from agricultural lands degrade air quality throughout the Columbia Plateau of the Pacific Northwest, thus land management systems are sought that will reduce dust emissions. Scientists measured PM10 emissions from contrasting tillage systems on two farm sites within the <200 mm annual precipitation zone of the Horse Heaven Hills near Pasco, WA. Lower PM10 emissions resulting from using an under-cutter tillage implement during primary tillage rather than a conventional disk or sweep implement could potentially reduce dust emissions and improve air quality throughout the Columbia Plateau.

We studied no-tillage cropping systems in the 300 mm rainfall zone and found that soil organic carbon and soil aggregates increased to approach levels found in undisturbed, native soil. Scientists from ARS and Washington State University conducted a 10-year experiment to evaluate no-tillage, continuous cropping systems. These cropping systems included soft white and hard white winter and spring wheat, spring barley, yellow mustard, and safflower as alternatives to conventionally-tilled WW-SF. No tillage cropping systems without summer fallow provide protection against wind erosion and show potential to improve soil quality.

The USDA-ARS WEPP (Water Erosion Prediction Project) model with energy-based winter routines was tested with Pullman, Washington weather and plot data collected during 2003-2006. Snow depth, soil freeze and thaw depths, surface runoff, and sediment data were collected for paired field plots under continuous tilled fallow and no-till seeded winter wheat. For one plot with each treatment, soil moisture and temperature were continuously monitored at several depths. Suitability and performance of the modified WEPP model were assessed. The WEPP model with energy-based winter routines could reasonably reproduce the snow, frost and thaw depths, and water runoff.

Soil erodibility values were calculated from several years of weather and runoff plot data from the Palouse Conservation Field Station at Pullman, Washington. For the analysis, only data from rainfall and non-frozen soil events was included. Even so, erodibility values for the Palouse silt loam on the site were much higher than those calculated from the Erodibility Nomograph using observed soil properties (texture, structure, and permeability).

Plans at Pullman, WA, for fiscal year 2009:

- Develop the capability to predict the airborne emissions of PM10 from agricultural lands.
- Assess the impact of best management practices on residue biomass characteristics, biophysical surface properties, and microbial communities that govern aggregation and PM10 emission rates within the low-precipitation zone of the Columbia Plateau.
- Develop receptor analyses for identifying and quantifying dust source material using the biological portion of particulates.
- Determine tillage and cropping system effects on greenhouse gas emissions from soil.
- Test and enhance an energy budget based approach to improve the winter process routines in the WEPP model for incorporation into the integrated wind and water erosion prediction system.
- Conduct erodibility experiments and assemble and analyze existing data sets collected under winter conditions in order to develop erodibility parameters for runoff based erosion for use with RUSLE, WEPP, and the integrated wind and water erosion prediction system.
- Determine crop and tillage management impacts on carbon (C) and nitrogen (N) cycling and related soil biophysical properties. Determine impacts of cropping and tillage systems on water quality and maintenance of the soil resource base.
- Develop conservation cropping and tillage systems that improve agroecosystem performance (production, stability, and sustainability) and minimize adverse environmental impacts to air, water, and soil resources, with an emphasis on integrating cellulosic biomass and oil seed crop feedstock for use in biofuels production.

SUDDEN OAK DISEASE

Ms. DeLauro: Please describe the research underway in fiscal year 2007 and 2008, and the research and resources planned for fiscal year 2009 for sudden oak disease.

Response: In fiscal years 2007 and 2008, ARS scientists evaluated the epidemiology and genetics of the Sudden Oak Disease (SOD) pathogen affecting nursery crops. Resistance genes involved in the host-pathogen interaction were defined and the population structure of the pathogen in the United States was elucidated. Integration of cultural, biological and chemical controls for management of the disease will be evaluated in fiscal year 2009.

ARS scientists are monitoring the spread and population structure of SOD in the U.S. and are studying the biology and potential control strategies for the SOD pathogen as it affects horticultural crops. These studies include evaluating the epidemiology and genetics of the pathogen affecting nursery crops, and identifying genes in the pathogen during host-pathogen interaction. ARS scientists are also developing and integrating cultural, biological, and chemical controls for management of the disease under commercial conditions.

	FY 2007	FY 2008	FY 2009
Sudden Oak Disease	$1,891,900	$1,874,800	$1,874,800

SWEET POTATO WHITEFLY

Ms. DeLauro: Please update your response in last year's hearing record on developments that have occurred in sweet potato whitefly research. By location, what is the funding for sweet potato whitefly research for fiscal years 2007, 2008, and 2009?

Response: The sweetpotato whitefly feeds on over 600 different kinds of plants and is a serious pest of many agronomic and horticultural crops, including cotton, tomato, melons, eggplant, broccoli, lettuce, and many ornamental plants, such as poinsettia. It also vectors a number of important plant viruses. Community based, area-wide management systems for sweetpotato whitefly continue to be adopted and expanded in affected regions through collaborative efforts between ARS, the state agricultural experiment stations, and the agro- and commodity-industries based on two consecutive 5-year ARS-sponsored national plans for research and implementation. Community-oriented farm and crop management practices continue to be implemented and have reduced overall sweetpotato whitefly populations and insecticide use for the past 12 years. For example, in one of the most affected regions, a broadly adopted integrated pest management (IPM) plan for whitefly and other pests of cotton has significantly reduced insecticide use from a decades-long high of over 12 applications in 1995 at a cost of $217/acre to a decades-low application rate of 1.4 at a cost of $31/acre in 2006 (more than a 85 percent reduction) in the western United States.

Research progress is being made on a broad array of topics that represent essential components of overall IPM programs for all affected commodities in all regions. These components include 1) enhanced chemical control through testing and implementation of more effective and environmentally-safe insecticides including those based on ribose (a simple sugar) and others developed by industry partners, 2) development and

refinement of action thresholds and sampling methods which allow growers to make informed decisions about the need to apply control measures, and 3) development and refinement of insecticide resistance management approaches that will ensure the longevity of new and existing compounds. Progress also is being made on a variety of components that may allow growers to avoid pest problems. Such approaches include cultural control options based on cultivation, fertilization, reflective mulches, and irrigation frequency. Biological control approaches through the use of predators, parasitoids, and microbes is steadily advancing and producing tangible results. Exotic natural enemies introduced through cooperative research between multiple national and foreign ARS locations, APHIS, and experiment stations are being evaluated for establishment and impact in several California, Arizona and Texas. A recent book was published detailing many aspects of this classical biological control program. Additional research has measured and quantified the effect of native natural enemies on whitefly populations. Both native and exotic natural enemies are playing a key role in pest suppression and management systems are being developed and implemented that attempt to maximize natural enemy contributions. Advances have been made in the development and deployment of fungal agents for control of whiteflies. ARS scientists have overcome many of the issues associated with high production costs and quality control through innovations in mass fungal spore production and formulation. Host-plant resistance remains a high priority and progress is being made in developing vegetables with innate resistance to both the whitefly and to the numerous plant viruses that it vectors as a means of reducing yield and quality effects on crops due to insect feeding and virus transmission.

Progress is being made by ARS and collaborators with whitefly resistance in tomatoes, watermelon, and cantaloupe that may aid overall IPM programs. New whitefly-transmitted viruses continue to be identified and characterized. The virus responsible for cucurbit yellow stunting disorder, Cucurbit Yellow Stunting Disorder Virus (CYSDV), which is transmitted by both the B and Q biotypes of the whitefly, has emerged as a major threat to cucurbit production in the desert southwest of California and Arizona, and has recently been identified in Florida as well by ARS and university collaborators. A potential new and independent source of resistance to this virus has been identified by ARS and efforts are needed to continue incorporation of this resistance to cultivated cucurbits. In addition, virus-infected transplants have been intercepted by state inspectors, and infections confirmed by ARS and university laboratories indicate movement of whitefly-transmitted viruses through infected vegetable transplants. Often transplants are in the field prior to confirmation of infection. Introduction of infected transplants into areas where whitefly vectors are present can lead to permanent establishment of the virus in the agricultural ecosystem. Further research is examining the dynamics of vector transmission for CYSDV as well as its host range among local crops and weeds in the southwest. Similar research is ongoing with other whitefly-tranmitted viruses affecting vegetable crops, for example, Sweet Potato Leaf Curl Virus.

Basic research on whitefly feeding behavior, hormonal regulation of development and reproduction, development of transgenic plants with anti-microbial properties that could affect whitefly survival, and other aspects of biology is advancing our understanding of the insect and will aid our ability to identify and implement management strategies that take advantage of weak links in the pest's life cycle. Similarly, ARS is conducting basic research to understand the biological factors that allow a whitefly to specifically transmit one virus, but not another. This research should

facilitate the development of physical and technological approaches to prevent whitefly transmission of viruses.

ARS continues to work closely with Land-Grant University extension and education programs to ensure that the results of ARS research are delivered to the industry. ARS scientists regularly participate in extension programs. Recommendations to growers on overall management strategies for sweetpotato whitefly include: (1) use of crop cultivars less susceptible to the pest and the viruses it transmits; (2) spatial and temporal modification of crop systems within a region that interferes with the pest's ability to maintain continual population growth; (3) intensive sampling and use of thresholds to determine the need for population suppression; (4) use of more selective insecticides that preserve natural enemies; (5) alternating insecticide modes of action and resistance monitoring to preserve critical compounds; (5) destruction of crop residues to reduce population growth and movement to other susceptible crops in the region; and (6) active education and extension outreach to provide timely communication of new developments.

As emphasized, this successful IPM approach as been exemplified by gains in yield, quality, and profitability of cotton in the western United States while reducing insecticide use by over 85 percent in the past 12 years. Because of its capacity for population outbreaks, it is emphasized that not all of the management components discussed are applicable or can be used in all areas or for all affected crops. Instead, these are general principles that provide the agricultural community with multiple options for sweetpotato whitefly management.

The recent invasion of the Q-strain of the sweetpotato whitefly into the United States continues to be of great concern. The strain was first identified in southern Spain and has since spread throughout the Mediterranean region, Asia, and North America. The Q-strain has been shown to have reduced susceptibility to many of the highly effective insecticides commonly used to control the current B-strain, including several insect growth regulators and a class of compounds known as neonicotinoids which are vital to the agricultural and horticultural industry. The Q-strain was first reported in the United States from poinsettias in a retail nursery in Tucson, Arizona, in December 2004. In response, an interagency technical advisory committee comprised of ARS, APHIS, university, and industry representatives was formed in early 2005. The group undertook a large survey effort that has now documented the presence of the Q-strain in 22 states. All of these detections have been limited to crops in greenhouses - no field populations have yet been found. Follow-up research by ARS has documented multiple invasions by the Q-biotype and demonstrated mating isolation between the B and Q types. Baseline studies conducted by ARS, universities, and the IR-4 program have identified several available insecticides that would be effective against this pest if populations become established and problematic. Research continues to focus on the biology, ecology, and management of this new whitefly strain. An aggressive education and outreach effort continues to educate producers and pest control advisors of the potential threat and how to combat the pest if the need arises.

An electronic list server (BEMISIA-L@LISTS.UFL.EDU) serves as a means for all interested parties to subscribe to the latest information on whitefly research and control. Various other ARS and partner Web sites continue to provide up-to-date information on research progress and management strategies. The 4th International *Bemisia* Workshop was held in Florida in late 2006. The workshop was co-organized by university and ARS scientists. It

brought together scientist from 26 countries to discuss the latest advances in whitefly biology, ecology, genomics, virus/vector relationships and management. A book edited by university and ARS scientists based on the workshop is currently in progress and should be available by the end of 2008.

Funding for sweet potato whitefly research for fiscal years 2007, 2008, and 2009 is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Maricopa, AZ	$1,583,200	$1,571,500	$1,571,500
Salinas, CA	171,900	170,700	170,700
Ft. Pierce, FL	528,100	524,500	524,500
Peoria, IL	95,300	94,700	94,700
Beltsville, MD	657,100	180,200	180,200
Ithaca, NY	81,300	80,700	80,700
Fargo, ND	65,000	64,500	64,500
Charleston, SC	573,200	676,800	676,800
Weslaco, TX	477,900	474,600	--
Montpellier, FR	178,700	--	--
Total	$4,411,700	$3,838,200	$3,363,600

SWINE RESEARCH

Ms. DeLauro: By location, please provide the funding for swine research in fiscal years 2007, 2008, and 2009.

Response: The following table shows the dollars for ARS locations conducting swine research for fiscal years 2007, 2008, and 2009.

Location	FY 2007	FY 2008	FY 2009
Albany, CA	$339,400	$361,800	$361,800
Fort Collins, CO	152,600	151,500	151,500
Gainesville, FL	413,900	410,900	288,000
Athens, GA	991,700	984,800	984,800
Ames, IA	9,113,200	9,537,500	7,630,100
Peoria, IL	663,100	658,400	658,400
West Lafayette, IN	814,200	808,400	808,400
Beltsville, MD	6,299,000	5,777,000	3,443,400
Beltsville (NAL), MD	297,500	295,500	295,500
Mississippi State, MS	261,700	259,900	--
Fargo, ND	638,900	658,400	658,400
Clay Center, NE	6,431,400	7,100,900	7,100,900
Greenport, NY	2,534,700	2,415,900	1,607,700
Wyndmoor, PA	2,404,800	2,305,300	2,305,300
College Station, TX	1,009,300	1,002,300	1,002,300
Lubbock, TX	691,200	686,400	686,400
Headquarters	227,600	43,400	43,400
Total	$33,284,200	$33,458,300	$28,026,300

TECHNOLOGY TRANSFER

Ms. DeLauro: Please update your responses in last year's hearing record on ARS activities and cooperative efforts involved in transferring technology to industry and other users of ARS research.

Response: Technology transfer is accomplished through many different mechanisms. Each ARS project leader is encouraged to work with the Office of Technology Transfer (OTT) to develop a technology transfer strategy for their specific project. Transfer mechanisms may include scientific publications; reports to stakeholders; briefings; tradeshows; technology showcases; meetings with industry organizations and universities; workshops; dissemination through the Office of Technology Transfer Marketing Program, ARS Information Staff, the National Agricultural Library; seeking patent protection and licensing; and entering into collaborative agreements with industry partners.

OTT continues to develop new ways and to look for new opportunities to expand and improve on its technology transfer activities. These include the following activities:

Tradeshow attendance is a part of OTT's marketing strategy to diversify and reach new target customers. Tradeshows are an effective outreach mechanism that allows us to measure some immediate results. The benefits of attending industry conferences and tradeshows are many. Our goal continues to be to have an ARS-presence at major industry conferences to disseminate targeted information about technologies available for licensing and cooperative research partnering. Tradeshows are an important tool, and a part of the total marketing mix used to get the word out about what ARS technology transfer partnering opportunities, as well as technology transfer success stories. They are a way to build our customer base and develop industry contacts through face-to-face interactions with target groups. OTT alternates the types of tradeshows it attends each year. Shows are selected based on the types and number of technologies in a particular subject area needing commercial partnerships, and also the number and mix of industry participants.

Technology Alerts (Tech Alerts) allow businesses to receive electronic notifications about ARS technology transfer partnering opportunities. The OTT Marketing Staff sends businesses information about new technologies available for licensing or cooperative research partnering. New subscribers are sought using integrated marketing strategies that include: tradeshows, industry meetings, national workshops, personal interactions, targeted mailings, and via the ARS "Partnering" page on the Internet. As a result of these combined efforts, the list continues to grow and now has nearly 3,000 subscribers consisting of both large and small businesses, university researchers, state extension offices, and economic development agencies. As part of our on-going efforts to improve our products and services, we continue to hone our list offerings. This allows customers to get information tailored to their particular needs. To address the President's Advanced Energy Initiative and meet the growing demand for petroleum-based energy alternatives, we have added a "Biobased Products/Biofuels" list. ARS researchers have numerous projects focusing on biobased energy fuel alternatives. Some of these projects have resulted in research outcomes needing patent protection and cooperative research partners from industry. This service is another mechanism that aids agency scientists in identifying potential research partners for their projects, thus increasing the potential for technology transfer to American consumers. OTT will continue to fine-tune and tailor its list options to meet customer needs. Many businesses have expressed interest in ARS technologies based on these notifications.

ARS laboratories across the nation continue to plan workshops, meetings and seminars designed to inform industry representatives about ARS research

findings. The meetings include presentations and demonstrations on specific projects from ARS scientists. The topics often address major industry problems, for example, teaching the animal industry methods for controlling pathogens in livestock, or instructing the dairy and veterinary industry on using new dairy feeding guidelines. Many of these interactions result in dialogue between ARS researchers and industry, and often lead to formal collaborative research projects.

OTT continues to explore new metrics demonstrating benefits to the public and USDA mission arising from technology research partnerships with universities, other not-for-profit organizations (e.g., commodity groups, commissions, and foundations), and private sector companies.

All activities of the Technology Transfer Coordinators are linked to National Program (NP) project codes so that annual metrics can be obtained for each NP, and included in annual reports for the Government Performance and Results Act, the Project Assessment Rating Tool, and the Budget Performance Integration. OTT continues to develop new ways, and to look for new opportunities to expand and improve its technology transfer activities.

OTT initiated a new training/workshop process designed to enhance industry adoption of specific National Program research outcomes where intellectual property protection is essential. Although OTT personnel routinely visit research sites and conduct general training of scientists, these National Program workshops allow us to tailor OTT presentations to specific program area needs—allowing for more concerted technology transfer efforts across the agency. In addition, this process allows us to provide specific training on transferring technologies to the private sector in high-priority research areas; industry companies also present on what they need from ARS researchers to address specific concerns. Following the workshop, scientists prepare their 5-year research project plans with specific goals of developing technologies for private sector commercialization. Annual metrics will help monitor agency success in developing and properly protecting these technologies.

This year, OTT staff participated with ARS's Bioenergy National Program leader, and agency research leaders in a Bioenergy Technology Transfer Workshop. The goal of the workshop was to help ARS scientists develop strategies for transferring future outcomes from bioenergy-related research to customers. OTT will continue to actively work side-by-side with ARS researchers to help them develop plans for transferring research outcomes to the customers that need and want them.

OTT created a web-based intranet using Microsoft SharePoint to improve customer service by enhancing internal communications and efficiency. For example, all draft CRADA agreements are transmitted from field locations electronically to secure folders for final preparation, approvals, and signatures. The system also includes tracking and status of routing and approvals, so that metrics can be developed on the efficiency of our standard operating procedures. Metrics from the system can be used as a tool to identify areas where improvement can be achieved. This reduces execution time, allows for continuous improvement while also giving all technology transfer practitioners access to all CRADA documents from field locations.

OTT has successfully converted all Invention Disclosure Review Committees to a paperless system, again using the secure connections of the intranet in SharePoint. This reduces costs of copying and shipping confidential

documentation to committee members who are located across the country. In addition to the cost savings, this process also allows "last minute" inclusions of supporting information, and facilitates electronic archiving of all deliberations and decisions.

ARS OTT has expanded its services to USDA's Animal and Plant Health Inspection Service, Wildlife Services (APHIS-WS). Research operations for APHIS-WS are centered in Ft. Collins, CO, at the National Wildlife Research Center where research activities focus on four major areas. These include Bird Research (e.g., hazards to aircraft, nonlethal repellents and attractants) Mammal Research (e.g., wildlife impacts on forest damage, predator ecology, behavior and management; rat damage to crops), Product Development Research (e.g., analytical chemistry, APHIS pesticide registrations and labels, wildlife damage management, immunocontraception and other fertility controls, Brown Tree snake), and Wildlife Disease Research (e.g., rabies and bovine tuberculosis, avian disease, chronic wasting disease, psuedorabies). OTT services includes the incorporation of APHIS-WS technology transfer transactions into OTT relational databases; extensive training of APHIS-WS scientists; strategic planning and consultation in forming research partnerships with other federal scientists, universities, and private sector entities; management and monitoring of research agreements and Material Transfer Agreements; joint deliberations and recommendations on invention disclosures from APHIS scientists; patent application filing and prosecution for domestic and foreign patents; marketing services for seeking research partners and licensees for APHIS inventions; monitoring and reporting on metrics of APHIS technology transfer activities and downstream research outcomes.

In addition, the following are some examples of technologies that have been successfully transferred to industry:

Value-Added Products--Researchers at the USDA/ARS Eastern Regional Research Center (ERRC) in Wyndmoor, PA discovered a way to increase the protein content of corn flour snacks, breakfast cereals, and energy bars by up to 35 percent by adding specially-treated whey proteins. Whey proteins are left over from cheese manufacturing. Whey does not combine easily with starches due to differences in molecular structure. ARS researchers used extrusion-based processes to texturize the whey proteins, which allow them to combine with certain carbohydrate and protein polymers. The outcome of the research is a "Texturized Whey Protein," which is being used by the food industry to fortify food products with increased protein without affecting taste, texture or appearance of the final product.

Texturized Whey Protein was patented by ARS, and ARS researchers worked with a Cooperative Research and Development Agreement (CRADA) partner, Harden Foods, Inc. of Philadelphia, PA to commercialize the new ingredient. Harden Foods, a minority-owned business with more than 17 years of food science and nutraceutical experience, developed a line of high protein snacks that includes cheese curls, tortilla chips, and corn chips. The company subsequently licensed the technology and is spending $2 million dollars to introduce a new branded line of "Good-For-You" snack foods. Harden Foods, Inc. has also entered into distributorship and manufacturing agreements with other businesses to develop an array of nutritional products for the sports nutrition retail markets—including gyms, fitness centers, and nutritional retail stores. One such product is called Muscle Puffs™, which contains 33 grams of protein per serving. Sales of Muscle Puffs reached $4 million in 2006.

Food Safety--To address concerns of potential food borne illnesses associated with *Listeria monocytogenes*, a team of USDA/ARS researchers at ERRC in Wyndmoor, PA developed a new process called the Sprayed Lethality in Container intervention delivery method or SLIC. *Listeria monocytogenes* is a particular problem in ready-to-eat (RTE) hams, roast beef, turkey breast, and frankfurters. In recent years, $1.2-$2.4 billion dollars have been lost in recalls of these products. SLIC helps address this problem. It sprays an antimicrobial fluid consisting of a food-grade chemical into packages immediately prior to inserting the food product. The technology uses a vacuum to seal the container uniformly, which distributes the antimicrobial across the product surface and allows for contact throughout a product's shelf life. SLIC is successfully inhibits outgrowth of *Listeria monocytogenes* during extended refrigerated storage, resulting in a 99.999 percent reduction of Listeria within 24 hours at 4°C. Equally important the ready-to-eat products taste better. Because of its effectiveness and safety, SLIC has achieved Food Safety and Inspection Service FSIS regulatory status.

The technology has already had a great impact on food processing of RTE products. A company is now using SLIC on four different production lines for hams and frankfurters, with production capacity of 2.7 million pounds per year. Another processor is using SLIC to treat 19 million pounds a year of RTE chicken, turkey, and beef products. A third company is in the process of testing SLIC on 13 of its ham production lines, with an approximate production capacity of 176.5 million pounds per year, nine of its sliced luncheon meat production lines, with an approximate production capacity of 33 million pounds per year, and 10 of its frankfurters production lines with approximate annual production capacity of 150 million pounds. It is estimated that the average production cost of RTE foods using SLIC is reduced from $0.02 to $0.03 per pound to $0.002 to $0.009 per pound. This results in cost savings of about $1 to 2 million per year for large processing plants.

Biobased Fluids and Lubricants--Alcoa, Inc. is the world's leading producer of primary aluminum, fabricated aluminum, and alumina. Aluminum producers, like Alcoa, use petroleum-based mineral oil for flat-rolling operations, which produce aluminum sheets for everything from beer cans to aircraft-wing panels. Alcoa contacted USDA/ARS's National Center for Agricultural Utilization Research (NCAUR) in Peoria, IL to discuss the feasibility of developing bio-based fluids for use in its reversing hot mills, continuous hot mills, mineral oil base mills and water based cold mills. In 2001, USDA/ARS formalized its relationship with Alcoa through a Cooperative Research and Development Agreement (CRADA).

To produce this technology, a team of NCAUR scientists developed the base fluid by optimizing the structural-property relationship and additive combinations in order to reduce the cost of final formulation. The resulting biobased fluids were then scaled-up so that a 150-gallon sample could be tested at Alcoa's Reno, NV mill. Results of the test were extremely favorable because the bio-based fluids are quite cost-effective, conform to all industrial hot/cold rolling oil standards, and in certain cases, exceed the performance properties of current mineral oil derived fluids. As a result, bio-based fluids are now used at Alcoa's Reno, NV mill and Alcoa is also using bio-based lubricants in three other plants as lathing and sawing lubricants.

Biobased lubricants also provide significant health benefits to workers. For instance, in a single day, an Alcoa mill was using 500 gallons of petroleum-based fluid—some of which escapes into the air as fumes containing volatile

organic compounds (VOCs). Cutting down on VOCs minimizes workers' exposure to synthetic fluids and other chemical additives. According to National Institute for Occupational Safety and Health, respiratory conditions, like chronic bronchitis, and skin irritations, such as rashes, are among potential health problems associated with the use of petroleum-based products in the metalworking industry. Switching to bio-based lubricants would save 1.2 million U.S. workers in machine finishing, machine tooling, and other metalworking and metal-forming operations from exposure to VOCs.

Apple Exports--A USDA/ARS researcher at the Tree Fruit Research Laboratory in Wenatchee, WA has successfully helped to open the Japanese market to U.S. apple exports. Japan had blocked these exports from entering their country because of possible contamination with fire blight, a common bacterial disease of apple. The ARS researcher in Wenatchee developed various assays and a treatment protocol to show that particular apple shipments are extremely unlikely to be a vector for the disease, and therefore eligible for export to countries that are members of the World Trade Organization (WTO). Japan is a member of the WTO.

The government of Japan initially resisted changing its regulations on the importation of apples from the United States for fear of fire blight. A WTO non-compliance panel was established to determine the value of U.S. apple imports that were effectively being blocked by Japan's refusal to adopt standards based substantially on ARS technology. The WTO determined that the annual value of these apple imports were more than $143.4 million dollars (from Washington State apple growers alone) and compensatory tariffs in that amount were authorized against imported Japanese goods. After this finding, Japan accepted the finding and opened its markets to Washington State apple exports.

Opening this important, lucrative market for U.S. producers required extraordinary cooperation between ARS and other U.S. government agencies, including the USDA Foreign Agricultural Service (FAS), APHIS, and the U.S. Trade Representative.

Animal Production--Researchers at USDA/ARS Catfish Genetics Research Unit (CGRU) in Stoneville, MS, have conducted several studies to determine the optimal oxygen requirements for channel catfish eggs and very young fish, which are known as "fry." The researchers found that dissolved oxygen concentrations should be maintained near air saturation (8.1 mg/L at 26° C) as eggs approach hatching. At lower oxygen concentrations, embryo development is impaired, resulting in increased death. Equipped with this information, ARS researchers developed a set of practical recommendations that should help improve the efficiency of the nation's commercial catfish hatcheries. The National Warmwater Aquaculture Center (NWAC) surveyed a sample of commercial hatcheries and found that only 27% of commercial catfish hatcheries maintained a dissolved oxygen concentration high enough to maximize hatch rate and survival. USDA-ARS and NWAC helped modify the oxygen management of several commercial hatcheries. NWAC estimates that an additional 200-300 million fry (from approximately 2 billion eggs brought into the hatchery) were produced as a result of improved oxygen management during the 2007 spawning season. With an average value of 3/4 cent per fry, this means these hatcheries increased net profits by about $2 million in 2007.

UTILIZATION CENTERS

Ms. DeLauro: Please provide funding and staff levels for the four major utilization research centers for fiscal years 2007, 2008, 2009.

Response: The funding and staff levels for the four centers are provided for the record.

	FY 2007		FY 2008		FY 2009	
Location	Funds	FTE	Funds	FTE	Funds	FTE
Albany, CA	$30,672,300	235	$30,964,400	241	$30,972,100	244
Peoria, IL	31,982,700	256	34,548,100	255	31,050,200	255
New Orleans, LA	32,020,900	225	32,192,500	211	24,868,100	211
Wyndmoor, PA	31,037,600	217	30,989,400	208	30,962,200	209

VIRAL HEMORRHAGIC SEPTICEMIA (VHS)

Ms. DeLauro: Please discuss in detail any work done in 2008 and planned for 2009 on VHS, including funding levels by location and goals of the research.

Response: In 2008 and 2009, research will be conducted via a specific cooperative agreement between the Stuttgart National Aquaculture Research Center and the University of Arkansas Pine Bluff to determine the viability of VHS after passing through the gastrointestinal systems of birds, turtles, and crawfish. This information is important for the development of biosecurity and disease eradication programs for commercial fish farms.

No funding is designated in fiscal years 2008 and 2009 for this new research.

WEST NILE VIRUS

Ms. DeLauro: Please update your response in last year's hearing record on the status and funding of ARS' West Nile Virus research program. Provide funding levels for fiscal years 2007, 2008, and 2009.

Response: ARS researchers are working with USDA partners and other federal agencies such as Animal Plant Health Inspection Service (APHIS) and the Centers for Disease Control and Prevention (CDC) to address the West Nile Virus (WNV) outbreak. WNV was suddenly introduced into the New York City area in 1999 and has since spread throughout the U.S. and most of the Western Hemisphere. The virus is harbored in the wild bird population and is transmitted to horses and people by a number of different mosquitoes. Most infected horses have to be euthanized and about 20 percent of infected people have disease ranging from mild to fatal. Older and immunocompromised people are particularly at risk of neuroinvasive disease that can cause long term disability or death. In 2005, there were 2,819 cases and 105 deaths, making a total of 19,525 cases and 771 deaths since 1999. In 2002 alone, there were 14,571 equine cases.

ARS works with partners to focus on diagnosis, transmission, and vaccines for the disease. Advanced mosquito trapping methods developed by ARS scientists are being used in New York City, in association with the Wildlife

Conservation Society. Joint CDC, APHIS-NVSL, and APHIS-National Wildlife Health Center (NWHC), Ft. Collins, Colorado, surveillance for wild dead birds has been implemented in several east coast states to determine the geographical distribution and spread of WNV in the eastern U.S.

The Mosquito and Fly Research Unit (MFRU), Gainesville, Florida, has continued its research to improve trapping systems for the early detection and monitoring of mosquito species associated with the transmission of West Nile Virus (WNV). Ongoing projects are incorporating odors that have been chemically identified from birds and horses that can be used as attractants in traps to simulate birds that harbor WNV or horses that are susceptible to WNV infections. These traps enhance early detection of WNV transmission before an outbreak occurs in humans. The MFRU scientists are also using odors identified from mosquito oviposition sites to develop lures to improve the efficacy of gravid traps in attracting mosquitoes that transmit WNV or other mosquito-borne viruses.

Scientists from MFRU have initiated a project with scientists from the Connecticut Agricultural Experiment Station to establish a National Mosquito Database to develop models which will forecast the temporal and spatial distribution of mosquitoes in the U.S. This will aid in the early detection and control of WNV and other emerging exotic arbovirus threats, such as Rift Valley Fever and Chikungunya. This program was funded at $1,114,632 in fiscal year 2007. MFRU scientists have identified EPA-approved insecticides that can be used for application to vegetation and create a barrier to mosquito movement. They have also found toxicants that can be provided to mosquitoes as baits which are lethal. Both methods reduce mosquito populations and can reduce risk of WNV transmission to horses and people.

The Arthropod-Borne Animal Diseases Research Laboratory (ABADRL) in Laramie, Wyoming, has developed new laboratory assays for West Nile virus, making accurate testing five times quicker and three times cheaper than current standard methods. This laboratory in conjunction with Suffolk County, New York, Department of Health doubled the sensitivity of PCR detection of West Nile virus by adding proteinase K to the extraction procedure. ABADRL, in conjunction with the University of Wyoming developed a model of the risk of West Nile virus transmission based on temperature. They produced a risk map for the state and used the model to accurately predict areas of more concentrated transmission in a county of California. Due to its' simplicity, this model may prove to be valuable for prediction of risk from many mosquito-borne viruses.

The information for funding for West Nile Virus research is provided for the record.

Location	FY 2007	FY 2008	FY 2009
Gainesville, FL	$1,458,200	$1,447,800	--
Ames, IA	--	--	$526,400
Laramie, WY	530,000	526,400	--
Total	$1,988,200	$1,974,200	$526,400

WHEAT DISEASE

Ms. DeLauro: By location and wheat disease type, such as club wheat, vomitoxin, and virus, provide funding amounts for fiscal years 2007, 2008,

and 2009. Please update your response in last year's hearing record on the type of wheat research at each facility.

Response: The funding and locations for club wheat research and Fusarium head blight (Vomitoxin) research are provided for the record.

Club Wheat:

Location	FY 2007	FY 2008	FY 2009
Pullman, WA	$1,273,300	$1,264,300	$1,264,300

Fusarium head blight (Vomitoxin):

Location	FY 2007	FY 2008	FY 2009
Albany, CA	$51,500	$51,100	$51,100
Peoria, IL	1,103,000	1,095,300	1,095,300
Manhattan, KS	258,000	256,200	202,000
Beltsville, MD	108,600	107,900	107,900
St. Paul, MN	1,441,900	1,432,300	1,287,200
Raleigh, NC	172,900	171,700	171,700
Fargo, ND	665,500	660,800	660,800
Madison, WI	341,600	339,300	339,300
Headquarters[1]	5,674,600	5,634,800	5,634,800
Total	$9,817,600	$9,749,400	$9,550,100

[1] Funding at Headquarters is transferred on a temporary basis to various locations and extramural partners each year.

Primary research locations and funding levels for research on wheat viruses are as follows:

Location	FY 2007	FY 2008	FY 2009
W. Lafayette, IN	$1,045,200	$1,037,600	$1,037,600
Lincoln, NE	508,100	504,600	504,600
Ithaca, NY	174,400	173,400	173,400
Total	$1,727,700	$1,715,600	$1,715,600

A brief description of wheat research at each ARS location is provided for the record.

CLUB WHEAT
Pullman, Washington: genetic improvement and variety release of club wheat, characterization of weather stress resistance genes and mechanisms, small grains genotyping for regional breeders, cereal rust (stripe and leaf rust) identification and monitoring, wheat end-product quality and new food uses.

FUSARIUM HEAD BLIGHT (VOMITOXIN)
Albany, California: Biotechnology strategies for *Fusarium* resistance; DNA molecular marker and genetic maps for *Fusarium* resistance breeding; genome database and bioinformatics tools for wheat/barley breeders targeting *Fusarium* head blight (scab) resistance.

Peoria, Illinois: Development of biological and chemical control methods; pathogen characterization; monitoring and characterization of new pathogen strains.

Manhattan, Kansas: Genotyping and marker development for scab resistance in collaboration with regional wheat breeders.

Beltsville, Maryland: Genetic mapping of resistance genes, development of better DNA markers to assist breeders in developing *Fusarium* head blight (scab) resistance.

St. Paul, Minnesota: *Fusarium* pathogen genomics and DNA sequencing; pathogen population monitoring and assessment for scab disease damage and mycotoxin (DON, vomitoxin) accumulation, and identifying the genetic basis for pathogen virulence.

Raleigh, North Carolina: DNA genotyping to support regional wheat and barley breeders in accelerating breeding for scab resistance in Southeastern (soft) wheat.

Fargo, North Dakota: Genetic resistance, molecular markers for durum and hard red spring wheat, and barley; identification of new sources of scab genetic resistance in wild relatives and introgressing those genes into bread and durum wheat.

Madison, Wisconsin: Development of innovative molecular strategies to advance precise and predictable insertion of transgenes for host plant resistance to *Fusarium* head blight (scab) and new biotechnology methods to confer scab resistance in non-food tissue.

Wheat and Barley Scab Initiative: The Initiative, managed by ARS is conducting research to develop as quickly as possible effective control measures that reduce/eliminate mycotoxin (DON/vomitoxin) and minimize the threat of *Fusarium* head blight (scab) to producers, processors, and consumers of wheat and barley. The accomplishments of this ARS-Industry-University team have included the development of new wheat varieties with partial resistance to scab, including the incorporation of the Samai 3 gene as well as selection of varieties with native resistance ("Truman" and "Bess"). For the first time, in 2007, barley lines with partial scab resistance were identified that also were demonstrated to have good malting quality. These promising barley lines are now being targeted for rapid advancement into new barley varieties. Wheat lines with significant increases in scab resistance were identified in several market classes. In 2007, mycotoxin (vomitoxin) measurement capacity was significantly expanded and thousands of more breeding lines were evaluated. In 2007, a new action plan was developed by ARS and the U.S. Wheat and Barley Scab Initiative that prioritizes cooperative research within ARS and university projects to reduce and eliminate DON (vomitoxin) in grain. Cooperative projects have also been developed that identify optimum disease management practices and that support predictive information and variety identification that reduces the risk of *Fusarium* head blight losses for producers and industry.

WHEAT VIRUSES

West Lafayette, Indiana: Genetic and biochemical mechanisms of resistance to cereal yellow dwarf viruses; new technology to rapidly detect eight different wheat barley viruses. ARS researchers at W. Lafayette are partnering with the wheat breeder at Purdue University in the development of new virus-resistant wheat varieties.

Lincoln, Nebraska: Wheat streak mosaic virus gene function and population biology; new biotech strategies to provide virus protection. In FY 2008 ARS researchers at Lincoln are releasing "Mace", the first wheat variety with genetic protection against wheat-streak mosaic virus

Ithaca, New York: Molecular characterization of cereal yellow dwarf viruses.

BACKLOG OF FACILITY REPLACEMENT

Ms. DeLauro: ARS is implementing a Facility Asset Management program to more accurately capture repair and modernization needs. Please provide an update on the progress of this program. Please also provide a list of all ARS facilities and the known backlog of replacement or major repairs. Include the date of the status report. How does ARS define critical deferred maintenance? Does ARS have a priority list within the critical deterred maintenance list?

Response: ARS has implemented a Facility Asset Management program. As part of the program ARS contracted with a vendor to review facility conditions. To date, the vendor has inspected a sample of representative buildings from sixteen ARS locations (roughly 40 percent of the total inventory) and used parametric models to estimate deferred maintenance for the remaining building inventory. A list of the deferred maintenance by asset is provided for the record. Deferred maintenance is defined as the amount necessary to ensure that a construction asset is restored to a condition substantially equivalent to the originally intended and designed capacity, efficiency, or capability. Total deferred maintenance for ARS buildings is $316 million. The date of the status report is February 19, 2008. This list does not include new and replacement facilities projects awaiting full funding, estimated at $1.5 billion dollars. ARS defines critical deferred maintenance as the deferred maintenance associated with the critical Uniformat II categories and systems including HVAC, electric, roofing, and plumbing. ARS has a list of the critical deferred maintenance for the 40 percent inspected inventory by the vendor.

[The information follows:]

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1200B00001	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #001	1942	57,460	$17,609,842	$174,540	$398,027	$572,567
1200B00002	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #002	1938	34,080	$10,563,164	$494,244	$446,832	$941,075
1200B00003	MARYLAND	BELTSVILLE	OFFICE	OFFICE	ADMINISTRATION #003	1943	47,471	$12,114,599	$878,530	$273,648	$1,152,178
1200B00004	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #004	1934	31,648	$9,809,361	$406,076	$210,412	$616,488
1200B00005	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #005	1942	52,580	$13,418,416	$973,080	$303,099	$1,276,179
1200B00006	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #006	1935	24,562	$7,613,041	$244,089	$178,654	$422,742
1200B00007	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #007	1943	61,350	$19,015,555	$1,152,670	$336,830	$1,489,500
1200B00009	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	RANGE 3 #009	1941	61,731	$15,925,610	$2,938	$64,057	$66,995
1200B00010	MARYLAND	BELTSVILLE	ALL OTHER	QUARANTINE	RANGE 2 #010	1939	84,070	$19,348,206	$1,469	$100,311	$101,780
1200B00011	MARYLAND	BELTSVILLE	ALL OTHER	CONTAINMENT FACILITY	RANGE 1 #011	1935	83,763	$38,788,300	$460,328	$527,820	$988,148
1200B00012	MARYLAND	BELTSVILLE	SERVICE	SHOP	SERVICE #012	1939	33,530	$5,040,766	$179,829	$64,646	$244,476
1200B00013	MARYLAND	BELTSVILLE	SERVICE	SHOP	SHOP #013	1943	7,484	$1,125,115	$111,157	$122,144	$233,301
1200B00014	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	HEATING PLANT #014	1939	6,360	$2,455,205	$475,745	$103,605	$579,349
1200B00017	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	CHILD CARE CENTER #017	1940	1,750	$451,472	$17,834	$2,651	$20,485
1200B00019	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP STATION #019	1903	240	$101,783	$17,953	$3,910	$21,862
1200B00024	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #024	1941	1,552	$169,950	$8,289	$9,070	$17,358
1200B00025	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #025	1941	1,544	$169,074	$8,371	$10,295	$18,666
1200B00026	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	GARAGE #026	1941	776	$83,535	$24,949	$0	$24,949
1200B00029	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	SERVICE #029	1942	22,136	$2,423,981	$95,725	$145,598	$241,322
1200B0002A	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	WITS #002A	1991	150	$57,907	$0	$3,437	$3,437
1200B00030	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #030	1938	1,225	$312,620	$21,672	$11,214	$32,886
1200B00031	MARYLAND	BELTSVILLE	WAREHOUSES	BARN, STORAGE	BARN #031	1937	600	$64,589	$332	$9,372	$9,704
1200B00033	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #033	1933	1,927	$211,014	$12,991	$25,892	$38,883
1200B00034	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED #034	1934	2,392	$261,934	$0	$31,163	$31,163
1200B00035	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #035	1934	1,105	$121,002	$12,281	$30,806	$43,087
1200B00036	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #036	1934	800	$87,603	$47	$9,040	$9,087
1200B00037	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	GARAGE/SHED #037	1934	4,808	$517,572	$55,218	$76,865	$132,083
1200B00038	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	WALK-IN-BOX #038	1933	1,079	$118,155	$12,281	$30,215	$42,496
1200B00040	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #040	1933	1,040	$113,884	$12,281	$29,329	$41,611
1200B00041	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #041	1943	796	$87,165	$8,797	$700	$9,496
1200B00044	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	STORAGE #044	1958	3,400	$1,180,045	$63,347	$5,831	$69,178
1200B00046	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #046	1958	3,292	$840,118	$51,469	$7,825	$59,294
1200B00047	MARYLAND	BELTSVILLE	OFFICE	OFFICE	STORAGE #047	1960	1,230	$313,896	$17,585	$6,838	$24,423
1200B00048	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #048	1960	1,600	$495,923	$19,436	$8,205	$27,642
1200B00049	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #049	1961	1,564	$484,765	$19,436	$8,205	$27,642
1200B00050	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	RANGE 4 #050	1949	41,173	$10,621,975	$399,189	$279,689	$678,877
1200B00052	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	SYSTEMS RES. FIELD LAB #052	1993	2,880	$742,994	$1,426	$17,199	$18,625
1200B00053	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	BIOLOGICAL GREENHOUSE #053	1996	3,634	$741,917	$106,585	$0	$106,585
1200B0008A	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #008A	1959	64	$16,511	$23	$11,287	$11,310
1200B0009C	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009C	1962	138	$28,174	$7,375	$0	$7,375
1200B0009E	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009E	1964	138	$28,174	$80	$28,748	$28,828
1200B0009F	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009F	1964	138	$28,174	$80	$28,748	$28,828
1200B0009G	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009G	1967	140	$28,582	$7,375	$0	$7,375
1200B0009H	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009H	1967	140	$28,582	$80	$28,748	$28,828
1200B0009J	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009J	1967	140	$28,582	$80	$28,748	$28,828
1200B0009L	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009L	1967	140	$28,582	$80	$28,748	$28,828
1200B0009M	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009M	1967	147	$30,012	$80	$28,748	$28,828
1200B0009N	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #009N	1967	165	$33,686	$80	$28,748	$28,828
1200B0009P	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	LABORATORY #009P	1969	663	$230,109	$22,183	$0	$22,183
1200B0009Q	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE #009Q	1998	226	$65,645	$0	$0	$0
1200B0010A	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	PLANT SCIENCE #010A	1995	72,000	$22,316,544	$49,467	$368,049	$417,516
1200B0010B	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	CONTROLLED ENVIRONMENT #010B	1998	17,677	$4,560,383	$4,415	$0	$4,415
1200B0010C	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #010C	1988	213	$54,951	$40	$19,229	$19,269
1200B0010D	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #010D	1984	64	$16,511	$40	$19,229	$19,269
1200B0011A	MARYLAND	BELTSVILLE	OFFICE	LABORATORY, OFFICE	BIOSCIENCE #011A	1974	83,045	$24,275,714	$1,174,957	$503,371	$1,678,328
1200B0011D	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	INACTIVE GROWTH CHAMBER #011D	1975	133	$34,312	$23	$0	$23
1200B0011G	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #011G	1998	38	$4,161	$0	$0	$0
1200B0011H	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #011H	1995	44	$4,618	$0	$0	$0
1200B0011I	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #011I	1995	135	$14,783	$0	$0	$0
1200B0011J	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE #011J	1998	80	$23,237	$0	$0	$0
1200B0011K	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #011K	1998	31	$9,965	$0	$0	$0
1200B0013A	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	GARAGE #013A	1934	480	$51,671	$312	$9,526	$9,838
1200B0014E	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	SUB STATION #014E	1997	539	$208,080	$0	$12,349	$12,349
1200B0019A	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMPHOUSE #019A	1964	546	$232,405	$20,655	$7,096	$27,750
1200B0019B	MARYLAND	BELTSVILLE	ALL OTHER	WATER SYSTEM BUILDING	FINAL CHLORINE #019B	1964	72	$29,132	$2,069	$711	$2,780
1200B0023B	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #023B	1903	240	$26,281	$1,439	$6,251	$7,689
1200B0024A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #024A	1976	1,008	$110,380	$530	$0	$530
1200B0028A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #028A	1994	2,800	$306,611	$0	$0	$0
1200B0028B	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #028B	1997	100	$10,950	$0	$0	$0
1200B0029A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #029A	1938	8,084	$885,230	$84,687	$61,331	$146,018
1200B0033A	MARYLAND	BELTSVILLE	WAREHOUSES	HAZMAT FACILITY	HAZARDOUS WASTE STORAGE #033	1990	172	$45,012	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1200B0033B	MARYLAND	BELTSVILLE	WAREHOUSES	HAZMAT FACILITY	RADIOLOGICAL WASTE STOR. #033B	1990	121	$31,865	$0	$0	$0
1200B0033C	MARYLAND	BELTSVILLE	SERVICE	ALL OTHER	FARM VEHICLE WASHDOWN #033C	1991	600	$135,302	$2,479	$1,078	$3,558
1200B0033D	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE #033D	1991	188	$54,607	$95	$0	$95
1200B0033E	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE #033E	1991	188	$54,607	$95	$0	$95
1200B0041A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #041A	1973	189	$20,696	$1,076	$2,048	$3,124
1200B0046A	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #046A	1965	1,728	$440,986	$54,614	$4,894	$59,508
1200B0047A	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #047A	1965	2,240	$571,648	$31,287	$13,784	$45,071
1200B0047B	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	INACTIVE WALK-IN-BOX #047B	1975	518	$133,636	$47	$0	$47
1200B0049A	MARYLAND	BELTSVILLE	ALL OTHER	SCREENHOUSE	SCREENHOUSE #049A	1964	616	$79,459	$129	$0	$129
1200B0057C	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE #057C	1998	100	$42,410	$0	$0	$0
1200B010AA	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE #010AA	1995	213	$61,869	$0	$0	$0
1200B0N015	MARYLAND	BELTSVILLE	ALL OTHER	WASTE FACILITY	WEST WASTE WATER PLANT #N015	1996	5,000	$1,684,320	$14,777	$21,989	$36,766
1201B00055	MARYLAND	BELTSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE #055	1997	1,680	$314,926	$0	$128,656	$128,656
1201B00057	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMPING STATION #057	1955	120	$50,892	$4,523	$1,554	$6,077
1201B00060	MARYLAND	BELTSVILLE	SERVICE	ALL OTHER	SERVICE #060	1942	24,561	$5,538,604	$92,916	$206,277	$299,193
1201B00062	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #062	1942	2,592	$401,698	$12,638	$15,159	$27,797
1201B00065	MARYLAND	BELTSVILLE	OFFICE	TRAILER, OFFICE	OFFICE TRAILER #065	2004	500	$56,608	$0	$0	$0
1201B00066	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #066	2006	336	$36,793	$0	$0	$0
1201B00067	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #067	2006	336	$36,793	$0	$0	$0
1201B0065A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #065A	1997	192	$21,025	$0	$0	$0
1201B0057B	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE #057B	1998	100	$42,410	$0	$0	$0
1201B0436A	MARYLAND	BELTSVILLE	WAREHOUSES	TRAILER, STORAGE	TRAILER #436A	1988	167	$18,907	$16	$0	$16
1203B00156	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #156	1941	930	$237,336	$16,453	$8,513	$24,966
1203B00161	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #161	1931	23,730	$7,355,161	$309,819	$185,856	$495,675
1203B00162	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #162	1931	9,374	$2,905,490	$171,077	$173,393	$344,470
1203B00163	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #163	1934	6,120	$670,164	$85,346	$83,600	$168,945
1203B00165	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	HEATING PLANT #165	1926	1,536	$592,970	$114,897	$25,022	$139,918
1203B00167	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #167	1911	11,200	$1,226,445	$28,322	$81,267	$109,589
1203B00170	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #170	1914	20,371	$2,230,706	$262,094	$201,350	$463,444
1203B00172	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #172	1939	3,160	$346,033	$0	$21,014	$21,014
1203B00173	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #173	1916	15,000	$4,649,280	$171,664	$195,684	$367,348
1203B00175	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #175	1933	420	$45,992	$25	$4,746	$4,770
1203B00176	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #176	1939	168	$18,397	$1,047	$4,039	$5,086
1203B00177	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	DAIRY HOSPITAL (VETERINARIAN) #1	1938	3,460	$584,380	$80,300	$2,793	$83,093
1203B00182	MARYLAND	BELTSVILLE	SERVICE	FEED MILL, SERVICE	FEED CENTER #182	2002	8,419	$4,609,571	$1,331	$0	$1,331
1203B00183	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #183	1992	9,504	$1,040,726	$155	$0	$155
1203B00184	MARYLAND	BELTSVILLE	ALL OTHER	WASTE FACILITY	ANAEROBIC DIGESTER #184	1994	1,184	$398,647	$3,499	$5,207	$8,706
1203B00200	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #200	1935	52,000	$16,117,504	$328,479	$308,103	$637,582
1203B00201	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	MEAT SCIENCE LABORATORY #201	1935	15,580	$4,829,052	$176,258	$90,383	$266,641
1203B00202	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	HEATING PLANT #202	1935	3,448	$1,331,094	$257,919	$56,168	$314,087
1203B00203	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #203	1938	38,769	$4,245,361	$284,797	$469,162	$753,959
1203B00204	MARYLAND	BELTSVILLE	SERVICE	ALL OTHER	ABBATOIR #204	1924	15,320	$3,454,721	$45,803	$72,741	$118,544
1203B00205	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #205	1945	2,620	$286,900	$0	$30,655	$30,655
1203B00208	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #208	1940	4,584	$501,966	$86,469	$19,161	$105,631
1203B00209	MARYLAND	BELTSVILLE	OFFICE	OFFICE	WALNUT GRANGE SVC. CTR. #209	1805	6,650	$1,697,060	$79,724	$85,389	$165,114
1203B00223	MARYLAND	BELTSVILLE	OFFICE	OFFICE	LOCKER ROOM #223	1929	696	$177,619	$16,385	$8,132	$24,518
1203B00224	MARYLAND	BELTSVILLE	WAREHOUSES	BARN, STORAGE	BARN #224	1928	18,860	$2,030,241	$127,142	$253,415	$380,557
1203B00230	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BIOTECH FACILITY #230	2002	12,140	$2,050,397	$0	$0	$0
1203B00236	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	POULTRY HOUSE #236	1934	4,550	$498,243	$35,933	$25,558	$61,491
1203B00252	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #252	1934	3,023	$331,031	$16,693	$26,212	$42,905
1203B00254	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE #254	1957	18,160	$3,067,151	$325,808	$92,857	$418,666
1203B00261	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	HEATING PLANT #261	1934	1,963	$757,812	$146,838	$31,977	$178,815
1203B00267	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE #267	1936	5,290	$893,460	$39,588	$62,325	$101,913
1203B00273	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE #273	1935	1,341	$226,490	$35,580	$591	$36,171
1203B00277	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	TURKEY BARN #277	1935	890	$150,317	$42,118	$11,430	$53,548
1203B00278	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE #278	1935	1,250	$211,120	$33,165	$551	$33,716
1203B00281	MARYLAND	BELTSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE #281	1914	4,000	$749,824	$20,441	$42,119	$62,560
1203B00287	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	WATER PUMP HOUSE #287	1939	172	$72,945	$12,866	$2,802	$15,668
1203B00289	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #289	1985	1,730	$189,442	$14,615	$1,473	$16,088
1203B00300	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP STATION #300	1939	100	$42,410	$7,480	$1,629	$9,109
1203B00301	MARYLAND	BELTSVILLE	OFFICE	OFFICE	FARM SERVICE #301	1967	3,420	$872,784	$135,591	$21,317	$156,909
1203B00302	MARYLAND	BELTSVILLE	ALL OTHER	VISITORS CENTER	VISITORS CENTER #302	1934	3,600	$1,510,042	$140,770	$16,579	$157,349
1203B00303	MARYLAND	BELTSVILLE	OFFICE	LABORATORY, OFFICE	OFFICE/LABORATORY #303	1941	9,560	$2,794,579	$192,948	$117,790	$310,738
1203B00305	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP STATION #305	1938	215	$91,181	$16,083	$3,502	$19,585
1203B00306	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #306	1939	63,400	$19,650,957	$715,793	$551,980	$1,267,773
1203B00307	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #307	1939	67,120	$20,803,978	$1,180,203	$636,497	$1,816,700
1203B00308	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #308	1939	67,500	$20,921,760	$1,341,705	$725,345	$2,067,050
1203B00309	MARYLAND	BELTSVILLE	ALL OTHER	UTILITY BUILDING	HEATING PLANT #309	1940	27,740	$10,708,972	$966,580	$157,406	$1,123,985
1203B00310	MARYLAND	BELTSVILLE	ALL OTHER	WASTE FACILITY	WATER TREATMENT #310	1946	3,156	$1,063,143	$236,077	$51,411	$287,488
1203B00313	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMPING STATION #313	1938	246	$104,328	$18,401	$4,007	$22,409
1203B00314	MARYLAND	BELTSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMPING STATION #314	1938	100	$42,410	$7,480	$1,629	$9,109

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1203B00344	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #344	1938	4,612	$505,032	$0	$30,670	$30,670
1203B00421	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #421	1941	9,000	$985,536	$15,100	$1,912	$17,012
1203B00426	MARYLAND	BELTSVILLE	SERVICE	SHOP	OFFICE/SHOP #426	1935	21,860	$3,288,345	$104,016	$44,435	$148,451
1203B00427	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #427	1938	9,280	$1,016,197	$74,202	$121,566	$195,767
1203B00429	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #429	1938	6,096	$667,536	$336	$22,314	$22,650
1203B00430	MARYLAND	BELTSVILLE	SERVICE	SHOP	SHOP #430	1940	4,800	$721,613	$71,292	$78,340	$149,632
1203B00431	MARYLAND	BELTSVILLE	SERVICE	SHOP	SHOP #431	1940	2,200	$330,739	$32,676	$35,906	$68,581
1203B00432	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN #432	1934	8,772	$1,481,556	$97,901	$103,009	$200,910
1203B00434	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #434	1934	3,770	$412,830	$57,041	$82,981	$140,022
1203B00445	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #445	1939	8,610	$1,334,343	$127,881	$140,521	$268,402
1203B00446	MARYLAND	BELTSVILLE	SERVICE	SHOP	SHOP/STORAGE #446	1939	8,100	$1,217,722	$39,493	$47,372	$86,865
1203B00447	MARYLAND	BELTSVILLE	SERVICE	FILLING STATION, SERVICE	GAS STATION #447	1940	280	$41,741	$0	$4,765	$4,765
1203B00448	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #448	1940	2,500	$273,760	$2,747	$3,842	$6,589
1203B00449	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #449	1940	5,596	$612,784	$8,620	$15,409	$24,029
1203B00454	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #454	1950	18,754	$2,906,420	$7,878	$545	$8,423
1203B00465	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	LABORATORY/GREENHOUSE #465	1967	5,404	$1,103,281	$309,651	$381,240	$690,891
1203B00472	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #472	1950	1,360	$148,925	$13,527	$6,069	$19,596
1203B00476	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #476	1935	18,040	$5,591,534	$204,088	$104,654	$308,742
1203B00483	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	BEE LABORATORY #483	1952	800	$247,962	$8,268	$1,823	$10,091
1203B01001	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1001	1971	1,680	$520,719	$20,249	$3,669	$23,919
1203B01002	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1002	1938	1,644	$509,561	$33,283	$16,008	$49,291
1203B01003	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1003	1940	2,155	$364,140	$7,395	$5,753	$13,149
1203B01004	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1004	1938	1,900	$208,058	$6,081	$0	$6,081
1203B01006	MARYLAND	BELTSVILLE	ALL OTHER	BARN	BARN #1006	1938	1,900	$208,058	$59,492	$1,084	$60,576
1203B01007	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1007	1938	500	$54,752	$740	$0	$740
1203B01017	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1017	1967	384	$64,656	$21,555	$5,329	$26,884
1203B01018	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1018	1967	384	$64,656	$21,555	$5,329	$26,884
1203B01019	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1019	1969	640	$108,093	$35,925	$8,882	$44,807
1203B01030	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1030	1974	424	$71,612	$0	$0	$0
1203B01040	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1040	1934	15,421	$4,779,770	$194,278	$74,767	$269,045
1203B01041	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1041	1934	1,300	$402,938	$1,334	$0	$1,334
1203B01042	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1042	1934	2,350	$728,387	$40,833	$2,721	$43,554
1203B01043	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1043	1934	6,250	$1,937,200	$93,564	$85,611	$179,174
1203B01044	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1044	1935	5,690	$1,763,627	$20,188	$16,353	$36,541
1203B01045	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1045	1935	2,600	$805,875	$16,380	$13,837	$30,217
1203B01046	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1046	1933	100	$10,950	$1,108	$1,136	$2,244
1203B01048	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	CART SHELTER #1048	1978	1,248	$136,661	$4,887	$0	$4,887
1203B01050	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	CONFERENCE HOUSE #1050	1935	1,583	$408,389	$61,900	$7,290	$69,190
1203B01051	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1051	1934	3,750	$410,640	$4,872	$5,925	$10,797
1203B01062	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1062	1935	2,625	$443,352	$69,647	$1,156	$70,804
1203B01063	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1063	1935	2,625	$443,352	$69,647	$1,156	$70,804
1203B01064	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1064	1935	2,625	$443,352	$69,647	$1,156	$70,804
1203B01065	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1065	1935	2,625	$443,352	$69,647	$1,156	$70,804
1203B01074	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1074	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01075	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1075	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01076	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1076	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01077	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1077	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01080	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL EXPER. BUILDING #1080	1967	1,080	$182,408	$10,273	$3,490	$13,763
1203B01081	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1081	1967	1,080	$182,408	$10,273	$3,490	$13,763
1203B01082	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1082	1969	1,080	$182,408	$60,624	$14,988	$75,612
1203B01083	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOUSE #1083	1969	1,080	$182,408	$60,624	$14,988	$75,612
1203B01090	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1090	1974	424	$71,612	$0	$0	$0
1203B01091	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1091	1974	424	$71,612	$0	$0	$0
1203B01092	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL OBSERVATION BLDG. #1092	1974	26	$4,729	$4	$0	$4
1203B01094	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1094	1974	424	$71,612	$0	$0	$0
1203B01095	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1095	1974	424	$71,612	$0	$0	$0
1203B01100	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1100	1936	3,290	$1,019,742	$66,401	$40,537	$106,938
1203B01104	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1104	1935	369	$40,407	$546	$0	$546
1203B01120	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1120	1945	2,625	$813,624	$52,225	$1,493	$53,718
1203B01122	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1122	1936	2,700	$295,661	$16,177	$25,450	$41,627
1203B01124	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1124	1959	4,000	$438,016	$22,399	$11,986	$34,385
1203B01125	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1125	1959	4,000	$438,016	$23	$19,969	$19,992
1203B01126	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	ANIMAL LAB BLDG. #1126	1986	8,999	$3,123,301	$559,657	$53,242	$612,899
1203B01140	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN #1140	1938	2,625	$443,352	$69,647	$1,156	$70,804
1203B01143	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BLDG. #1143	1969	637	$107,587	$35,757	$8,840	$44,597
1203B01144	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BLDG. #1144	1969	637	$107,587	$35,757	$8,840	$44,597
1203B01145	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BLDG. #1145	1969	637	$107,587	$35,757	$8,840	$44,597
1203B01146	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BLDG. #1146	1969	956	$161,465	$53,664	$13,267	$66,931
1203B01160	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN #1160	1937	4,816	$813,403	$111,770	$3,887	$115,658
1203B01180	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #1180	1937	6,470	$2,005,389	$130,583	$79,718	$210,301
1203B01181	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	STORAGE #1181	1935	2,625	$443,352	$69,647	$1,156	$70,804

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1203B01182	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN #1182	1935	2,625	$443,352	$69,647	$1,156	$70,804
1203B01190	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	FOREMAN'S HEADQUARTERS #1190	1937	5,342	$1,378,151	$48,579	$32,313	$80,891
1203B01191	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	VEHICLE STORAGE #1191	1969	2,580	$275,579	$11,274	$0	$11,274
1203B01192	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	VEHICLE STORAGE #1192	1969	2,580	$275,579	$1,966	$0	$1,966
1203B01195	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1195	1940	848	$143,224	$0	$0	$0
1203B01201	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1201	1972	436	$73,639	$0	$0	$0
1203B01203	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1203	1972	436	$47,744	$399	$1,309	$1,708
1203B01204	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1204	1972	436	$73,639	$0	$0	$0
1203B01205	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1205	1972	436	$73,639	$0	$0	$0
1203B01206	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1206	1937	484	$81,746	$12,842	$213	$13,055
1203B01207	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING #1207	1969	3,700	$624,915	$34,735	$0	$34,735
1203B01235	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1235	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01253	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1253	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01254	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1254	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01255	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1255	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01256	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1256	1925	369	$62,323	$17,463	$4,739	$22,201
1203B01270	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1270	1974	424	$71,612	$0	$0	$0
1203B01271	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1271	1974	682	$116,876	$0	$0	$0
1203B01272	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1272	1974	424	$71,612	$0	$0	$0
1203B01280	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	FEED STORAGE 1280	1967	1,152	$126,149	$21,344	$0	$21,344
1203B01287	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL #1287	1952	565	$95,426	$20,755	$2,618	$23,373
1203B01289	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY BUILDING #1289	1952	565	$95,426	$10,499	$2,618	$13,117
1203B01291	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY BUILDING #1291	1952	565	$95,426	$10,499	$2,618	$13,117
1203B01292	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL #1292	1952	565	$95,426	$20,755	$2,618	$23,373
1203B01294	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHED #1294	1992	1,200	$202,675	$0	$0	$0
1203B01302	MARYLAND	BELTSVILLE	SERVICE	ALL OTHER	CAGE WASHING FACILITY #1302	1967	1,430	$322,471	$40,719	$14,321	$55,040
1203B01320	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	POST-MORTEM BLDG. #1320	1973	5,800	$2,013,018	$224,471	$38,196	$262,667
1203B01325	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY BUILDING #1325	1938	4,960	$837,724	$91,019	$38,829	$129,848
1203B01350	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1350	1975	424	$71,612	$0	$0	$0
1203B01351	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1351	1975	424	$71,612	$0	$0	$0
1203B01352	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1352	1975	424	$71,612	$0	$0	$0
1203B01353	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1353	1975	424	$71,612	$0	$0	$0
1203B01354	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1354	1974	264	$44,589	$0	$0	$0
1203B01355	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1355	1974	264	$44,589	$0	$0	$0
1203B01380	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1380	1978	384	$64,856	$2,623	$0	$2,623
1203B01381	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1381	1978	384	$64,856	$2,623	$0	$2,623
1203B01382	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1382	1978	384	$64,856	$2,623	$0	$2,623
1203B01383	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1383	1978	384	$64,856	$2,623	$0	$2,623
1203B01384	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN #1384	1978	384	$64,856	$2,623	$0	$2,623
1203B01390	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	STORAGE #1390	1972	436	$73,639	$0	$0	$0
1203B01391	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1391	1940	848	$143,224	$0	$0	$0
1203B01392	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1392	1940	848	$143,224	$0	$0	$0
1203B01393	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1393	1940	848	$143,224	$0	$0	$0
1203B01401	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1401	1940	477	$80,563	$0	$0	$0
1203B01403	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1403	1940	477	$80,563	$0	$0	$0
1203B01405	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1405	1940	477	$80,563	$0	$0	$0
1203B01406	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1406	1940	477	$80,563	$0	$0	$0
1203B01407	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1407	1940	477	$80,563	$0	$0	$0
1203B01408	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1408	1940	477	$80,563	$0	$0	$0
1203B01420	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	LABORATORY #1420	1969	1,098	$381,085	$68,442	$1,930	$70,372
1203B01423	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #1423	1970	271	$29,676	$1,672	$4,097	$5,769
1203B01424	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PAVED LOT SHELTER #1424	1971	4,250	$717,808	$1,393	$6,228	$7,622
1203B01425	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN #1425	1945	2,028	$342,521	$0	$0	$0
1203B01426	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PAVED LOT SHELTER #1426	1971	507	$85,630	$0	$0	$0
1203B01427	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1427	1971	517	$87,319	$0	$0	$0
1203B01428	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1428	1971	52	$8,783	$0	$0	$0
1203B01429	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1429	1971	240	$40,535	$0	$0	$0
1203B01430	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #1430	1950	271	$45,771	$9,955	$1,256	$11,211
1203B01437	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PEN (BOAR HUT) #1437	1950	52	$8,783	$1,910	$241	$2,151
1203B0162A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #162A	1958	100	$10,950	$164	$972	$1,136
1203B0163F	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	FORT HOOVEN #163F	1978	19,295	$3,259,017	$207,653	$31,443	$239,096
1203B0166H	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE/SHOP #166H	1962	4,720	$731,487	$35,999	$45,057	$81,056
1203B0166P	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL #166P	1999	151	$25,503	$0	$0	$0
1203B0177A	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #177A	1963	2,510	$777,980	$28,757	$14,885	$43,642
1203B0177B	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #177B	1967	4,322	$1,339,613	$102,583	$9,639	$112,222
1203B0177C	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #177C	1971	4,580	$1,413,381	$91,297	$18,011	$109,308
1203B0190G	MARYLAND	BELTSVILLE	SERVICE	SCALE HOUSE, SERVICE	SCALE HOUSE #190G	1937	260	$55,012	$0	$4,765	$4,765
1203B0192K	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #192K	1937	2,497	$421,733	$898	$0	$898
1203B0192L	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #192L	1937	2,497	$421,733	$66,251	$1,100	$67,351
1203B0200A	MARYLAND	BELTSVILLE	ALL OTHER	WATER SYSTEM BUILDING	WATER PUMPING STATION #200A	1938	100	$40,461	$7,480	$1,629	$9,109
1203B0201A	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #201A	1935	144	$37,150	$23	$11,287	$11,310

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1203B0201B	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #201B	1935	238	$81,400	$23	$11,287	$11,310
1203B0201C	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #201C	1935	238	$81,400	$40	$19,229	$19,269
1203B0201D	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #201D	1935	196	$50,565	$40	$19,229	$19,269
1203B0203A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #203A	1972	3,072	$518,849	$39,113	$14,639	$53,752
1203B0203B	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL SHELTER #203B	1972	1,536	$259,424	$5,359	$8,947	$12,305
1203B0203C	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP REPRODUCTION FAC. #203C	1977	23,646	$3,993,715	$254,465	$38,531	$292,996
1203B0203D	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BOAR HOUSE #203D	1991	2,229	$376,469	$48,394	$0	$48,394
1203B0203G	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #203G	1994	168	$43,341	$40	$19,229	$19,269
1203B0203H	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #203H	1998	376	$41,174	$0	$0	$0
1203B0204A	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	LABORATORY #204A	1933	341	$118,352	$4,739	$4,592	$9,331
1203B0204B	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE #204B	1967	4,000	$675,584	$37,551	$0	$37,551
1203B0208C	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG SHED #208C	1942	24	$4,054	$0	$0	$0
1203B0211A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	STORAGE SHED #211A	1994	282	$30,880	$0	$0	$0
1203B0215A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #215A	1962	1,536	$168,198	$27,658	$6,980	$34,638
1203B0216A	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #216A	1933	324	$50,212	$1,805	$4,474	$6,279
1203B0218G	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE BUILDING #218G	1993	1,469	$374,869	$3,486	$3,136	$6,623
1203B0218H	MARYLAND	BELTSVILLE	ALL OTHER	WASTE FACILITY	MECHANICAL SCREEN BLDG. #218H	1993	686	$231,089	$2,027	$3,017	$5,044
1203B0218I	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL BUILDING #218I	1993	350	$101,662	$0	$0	$0
1203B0218J	MARYLAND	BELTSVILLE	ALL OTHER	WASTE FACILITY	OPERATIONS BUILDING #218J	1993	998	$336,190	$2,950	$4,389	$7,338
1203B0218P	MARYLAND	BELTSVILLE	OFFICE	TRAILER, OFFICE	OFFICE TRAILER #218P	1997	360	$40,758	$854	$769	$1,623
1203B0218Q	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	POLE SHED #218Q	1997	2,560	$280,330	$0	$0	$0
1203B0253A	MARYLAND	BELTSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE #253A	1998	1,680	$314,926	$0	$0	$0
1203B0253B	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #253B	1998	192	$21,025	$0	$0	$0
1203B0255A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CHICKEN HOUSE #255A	1962	3,800	$641,805	$43,923	$1,374	$45,297
1203B0301B	MARYLAND	BELTSVILLE	SERVICE	SHOP	EQUIPMENT MAINT. SHOP #301B	1967	1,877	$282,181	$51,930	$8,676	$60,606
1203B0301C	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #301C	1967	4,205	$651,674	$38,062	$34,434	$72,496
1203B0301D	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #301D	1967	3,904	$605,026	$35,338	$31,969	$67,306
1203B0301E	MARYLAND	BELTSVILLE	SERVICE	GARAGE, SERVICE	GARAGE #301E	1967	4,032	$624,863	$36,496	$33,017	$69,513
1203B0301F	MARYLAND	BELTSVILLE	SERVICE	ALL OTHER	FARM VEHIC. WASHDOWN FAC.#301I	1991	530	$119,517	$3,062	$1,344	$4,407
1203B0301H	MARYLAND	BELTSVILLE	SERVICE	SHOP	MAINTENANCE SHOP #301H	1999	4,644	$698,160	$734	$0	$734
1203B0302A	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	LOG LODGE #302A	1967	617	$156,176	$4,507	$11,882	$16,389
1203B0303A	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	GARAGE #303A	1953	4,944	$532,212	$46,199	$24,901	$71,100
1203B0306A	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE #306A	1992	192	$55,769	$0	$0	$0
1203B0307A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #307A	1995	79	$8,651	$0	$0	$0
1203B0307B	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #307B	2003	52,900	$16,396,461	$0	$8,602	$8,602
1203B0307C	MARYLAND	BELTSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #307C	2003	50,780	$15,739,363	$0	$723	$723
1203B0308A	MARYLAND	BELTSVILLE	ALL OTHER	ALL OTHER	WALK-IN-BOX #308A	1959	98	$25,262	$40	$19,229	$19,269
1203B0308C	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SMALL ANIMAL FACILITY #308C	1992	3,921	$645,352	$85,815	$43,400	$129,215
1203B0308D	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #308D	2000	288	$31,537	$0	$0	$0
1203B0312A	MARYLAND	BELTSVILLE	ALL OTHER	HAZMAT FACILITY	HAZ. WASTE MARSHALLING #312A	1990	172	$45,012	$3	$205	$208
1203B0312B	MARYLAND	BELTSVILLE	ALL OTHER	HAZMAT FACILITY	RAD. WASTE MARSHALLING #312B	1990	121	$31,665	$2	$144	$146
1203B0318M	MARYLAND	BELTSVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG. #318M	1995	34	$9,876	$0	$440	$440
1203B0335B	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL QUARANTINE #335B	1940	1,320	$222,943	$4,528	$3,522	$8,050
1203B0337A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE RES. BUILDING #337A	1967	2,048	$345,899	$19,226	$0	$19,226
1203B0426A	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE BUILDING #426A	1993	3,005	$766,876	$5,121	$15,046	$20,167
1203B0435A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP SHED #435A	1970	525	$88,670	$29,470	$7,286	$36,756
1203B0470B	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	STORAGE #470B	1962	5,253	$1,823,169	$46,567	$0	$46,567
1203B0470C	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	SOIL STORAGE #470C	1935	412	$45,116	$40	$0	$40
1203B0471A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	STORAGE SHED #471A	1940	132	$14,455	$0	$0	$0
1203B0484A	MARYLAND	BELTSVILLE	ALL OTHER	INSECT FACILITY	BEE HOUSE #484A	1991	212	$27,543	$642	$0	$642
1203B1126A	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #1126A	1997	360	$39,421	$0	$0	$0
1203B178-1	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	MILKING PARLOR #178-1	1970	3,430	$579,313	$163,577	$11,657	$175,234
1203B178-2	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	FREE STALL BARN #178-2	1994	30,584	$5,165,515	$0	$0	$0
1203B470AA	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470AA	1966	200	$40,832	$10,077	$0	$10,077
1203B470BB	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470BB	1967	156	$31,849	$10,077	$0	$10,077
1203B470CC	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470CC	1967	156	$31,849	$10,077	$0	$10,077
1203B470DD	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470DD	1967	156	$31,849	$10,077	$0	$10,077
1203B470EE	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470EE	1967	156	$31,849	$10,077	$0	$10,077
1203B470FF	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470FF	1967	156	$31,849	$10,077	$0	$10,077
1203B470GG	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470GG	1967	156	$31,849	$10,077	$0	$10,077
1203B470HH	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470HH	1967	156	$31,849	$10,077	$0	$10,077
1203B470II	MARYLAND	BELTSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE #470II	1967	156	$31,849	$10,077	$0	$10,077
1203B484-1	MARYLAND	BELTSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE #484-1	1972	1,440	$157,686	$15,979	$2,996	$18,975
1204B00513	MARYLAND	BELTSVILLE	OFFICE	OFFICE	OFFICE #513	1933	1,845	$470,844	$9,439	$23,056	$32,495
1204B00527	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BULL BARN #527	1933	6,320	$1,067,423	$70,535	$74,215	$144,751
1204B00531	MARYLAND	BELTSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE #531	1910	4,090	$764,820	$20,540	$40,306	$60,846
1204B00535	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535	1956	192	$32,428	$0	$1,306	$1,306
1204B00536	MARYLAND	BEAVER HEIGHTS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BARN #536	1938	10,560	$1,783,542	$245,078	$8,524	$253,602
1204B00541	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541	1942	279	$47,122	$0	$0	$0
1204B00543	MARYLAND	BELTSVILLE	LABORATORIES	LABORATORY	STORAGE #543	1939	5,045	$1,750,978	$185,092	$74,378	$259,470
1204B00554	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG SHED #554	1959	320	$54,047	$0	$2,618	$2,618

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1204B0555	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG SHED #555	1959	320	$54,047	$0	$2,618	$2,618
1204B0606	MARYLAND	BELTSVILLE	SERVICE	AVIATION	HANGAR #606	1972	5,261	$1,327,961	$58,378	$10,946	$69,325
1204B0607	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #607	2004	4,000	$438,016	$0	$0	$0
1204B0513A	MARYLAND	BELTSVILLE	WAREHOUSES	GARAGE	GARAGE - RESIDENCE #513A	1938	996	$107,217	$647	$19,766	$20,413
1204B0531B	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #531B	1997	100	$10,950	$0	$0	$0
1204B0535A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535A	1956	192	$32,428	$0	$1,308	$1,308
1204B0535B	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535B	1956	192	$32,428	$0	$1,308	$1,308
1204B0535C	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535C	1956	192	$32,428	$0	$1,308	$1,308
1204B0535D	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535D	1956	192	$32,428	$0	$1,308	$1,308
1204B0535E	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535E	1956	192	$32,428	$0	$1,308	$1,308
1204B0535F	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535F	1956	192	$32,428	$0	$1,308	$1,308
1204B0535G	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #535G	1956	192	$32,428	$0	$1,308	$1,308
1204B0541A	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541A	1942	279	$47,122	$0	$0	$0
1204B0541B	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541B	1942	279	$47,122	$0	$0	$0
1204B0541C	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541C	1942	279	$47,122	$0	$0	$0
1204B0541D	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541D	1942	279	$47,122	$0	$0	$0
1204B0541I	MARYLAND	BELTSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HOG HOUSE #541I	1942	460	$77,692	$0	$0	$0
1204B0604A	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	SHED #604A	2001	96	$10,512	$0	$0	$0
1204B538-1	MARYLAND	BELTSVILLE	WAREHOUSES	SHED, STORAGE	METAL SHED #538-1	1971	1,536	$168,198	$0	$1,517	$1,517
1230B00008	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	STORAGE BUILDING	GARDEN STORAGE #NA8	1991	86	$9,955	$9	$0	$9
1230B00009	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	REST ROOM (SEPARATE BUILDING)	M" STREET RESTROOMS #NA9"	1957	465	$125,445	$13,936	$4,787	$18,723
1230B00012	DISTRICT OF COLUMBIA	WASHINGTON, DC	SERVICE	SHOP	SHOP #NA12	1957	5,500	$874,071	$92,262	$9,179	$101,441
1230B00013	DISTRICT OF COLUMBIA	WASHINGTON, DC	SERVICE	SHOP	EQUIPMENT SHOP #NA13	1959	2,100	$333,736	$35,227	$3,505	$38,732
1230B00014	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	STORAGE BUILDING	HEAVY EQUIPMENT STORAGE #NA14	1959	2,480	$287,080	$95,343	$4,897	$100,240
1230B00015	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	STORAGE BUILDING	EQUIPMENT/SUPPLY STORAGE #NA1	1950	4,900	$567,214	$40,616	$0	$40,616
1230B00016	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	GARAGE	8-BAY BRICK GARAGE #NA16	1959	2,418	$275,159	$23,861	$12,861	$36,722
1230B00018	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE #NA18	1961	22,492	$4,567,393	$208,813	$1,225,120	$1,434,933
1230B00019	DISTRICT OF COLUMBIA	WASHINGTON, DC	OFFICE	OFFICE	ADMINISTRATION BUILDING #NA19	1963	39,415	$10,633,182	$581,812	$256,337	$838,149
1230B00020	DISTRICT OF COLUMBIA	WASHINGTON, DC	SERVICE	SHOP	ARBOR HOUSE/GIFT SHOP #NA20	1961	2,700	$429,089	$45,292	$4,506	$49,798
1230B00022	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	REST ROOM (SEPARATE BUILDING)	CHINA VALLEY RESTROOMS #NA22	1957	284	$76,616	$8,511	$2,924	$11,435
1230B00024	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	STORAGE BUILDING	POT STORAGE #NA24	1971	500	$57,879	$484	$1,585	$2,069
1230B00025	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	CHEMICAL STORAGE	FLAM. LIQUID STORAGE #NA25	1971	220	$67,552	$174	$15,757	$15,931
1230B00027	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	PAVILION, ALL OTHER	JAPANESE BONSAI PAVILION #NA27	1977	8,450	$1,898,284	$349,353	$54,924	$404,276
1230B00028	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	ALL OTHER	HERB GARDEN POTTING #NA28	1979	287	$78,270	$1,789	$0	$1,789
1230B00031	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	ALL OTHER	SPRING HOUSE #NA31	1928	400	$109,087	$16,311	$1,921	$18,232
1230B00032	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	ALL OTHER	SPRING HOUSE #NA32	1928	400	$109,087	$16,311	$1,921	$18,232
1230B00040	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	ALL OTHER	R" STREET GUARDHOUSE #NA40"	1961	148	$40,362	$1,164	$280	$1,444
1230B00047	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	ALL OTHER	LOCKER RM. (BRICKYARD) #NA47	1941	956	$111,602	$11,594	$16,140	$27,734
1230B00048	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	ALL OTHER	DRYING TUNNELS (BRICKYD) #NA48	1927	3,480	$406,252	$42,206	$58,752	$100,958
1230B0013A	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	CHEMICAL STORAGE	CHEM. MARSHALLING FAC. #NA13A	1990	183	$56,191	$97	$0	$97
1230B0017A	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	LATH HOUSE #NA17A	1999	15,000	$2,045,385	$0	$0	$0
1230B0018A	DISTRICT OF COLUMBIA	WASHINGTON, DC	LABORATORIES	TRAILER, LABORATORY	TISSUE CULTURE TRAILER #NA18A	2002	696	$193,908	$665	$0	$665
1230B0020A	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	REST ROOM (SEPARATE BUILDING)	ARBOR HOUSE RESTROOMS #NA20A	1985	1,033	$278,678	$30,958	$10,635	$41,594
1230B0023A	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23A	1974	2,592	$353,443	$37,292	$82,392	$119,683
1230B0023B	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23B	1974	2,592	$353,443	$37,292	$82,392	$119,683
1230B0023C	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23C	1974	2,592	$353,443	$37,292	$82,392	$119,683
1230B0023D	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23D	1976	2,592	$353,443	$37,292	$82,392	$119,683
1230B0023E	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23E	1976	2,592	$353,443	$37,292	$82,392	$119,683
1230B0023F	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23F	1991	2,459	$335,307	$0	$0	$0
1230B0023G	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23G	1991	2,459	$335,307	$0	$0	$0
1230B0023H	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23H	1991	2,459	$335,307	$0	$0	$0
1230B0023I	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	SCREENHOUSE	POLYHOUSE #NA23I	1997	2,718	$370,624	$0	$0	$0
1230B0026A	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26A	1960	60	$6,945	$1,141	$288	$1,429
1230B0026B	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26B	1960	60	$6,945	$1,141	$288	$1,429
1230B0026L	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26L	2005	336	$38,895	$0	$0	$0
1230B0026M	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26M	2006	48	$5,556	$0	$0	$0
1230B0026N	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26N	2006	112	$12,965	$0	$0	$0
1230B0026O	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26O	2006	112	$12,965	$0	$0	$0
1230B0026P	DISTRICT OF COLUMBIA	WASHINGTON, DC	WAREHOUSES	SHED, STORAGE	TOOL SHED #NA26P	2006	48	$5,556	$0	$0	$0
1230B0027A	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	PAVILION, ALL OTHER	NORTH AMER. PAVILION #NA27A	1991	4,515	$1,036,980	$8,203	$24,101	$32,304
1230B0027B	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	PAVILION, ALL OTHER	CHINESE PAVILION #NA27B	1996	8,784	$1,973,317	$15,609	$45,864	$61,473
1230B0027C	DISTRICT OF COLUMBIA	WASHINGTON, DC	ALL OTHER	PAVILION, ALL OTHER	INTERNATIONAL PAVILIONS #NA27C	1996	4,337	$974,303	$7,707	$22,645	$30,352
1275B00016	MARYLAND	GLENN DALE	WAREHOUSES	STORAGE BUILDING	STORAGE #GD16	1931	1,750	$191,632	$17,383	$28,532	$45,915
1275B00046	MARYLAND	GLENN DALE	WAREHOUSES	GARAGE	GARAGE #GD46	1991	771	$92,997	$1,420	$4,845	$6,265
1275B00048	MARYLAND	GLENN DALE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE #GD48	1995	353	$102,534	$0	$0	$0
1300B00001	MAINE	CHAPMAN	SERVICE	CHANGING FACILITY, SERVICE	QUARANTINE CHANGE FAC. #001	1971	315	$76,663	$9,862	$1,551	$11,413
1300B00002	MAINE	CHAPMAN	WAREHOUSES	STORAGE BUILDING	FARM MACHINE STORAGE #002	1967	3,000	$313,290	$3,399	$0	$3,399
1300B00003	MAINE	CHAPMAN	WAREHOUSES	STORAGE BUILDING	POTATO STORAGE #003	1968	2,400	$250,632	$42,573	$0	$42,573
1400B00001	MAINE	PRESQUE ISLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #001	1954	407	$120,305	$3,802	$838	$4,640
1400B00002	MAINE	PRESQUE ISLE	ALL OTHER	GREENHOUSE	GREENHOUSE #002	1954	1,256	$244,543	$199	$77,346	$77,545
1400B00003	MAINE	PRESQUE ISLE	ALL OTHER	BARN	BARN #003	1926	2,099	$219,199	$67,079	$1,222	$68,301

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
1400B00005	MAINE	PRESQUE ISLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #005	1967	700	$206,913	$7,626	$1,382	$9,008
1400B00006	MAINE	PRESQUE ISLE	WAREHOUSES	STORAGE BUILDING	STORAGE #006	1968	1,188	$124,063	$21,074	$0	$21,074
1400B00007	MAINE	PRESQUE ISLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY #007	1965	1,166	$344,658	$12,074	$6,250	$18,324
1902008001	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1936	3,232	$669,800	$519	$202,019	$202,537
1902008002	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1936	3,131	$648,868	$502	$195,706	$196,208
1902008004	PENNSYLVANIA	STATE COLLEGE	LABORATORIES	LABORATORY	LABORATORY 4	1937	22,496	$7,925,521	$802,292	$322,394	$1,124,686
1902008005	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	HEADHOUSE	HEADHOUSE & GARAGE 5	1959	3,100	$575,279	$73,898	$2,165	$76,063
1902008007	PENNSYLVANIA	KLINGERSTOWN	OFFICE	LABORATORY, OFFICE	OFFICE 7 / LAB	1967	2,480	$729,956	$37,002	$15,852	$52,854
1902008008	PENNSYLVANIA	KLINGERSTOWN	WAREHOUSES	GARAGE	GARAGE #3-VEHICLE & EQUIPMENT :	1979	4,725	$516,310	$45,384	$0	$45,384
1902008009	PENNSYLVANIA	KLINGERSTOWN	WAREHOUSES	STORAGE BUILDING	SOILS BLDG/ STORAGE	1982	160	$17,765	$33	$0	$33
1902008010	PENNSYLVANIA	KLINGERSTOWN	WAREHOUSES	GARAGE	GARAGE #1-VEHICLE & EQUIPMENT :	1967	3,200	$349,670	$7,684	$18,139	$25,823
1902008011	PENNSYLVANIA	KLINGERSTOWN	WAREHOUSES	GARAGE	GARAGE #2	1987	1,200	$131,126	$10,964	$1,105	$12,068
1902008012	PENNSYLVANIA	KLINGERSTOWN	SERVICE	SHOP	FABRICATION SHOP (FORMER RESE.	1972	1,600	$244,166	$15,924	$1,195	$17,119
1902008014	PENNSYLVANIA	NOT IN LIST	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 14 (PSU# 996-06)	1968	3,840	$426,839	$76,939	$0	$76,939
1902008015	PENNSYLVANIA	NOT IN LIST	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE 15 (PSU# 996-08	1980	5,000	$555,780	$13,311	$4,282	$17,594
1902008016	PENNSYLVANIA	NOT IN LIST	WAREHOUSES	STORAGE BUILDING	TIMBER STORAGE 16 (PSU# 996-02)	1981	1,600	$177,850	$1,040	$24,269	$25,309
1902008017	PENNSYLVANIA	NOT IN LIST	ALL OTHER	ALL OTHER	FORAGE DRYER 17 (PSU# 996-07)	1981	1,152	$301,681	$19,274	$5,311	$24,585
1902008020	PENNSYLVANIA	STATE COLLEGE	LABORATORIES	LABORATORY	LABORATORY/OFFICE 20 (PSU #9960	1970	2,874	$1,012,533	$146,972	$91,300	$238,272
1902008021	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	GREENHOUSE	GREENHOUSE 21	1981	144	$29,843	$14	$0	$14
1902008022	PENNSYLVANIA	STATE COLLEGE	WAREHOUSES	SHED, STORAGE	STORAGE SHED 22	1998	128	$14,228	$0	$0	$0
1902008023	PENNSYLVANIA	STATE COLLEGE	WAREHOUSES	STORAGE BUILDING	REPAIR SHOP/ STORAGE 23 (PSU #9	1979	1,252	$139,167	$12,025	$0	$12,025
1902008024	PENNSYLVANIA	KLINGERSTOWN	ALL OTHER	BARN	POLE BARN- HOUSES FUEL AST	2003	120	$13,339	$0	$0	$0
1902008026	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	SCREENHOUSE	SCREENHOUSE (PSU# 996-21)	1993	1,152	$150,841	$0	$0	$0
1902008027	PENNSYLVANIA	STATE COLLEGE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/ GREENHOUSE #4 (PSU	1972	5,000	$974,970	$39,489	$3,267	$42,755
1907008002	NEW YORK	ITHACA	LABORATORIES	LABORATORY	LABORATORY/OFFICE 2	1940	47,535	$17,564,753	$600,591	$482,396	$1,082,987
1907008003	NEW YORK	ITHACA	ALL OTHER	HEADHOUSE	HEADHOUSE 3	1941	1,120	$217,992	$27,308	$800	$28,108
1907008004	NEW YORK	ITHACA	ALL OTHER	GREENHOUSE	GREENHOUSE 4	1941	5,152	$1,119,839	$945	$329,375	$330,220
1907008005	NEW YORK	ITHACA	WAREHOUSES	GARAGE	GARAGE 5	1942	875	$100,262	$0	$28,749	$28,749
1907008041	NEW YORK	ITHACA	SERVICE	GARAGE, SERVICE	GARAGE 41	1945	2,000	$329,992	$8,412	$10,091	$18,503
1907008042	NEW YORK	PRATTSBURG	ALL OTHER	TRAILER	TRAILER #1 42	1961	660	$76,945	$0	$5,721	$5,721
1907008062	NEW YORK	ITHACA	OFFICE	TRAILER, OFFICE	TRAILER 62	1972	720	$86,786	$32,239	$5,069	$37,308
1907008063	NEW YORK	PRATTSBURG	ALL OTHER	SCREENHOUSE	SCREENHOUSE 63	1977	4,608	$632,826	$67,363	$148,829	$216,192
1907008064	NEW YORK	PRATTSBURG	ALL OTHER	ALL OTHER	BUILDING 64	1971	3,600	$988,790	$292,507	$0	$292,507
1907008070	NEW YORK	ITHACA	ALL OTHER	GREENHOUSE	GREENHOUSE 70	2002	2,786	$605,565	$0	$0	$0
1908008011	NEW YORK	GENEVA	LABORATORIES	LABORATORY	MAIN UNIT 11	1984	8,548	$3,158,589	$266,612	$83,011	$349,623
1908008012	NEW YORK	GENEVA	LABORATORIES	LABORATORY	HEADHOUSE/GREENHOUSE 12	1968	4,434	$1,638,416	$23,329	$30,033	$53,362
1908008013	NEW YORK	GENEVA	ALL OTHER	INSECT FACILITY	INSECTARY 13	1977	1,800	$246,976	$13,026	$0	$13,026
1908008014	NEW YORK	GENEVA	ALL OTHER	HEADHOUSE	HEADHOUSE 14	1981	2,410	$469,073	$7,013	$32,104	$39,117
1908008015	NEW YORK	GENEVA	ALL OTHER	GREENHOUSE	GREENHOUSE 15	1990	2,880	$625,997	$12,680	$0	$12,680
1908008016	NEW YORK	GENEVA	ALL OTHER	GREENHOUSE	GREENHOUSE 16	1991	2,720	$591,219	$11,975	$0	$11,975
1908008017	NEW YORK	GENEVA	ALL OTHER	HEADHOUSE	HEADHOUSE 17	2003	2,400	$467,126	$6,984	$31,971	$38,955
1908008018	NEW YORK	GENEVA	ALL OTHER	GREENHOUSE	GREENHOUSE 18	2003	2,800	$608,608	$0	$0	$0
1908008041	NEW YORK	GENEVA	ALL OTHER	BARN	POLE BARN 41	1983	3,600	$419,702	$66,798	$0	$66,798
1908008042	NEW YORK	GENEVA	ALL OTHER	HAZMAT FACILITY	HAZARDOUS WASTE BUILDING 42	1992	58	$16,160	$1	$73	$74
1908008061	NEW YORK	GENEVA	ALL OTHER	BARN	POLE BARN/SHED 61	1991	12,000	$1,399,008	$0	$0	$0
1908008062	NEW YORK	GENEVA	OFFICE	OFFICE	CLONAL OFFICE BUILDING	2001	2,240	$608,608	$4,311	$12,667	$16,978
1908008065	NEW YORK	GENEVA	ALL OTHER	GREENHOUSE	GRAPE ROOTSTOCK GREENHOUSE	2001	2,800	$608,608	$0	$0	$0
1913008001	MAINE	ORONO	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 1	1973	2,117	$387,824	$13,803	$1,142	$14,945
1913008002	MAINE	ORONO	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 2	1973	10,658	$3,150,398	$298,143	$52,533	$350,676
1913008003	MAINE	ORONO	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 3	1973	10,045	$1,840,194	$65,493	$5,418	$70,911
1913008004	MAINE	PRESQUE ISLE	ALL OTHER	ALL OTHER	WORK SPACE BUILDING	2000	1,760	$433,013	$0	$0	$0
1913008005	MAINE	PRESQUE ISLE	WAREHOUSES	STORAGE BUILDING	FARM STORAGE BUILDING	2000	3,260	$340,442	$0	$0	$0
1926058002	DELAWARE	NEWARK	ALL OTHER	HEADHOUSE	HEADHOUSE 2	1976	1,800	$356,373	$4,285	$0	$4,285
1926058003	DELAWARE	NEWARK	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1976	1,100	$243,210	$6,420	$0	$6,420
1926058004	DELAWARE	NEWARK	ALL OTHER	INSECT FACILITY	INSECTARY 4	1976	300	$42,210	$2,247	$0	$2,247
1926058005	DELAWARE	NEWARK	OFFICE	OFFICE	OFFICE BUILDING	2006	3,400	$639,675	$159,952	$25,147	$185,099
1928108002	NEW JERSEY	CHATSWORTH	ALL OTHER	HEADHOUSE	HEADHOUSE #2	1977	1,164	$242,608	$2,971	$0	$2,971
1928108004	NEW JERSEY	CHATSWORTH	ALL OTHER	GREENHOUSE	GREENHOUSE-AS #4	1977	2,880	$670,349	$27,894	$238,044	$265,938
1928108005	NEW JERSEY	CHATSWORTH	ALL OTHER	GREENHOUSE	GREENHOUSE-NEW #5	1994	2,880	$670,349	$4,544	$0	$4,544
1928106006	NEW JERSEY	CHATSWORTH	ALL OTHER	HEADHOUSE	HEADHOUSE #6	1970	784	$163,406	$21,213	$621	$21,834
1928108008	NEW JERSEY	CHATSWORTH	ALL OTHER	GREENHOUSE	GREENHOUSE #8	1970	1,296	$301,657	$111	$0	$111
1928108100	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #100	1987	1,344	$395,303	$156	$74,941	$75,097
1928108200	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #200	1987	1,344	$395,303	$156	$74,941	$75,097
1928108300	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #300	1991	1,344	$395,303	$782	$9,437	$10,220
1928108400	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #400	1993	1,344	$395,303	$782	$9,437	$10,220
1928108500	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #500	1996	1,344	$395,303	$376	$180,877	$181,253
1928108600	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #600	1996	1,344	$395,303	$376	$180,877	$181,253
1928108700	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #700	1994	1,344	$395,303	$376	$180,877	$181,253
1928108800	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #800	1994	1,344	$395,303	$376	$180,877	$181,253
1928108900	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #900	1996	1,344	$395,303	$376	$180,877	$181,253
1928181000	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #1000	1996	1,344	$395,303	$376	$180,877	$181,253

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
192B1B1100	NEW JERSEY	CHATSWORTH	ALL OTHER	ALL OTHER	COLD FRAME #1100	1997	849	$249,711	$0	$0	$0
192B1B1200	NEW JERSEY	CHATSWORTH	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE #1200	1999	96	$46,417	$0	$0	$0
192B1B1300	NEW JERSEY	CHATSWORTH	SERVICE	PUMPHOUSE, SERVICE	TRIANGLE FIELD PUMPHOUSE #1300	2000	64	$30,944	$0	$0	$0
193000B001	WEST VIRGINIA	LEETOWN	LABORATORIES	LABORATORY	MAIN LAB	2001	28,000	$9,979,816	$0	$0	$0
193000B002	WEST VIRGINIA	LEETOWN	ALL OTHER	ALL OTHER	TANK BUILDING	2001	21,000	$5,563,614	$0	$0	$0
193000B003	WEST VIRGINIA	LEETOWN	SERVICE	ALL OTHER	OZONE BUILDING	2001	500	$115,790	$2,145	$933	$3,078
193000B004	WEST VIRGINIA	LEETOWN	ALL OTHER	WATER SYSTEM BUILDING	PUMP BUILDING	2001	215	$89,334	$0	$5,115	$5,115
193000B005	WEST VIRGINIA	LEETOWN	ALL OTHER	WATER SYSTEM BUILDING	GAC AND WATER TREATMENT BLDG	2001	1,848	$767,859	$0	$43,966	$43,966
193000B006	WEST VIRGINIA	LEETOWN	ALL OTHER	ALL OTHER	ULTRA VIOLET BUILDING/K-POND	2001	445	$117,896	$0	$0	$0
193000B007			ALL OTHER	ANIMAL FACILITY, ALL OTHER	BROOD FISH FACILITY	2008	7,000	$1,214,122	$0	$0	$0
193105B003	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	ALL OTHER	FARM CENTER- GRADER BLD/ STOR/	1986	18,000	$4,768,812	$9,252	$111,620	$120,872
193105B004	WEST VIRGINIA	KEARNEYSVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1979	59,000	$18,779,818	$2,178,607	$476,298	$2,654,904
193105B011	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	ALL OTHER	QUONSET BUILDING	2003	1,250	$331,168	$0	$0	$0
193105B012	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	INSECT FACILITY	INSECT OVERWINTERING FACILITY	2003	800	$106,736	$0	$0	$0
193105B013	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	FIELD GREENHOUSE	1997	2,700	$566,082	$0	$0	$0
193105B014	WEST VIRGINIA	KEARNEYSVILLE	WAREHOUSES	BARN, STORAGE	FIELD POLE BARN	1998	3,200	$353,754	$0	$0	$0
193105B015	WEST VIRGINIA	KEARNEYSVILLE	WAREHOUSES	BARN, STORAGE	POLE BARN/ STORAGE BUILDING	1991	6,000	$663,288	$0	$0	$0
193105B08A	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-8A	1987	2,250	$471,735	$85,424	$0	$85,424
193105B08B	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-8B	1987	2,250	$471,735	$85,424	$0	$85,424
193105B09A	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-9A	1987	2,250	$471,735	$85,424	$0	$85,424
193105B09B	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-9B	1987	2,250	$471,735	$85,424	$0	$85,424
193105B100	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-1	1979	1,066	$223,498	$105	$0	$105
193105B200	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-2	1979	1,066	$223,498	$105	$0	$105
193105B300	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-3	1979	1,066	$223,498	$105	$0	$105
193105B400	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-4	1979	1,066	$223,498	$105	$0	$105
193105B500	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-5	1979	1,066	$223,498	$105	$0	$105
193105B600	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-6	1979	1,066	$223,498	$105	$0	$105
193105B700	WEST VIRGINIA	KEARNEYSVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE-7	1979	1,066	$223,498	$105	$0	$105
193205B001	WEST VIRGINIA	BEAVER	LABORATORIES	LABORATORY	LABORATORY & GREENHOUSES 1	1979	31,288	$11,151,732	$1,030,054	$154,214	$1,184,268
193205B002	WEST VIRGINIA	BEAVER	LABORATORIES	RESEARCH OFFICE/LABORATORY	HYDROLOGY LAB/OFFICE 02	1979	7,064	$2,248,485	$260,842	$57,027	$317,869
193205B003	WEST VIRGINIA	BEAVER	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BUILDING 3	1984	400	$119,316	$567	$0	$567
193205B004	WEST VIRGINIA	BEAVER	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 4	1984	2,424	$272,588	$1,483	$0	$1,483
193205B005	WEST VIRGINIA	BEAVER	SERVICE	SHOP	SHOPS BUILDING	1986	3,276	$505,769	$240,636	$67,178	$307,814
193205B006	WEST VIRGINIA	BEAVER	LABORATORIES	LABORATORY	SOILS BUILDING 05	1964	2,405	$857,195	$4,329	$7,706	$12,035
193205B007	WEST VIRGINIA	BEAVER	LABORATORIES	LABORATORY	PLANTS BUILDING 06	1985	3,600	$1,283,119	$6,479	$11,535	$18,015
193205B009	WEST VIRGINIA	BEAVER	ALL OTHER	HAZMAT FACILITY	HAZARDOUS WASTE METAL BUILDIN	2000	100	$26,875	$2	$124	$126
193205B010	WEST VIRGINIA	BEAVER	ALL OTHER	GREENHOUSE	QUONSET GREENHOUSE	1998	1,200	$251,592	$0	$0	$0
193205B011	WEST VIRGINIA		WAREHOUSES	GARAGE	STORAGE GARAGE	1998	288	$31,838	$0	$0	$0
193205B012	WEST VIRGINIA		WAREHOUSES	SHED, STORAGE	METAL STORAGE SHED	1950	800	$89,963	$8,263	$3,707	$11,969
193205B013	WEST VIRGINIA		ALL OTHER	ANIMAL FACILITY, ALL OTHER	STEER BARN-RESEARCH	1950	1,500	$260,169	$57,218	$7,217	$64,435
193205B014	WEST VIRGINIA	SHADY SPRING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	GOAT/ SHEEP BARN-RESEARCH	2003	2,560	$444,022	$0	$0	$0
193205B015	WEST VIRGINIA	SHADY SPRING	WAREHOUSES	BARN, STORAGE	POLE BARN-MACHINERY STORAGE	2003	3,840	$424,504	$0	$0	$0
193205B016	WEST VIRGINIA		ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK POLE BARN- RESEARCH	2002	800	$138,757	$0	$0	$0
193205B017	WEST VIRGINIA		ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK/ HAY BARN	1950	1,800	$312,203	$68,661	$8,660	$77,321
193205B018	WEST VIRGINIA		WAREHOUSES	BARN, STORAGE	STORAGE BARN	1950	360	$39,797	$215	$6,081	$6,296
193205B019	WEST VIRGINIA		ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK BARN	2003	900	$156,101	$0	$0	$0
193500B002	PENNSYLVANIA	WYNDMOOR	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE (ERRC# 8)	1941	432	$154,552	$432	$39,131	$39,562
193500B003	PENNSYLVANIA	WYNDMOOR	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE LOCKERS (ERR(	1948	330	$118,060	$330	$29,892	$30,221
193500B005	PENNSYLVANIA	WYNDMOOR	ALL OTHER	UTILITY BUILDING	SERVICE BLDG (BOILERS) (ERRC#5)	1940	14,162	$6,733,861	$999,585	$34,100	$1,033,685
193500B006	PENNSYLVANIA	WYNDMOOR	SERVICE	SHOP	MECHANICAL SERVICE BLDG (ERRC(	1969	25,488	$4,719,511	$891,546	$528,016	$1,419,562
193500B007	PENNSYLVANIA	WYNDMOOR	LABORATORIES	LABORATORY	HAZARD OPERATIONS BLDG (ERRC#	1950	2,025	$865,651	$166,420	$10,746	$177,166
193500B008	PENNSYLVANIA	WYNDMOOR	LABORATORIES	LABORATORY	MAIN LABORATORY/OFFICE (ERRC#	1940	185,279	$79,203,437	$2,933,681	$2,356,338	$5,290,019
193500B009	PENNSYLVANIA	WYNDMOOR	WAREHOUSES	STORAGE BUILDING	MEAT PROCESSING LAB (STORAGE)	1949	2,562	$345,547	$82,220	$310,452	$392,672
193500B010	PENNSYLVANIA	WYNDMOOR	LABORATORIES	LABORATORY	HIDES & LEATHER BLDG (ERRC# 16)	1978	3,810	$1,628,706	$61,979	$13,268	$75,246
193500B013	PENNSYLVANIA	WYNDMOOR	WAREHOUSES	CHEMICAL STORAGE	WASTE HAZARDS/SOLVENT STRG BL(	1989	176	$62,966	$976	$0	$976
193500B017	PENNSYLVANIA	WYNDMOOR	SERVICE	GARAGE, SERVICE	VEHICLE STORAGE BUILDING (ERRC	1979	2,400	$458,114	$15,464	$0	$15,464
195000B001	MASSACHUSETTS	BOSTON	LABORATORIES	LABORATORY	LABORATORY 1	1982	195,245	$84,266,961	$4,652,340	$884,175	$5,536,515
3604058001		Columbus	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BUILDING 1	1978	6,000	$661,980	$15,556	$5,005	$20,561
3604058003	OHIO	COLUMBUS	ALL OTHER	ALL OTHER	AG. ENGINEERING BUILDING 3	1975	4,068	$1,057,395	$318,774	$0	$318,774
3604058006	OHIO	COLUMBUS	WAREHOUSES	GARAGE	VEHICLE STORAGE 6	1979	1,664	$180,477	$15,565	$0	$15,565
3605008001	OHIO	FRESNO	OFFICE	OFFICE	ADMINISTRATION BLDG 1	1938	4,800	$1,234,200	$87,910	$45,487	$133,397
3605008002	OHIO	FRESNO	OFFICE	OFFICE	ENGINEERING LAB 2	1938	3,600	$925,650	$65,932	$34,116	$100,048
3605008003	OHIO	FRESNO	LABORATORIES	LABORATORY	LABORATORY 3	1938	3,600	$1,258,884	$134,054	$53,869	$187,923
3605008004	OHIO	FRESNO	LABORATORIES	LABORATORY	LIBRARY/CONFERENCE 4	1938	5,457	$1,908,258	$203,204	$81,656	$284,860
3605008005	OHIO	FRESNO	SERVICE	SHOP	ELECTRONIC SHOP 5	1938	1,458	$220,843	$21,424	$23,542	$44,967
3605008006	OHIO	FRESNO	WAREHOUSES	GARAGE	VEHICLE STORAGE 6	1938	1,080	$117,137	$146	$23,671	$23,817
3605008007	OHIO	FRESNO	WAREHOUSES	SHED, STORAGE	VEHICLE SHED 7	1939	1,484	$163,730	$865	$24,414	$25,279
3605008008	OHIO	FRESNO	WAREHOUSES	STORAGE WAREHOUSE	STOCK ROOM 8	1938	2,900	$319,957	$2,423	$75,359	$77,783
3605008009	OHIO	FRESNO	SERVICE	GARAGE, SERVICE	REPAIR GARAGE 9	1938	4,200	$655,809	$61,716	$67,817	$129,533
3605008010	OHIO	FRESNO	SERVICE	SHOP	CARPENTER SHOP 10	1938	2,900	$439,263	$42,614	$46,826	$89,440
3605008011	OHIO	FRESNO	WAREHOUSES	GARAGE	VEHICLE SHED 11	1939	2,968	$321,909	$403	$65,050	$65,453

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
360500B013	OHIO	FRESNO	WAREHOUSES	STORAGE BUILDING	FARM QUONSET 13	1961	4,000	$441,320	$25	$21,031	$21,056
360500B014	OHIO	FRESNO	WAREHOUSES	STORAGE BUILDING	FARM QUONSET 14	1960	4,000	$441,320	$23,590	$12,623	$36,213
360500B015	OHIO	FRESNO	ALL OTHER	WATER SYSTEM BUILDING	FILTRATION PLANT 15	1979	1,024	$417,444	$30,072	$10,331	$40,404
360500B016	OHIO	FRESNO	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 16	1938	1,426	$157,551	$4,814	$0	$4,814
360500B018	OHIO	FRESNO	FAMILY HOUSING	RESIDENCE	RESIDENCE 18	1935	2,520	$475,952	$23,401	$6,028	$29,429
360500B030	OHIO	FRESNO	ALL OTHER	BARN	BARN 30	1935	4,032	$444,851	$0	$27,399	$27,399
360500B040	OHIO	FRESNO	ALL OTHER	BARN	BARN 40	1935	5,968	$658,449	$85,046	$83,307	$168,353
360500B042	OHIO	FRESNO	FAMILY HOUSING	RESIDENCE	RESIDENCE 42	1982	2,936	$554,522	$10,568	$24,465	$35,033
360500B060	OHIO	FRESNO	ALL OTHER	BARN	BARN 60	1935	2,816	$310,689	$0	$19,136	$19,136
360500B061	OHIO	FRESNO	WAREHOUSES	STORAGE BUILDING	POLE BUILDING 61	1963	4,200	$463,386	$2,895	$0	$2,895
360500B50A	OHIO	FRESNO	ALL OTHER	BARN	BARN 50A	1996	7,200	$794,376	$0	$0	$0
360700B001	OHIO	WOOSTER	LABORATORIES	LABORATORY	USDA INSECTORY	1968	1,575	$592,584	$39,408	$0	$39,408
360700B002	OHIO	WOOSTER	ALL OTHER	GREENHOUSE	USDA VECTOR VIRUS GREENHOUSE	1968	450	$99,594	$31,551	$0	$31,551
360700B003	OHIO	WOOSTER	ALL OTHER	GREENHOUSE	USDA PLANT PATH GREENHOUSE	1968	4,795	$1,061,229	$95	$1,036,599	$1,036,694
360700B005	OHIO	WOOSTER	WAREHOUSES	CHEMICAL STORAGE	USDA PESTICIDE STORAGE BLDG	1972	2,400	$755,707	$72,824	$0	$72,824
360700B006	OHIO	WOOSTER	LABORATORIES	LABORATORY	USDA SOYBEAN BLDG	1980	5,833	$2,194,631	$41,318	$96,444	$137,761
360700B013	OHIO	WOOSTER	WAREHOUSES	BARN, STORAGE	USDA BARN	2004	280	$32,675	$0	$0	$0
361100B002	ILLINOIS	URBANA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 1002	1981	2,800	$319,186	$1,828	$42,642	$44,470
361100B194	ILLINOIS	URBANA	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 194	1982	3,582	$716,264	$28,293	$2,340	$30,633
361100B846	ILLINOIS	URBANA	LABORATORIES	LABORATORY	FIELD LABORATORY 846	1949	2,888	$971,131	$277,882	$17,943	$295,825
361100B853	ILLINOIS	URBANA	LABORATORIES	LABORATORY	FIELD LABORATORY 853	1981	4,200	$1,517,393	$7,565	$13,468	$21,033
361100B991	ILLINOIS	URBANA	LABORATORIES	LABORATORY	SOYBEAN FIELD LABORATORY 991	1977	9,200	$3,323,813	$118,269	$25,317	$143,586
362000B001	ILLINOIS	PEORIA	LABORATORIES	LABORATORY	LABORATORY #1	1939	327,268	$120,195,064	$5,355,005	$2,489,971	$7,844,976
362000B002	ILLINOIS	PEORIA	ALL OTHER	UTILITY BUILDING	BOILERHOUSE #2	1939	12,750	$5,208,528	$738,979	$2,526	$741,505
362000B003	ILLINOIS	PEORIA	SERVICE	SHOP	SEMI-WORKS BUILDING #3	1945	2,615	$416,005	$10,410	$12,487	$22,897
362000B004	ILLINOIS	PEORIA	WAREHOUSES	STORAGE BUILDING	PROPERTY STORAGE #4	1943	2,180	$252,610	$1,395	$5,316	$6,711
362000B005	ILLINOIS	PEORIA	WAREHOUSES	STORAGE BUILDING	COMMODITY STORAGE #5	1943	6,400	$741,606	$550	$90,591	$91,142
362000B007	ILLINOIS	PEORIA	SERVICE	FEED MILL, SERVICE	MILLING BUILDING #7	1948	1,116	$646,588	$4,443	$5,329	$9,772
362000B008	ILLINOIS	PEORIA	ALL OTHER	ALL OTHER	CORN GROWTH ROOM #8	1966	828	$226,041	$2,828	$0	$2,828
362000B009	ILLINOIS	PEORIA	WAREHOUSES	GARAGE	STORAGE GARAGE #9	1967	1,390	$158,338	$3,327	$7,854	$11,182
362000B010	ILLINOIS	PEORIA	WAREHOUSES	CHEMICAL STORAGE	SEED/SOLVENT STORAGE #10	1985	2,233	$686,348	$9,996	$0	$9,996
362000B011	ILLINOIS	PEORIA	WAREHOUSES	HAZMAT FACILITY	HAZ MATERIALS STORAGE BLDG #11	1993	272	$75,323	$0	$3,793	$3,793
362000B012	ILLINOIS	PEORIA	WAREHOUSES	CHEMICAL STORAGE	CHEM STORAGE #12	1993	188	$57,785	$0	$0	$0
362000B013	ILLINOIS	PEORIA	ALL OTHER	GREENHOUSE	GREENHOUSE #13	1984	2,665	$575,747	$57,684	$228,673	$286,357
362000B014	ILLINOIS	PEORIA	WAREHOUSES	SHED, STORAGE	GARDEN SHED #14	2002	400	$46,350	$0	$0	$0
362200B001	MISSOURI	COLUMBIA	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY OFFICE 1B	1968	11,300	$3,921,394	$314,254	$117,119	$431,373
362200B002	MISSOURI	COLUMBIA	ALL OTHER	GREENHOUSE	GREENHOUSE 2B	1966	7,576	$1,731,722	$487,882	$600,676	$1,088,557
362200B003	MISSOURI	COLUMBIA	SERVICE	SHOP	CARPENTER SHOP 3B	1978	368	$61,941	$683	$23	$706
362200B004	MISSOURI	COLUMBIA	WAREHOUSES	SHED, STORAGE	MACHINE SHED 4B	1989	1,728	$211,856	$0	$0	$0
362200B006	MISSOURI	COLUMBIA	WAREHOUSES	HAZMAT FACILITY	SAFETY STORAGE 6B	1989	72	$21,096	$0	$0	$0
362200B007	MISSOURI	COLUMBIA	WAREHOUSES	HAZMAT FACILITY	SAFETY STORAGE 7B	1989	72	$21,096	$0	$0	$0
362200B009	MISSOURI	COLUMBIA	WAREHOUSES	STORAGE BUILDING	QUONSET 5C	1963	4,000	$490,408	$36,443	$77,507	$113,950
362200B010	MISSOURI	COLUMBIA	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 6P	1985	10,875	$2,338,919	$36,224	$28,761	$64,985
362200B011	MISSOURI	CENTRALIA	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE BUILDING 7C	1993	3,000	$367,806	$0	$0	$0
362200B014	MISSOURI	COLUMBIA	ALL OTHER	ALL OTHER	FIELD RESEARCH BUILDING 9C	2001	5,000	$1,444,210	$0	$0	$0
362500B001	IOWA	AMES	LABORATORIES	LABORATORY	LABORATORY 1	1987	82,000	$27,754,540	$1,821,011	$228,097	$2,049,108
362500B004	IOWA	BOONE	SERVICE	SHOP	MACHINE SHOP AE-22	1984	5,032	$737,742	$20,600	$0	$20,600
362500B005	IOWA	BOONE	SERVICE	SHOP	MACHINE SHOP AE-25	1999	7,800	$1,143,558	$976	$0	$976
362500B007	IOWA	BOONE	WAREHOUSES	STORAGE BUILDING	EQUIP STORAGE/OFFICE 7(BRUNER)	1991	2,520	$269,111	$4,695	$16,020	$20,715
362510B001	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	METAL BLDG 1 (CURTISS)	1978	3,200	$341,728	$7,970	$2,564	$10,534
362510B999	IOWA	BOONE	WAREHOUSES	STORAGE BUILDING	POLE BLDG AE-23	1987	5,706	$809,344	$6,831	$0	$6,831
362512B000	IOWA	AMES	ALL OTHER	ALL OTHER	ENTOMOLOGY BUILDING	1991	5,450	$1,371,186	$16,595	$0	$16,595
362512B001	IOWA	AMES	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1969	1,800	$358,380	$132	$0	$132
362512B002	IOWA	AMES	SERVICE	SHOP	SHOP 2	1979	14,250	$2,089,193	$20,983	$719	$21,702
362512B105	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	MACHINERY STORAGE II (US-105)	2004	6,008	$641,594	$0	$0	$0
362512B115	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	GEM SEED STORAGE	2002	1,000	$106,790	$1,863	$6,357	$8,220
363000B001	IOWA	AMES	OFFICE	OFFICE	ADMINISTRATION BUILDING #1	1962	39,226	$9,762,371	$1,546,016	$243,057	$1,789,073
363000B002	IOWA	AMES	LABORATORIES	CONTAINMENT FACILITY	LABORATORY #2	1962	134,892	$60,916,553	$5,265,819	$2,206,567	$7,472,386
363000B003	IOWA	AMES	LABORATORIES	CONTAINMENT FACILITY	ANIMAL CONTAINMENT #3	1962	44,257	$19,986,240	$2,078,734	$525,584	$2,604,319
363000B004	IOWA	AMES	LABORATORIES	CONTAINMENT FACILITY	ANIMAL CONTAINMENT #4	1962	44,257	$19,986,240	$2,078,734	$525,584	$2,604,319
363000B005	IOWA	AMES	ALL OTHER	ALL OTHER	INCINERATOR NECROPSY FAC #5	1994	6,294	$2,086,887	$2,081	$0	$2,081
363000B006	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	RODENT FACILITY #6	2003	2,438	$401,563	$0	$0	$0
363000B010	IOWA	AMES	SERVICE	SHOP	SHOP BUILDING #10	1962	23,776	$3,485,799	$258,435	$37,439	$295,875
363000B011	IOWA	AMES	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE #11	1963	10,368	$1,107,199	$85,958	$3,464	$89,422
363000B012	IOWA	AMES	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE BUILDING #12	1963	432	$122,370	$327	$29,641	$29,968
363000B013	IOWA	AMES	WAREHOUSES	STORAGE WAREHOUSE	FEED WAREHOUSE #13	1962	6,000	$640,740	$51,291	$9,493	$60,784
363000B014	IOWA	AMES	WAREHOUSES	STORAGE WAREHOUSE	FEED WAREHOUSE #14	1962	8,000	$854,320	$62,694	$8,381	$71,075
363000B015	IOWA	AMES	WAREHOUSES	STORAGE WAREHOUSE	FEED WAREHOUSE #15	1965	4,800	$512,592	$38,744	$4,190	$42,934
363000B016	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #16	1965	4,800	$512,592	$38,744	$4,190	$42,934
363000B017	IOWA	AMES	WAREHOUSES	STORAGE WAREHOUSE	ENGR WAREHOUSE #17	1967	4,800	$491,234	$45,548	$4,190	$49,738
363000B021	IOWA	AMES	LABORATORIES	LABORATORY	LABORATORY BUILDING 321	2004	68,000	$23,015,960	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
363000B002	IOWA	AMES	ALL OTHER	ALL OTHER	TRAINING BARN #D-2	2005	4,000	$427,160	$0	$0	$0
363000B108	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #108	1962	1,376	$621,395	$33,721	$1,780	$35,501
363000B109	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #109	1962	864	$390,178	$70,104	$1,373	$71,476
363000B110	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #110	1962	1,376	$621,395	$33,721	$1,780	$35,501
363000B111	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #111	1962	1,120	$505,786	$90,875	$1,780	$92,655
363000B112	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	SAFETY RES STORAGE BLDG #112	1962	2,048	$218,706	$75,428	$3,874	$79,302
363000B113	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	SAFETY RES STORAGE BLDG #112A	1979	1,152	$123,022	$10,351	$0	$10,351
363000B116	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #116	1962	1,152	$520,237	$93,471	$1,831	$95,302
363000B117	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #117	1962	864	$390,178	$70,104	$1,373	$71,476
363000B118	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #118	1962	864	$390,178	$70,104	$1,373	$71,476
363000B119	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #119	1962	864	$390,178	$70,104	$1,373	$71,476
363000B125	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	MASTITIS BARN #125	1962	10,641	$1,752,679	$166,582	$45,827	$212,408
363000B126	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #126	1962	2,676	$1,298,787	$201,708	$1,909	$203,617
363000B127	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #127	1962	2,300	$1,038,669	$156,474	$2,438	$158,912
363000B128	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #128	1962	2,300	$1,038,669	$156,474	$2,438	$158,912
363000B129	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #129	1962	2,300	$1,038,669	$156,474	$2,438	$158,912
363000B130	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #130	1962	2,300	$1,038,669	$156,474	$2,438	$158,912
363000B131	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	BARN #131	1962	1,872	$845,386	$45,876	$2,421	$48,297
363000B132	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #132	1962	3,183	$1,437,427	$215,123	$1,909	$217,032
363000B133	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #133	1962	2,880	$1,300,594	$195,933	$3,053	$198,986
363000B134	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #134	1962	2,880	$1,300,594	$195,933	$3,053	$198,986
363000B135	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #135	1962	2,880	$1,300,594	$195,933	$3,053	$198,986
363000B136	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #136	1962	2,880	$1,300,594	$195,933	$3,053	$198,986
363000B137	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL BUILDING #137	1962	3,072	$1,387,300	$207,621	$1,842	$209,464
363000B149	IOWA	AMES	ALL OTHER	CONTAINMENT FACILITY	ANIMAL RECEIVING BUILDING #149	1962	2,300	$1,038,669	$156,474	$2,438	$158,912
363000B152	IOWA	AMES	SERVICE	CHANGING FACILITY, SERVICE	CHANGE HOUSE #152	1962	7,326	$1,823,258	$229,816	$36,131	$265,946
363000B154	IOWA	AMES	ALL OTHER	UTILITY BUILDING	BOILER PLANT #154	1962	9,880	$3,644,326	$607,112	$20,711	$627,823
363000B155	IOWA	AMES	ALL OTHER	WASTE FACILITY	WASTE TREATMENT PLANT #155	1962	10,400	$3,416,556	$862,637	$68,517	$931,154
363000B157	IOWA	AMES	SERVICE	ALL OTHER	CAGE WASH #157	1962	2,800	$615,762	$63,084	$22,187	$85,271
363000B191	IOWA	AMES	ALL OTHER	BARN	BLDG #191 - STORAGE	1969	1,066	$113,838	$4,075	$0	$4,075
363000B192	IOWA	AMES	ALL OTHER	BARN	BARN #192	1969	1,066	$113,838	$4,075	$0	$4,075
363000B193	IOWA	AMES	ALL OTHER	BARN	BARN #193	1969	768	$82,015	$39,941	$0	$39,941
363000B194	IOWA	AMES	ALL OTHER	BARN	BARN #194	1969	768	$82,015	$39,941	$0	$39,941
363000B195	IOWA	AMES	ALL OTHER	BARN	BARN #195	1969	768	$82,015	$39,941	$0	$39,941
363000B196	IOWA	AMES	ALL OTHER	BARN	BARN #196	1969	624	$66,637	$32,452	$0	$32,452
363000B197	IOWA	AMES	ALL OTHER	BARN	BARN #197	1969	1,200	$126,148	$3,160	$0	$3,160
363000B198	IOWA	AMES	ALL OTHER	BARN	BLDG #198 - UNIVERSAL WASTE STC	1967	512	$54,676	$15,763	$1,573	$17,336
363000B199	IOWA	AMES	ALL OTHER	HAZMAT FACILITY	RADIATION WASTE BUILDING #199	1967	768	$196,001	$62,314	$1,220	$63,535
363000B201	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #201	1963	1,536	$164,029	$5,746	$0	$5,746
363000B202	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #202	1963	1,536	$164,029	$5,746	$0	$5,746
363000B203	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #203	1963	1,536	$164,029	$5,746	$0	$5,746
363000B204	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #204	1963	1,536	$164,029	$5,746	$0	$5,746
363000B205	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #205	1963	1,536	$164,029	$5,746	$0	$5,746
363000B206	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #206	1963	1,536	$164,029	$5,746	$0	$5,746
363000B207	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #207	1963	1,536	$164,029	$5,746	$0	$5,746
363000B208	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #208	1963	1,536	$164,029	$5,746	$0	$5,746
363000B209	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #209	1964	1,536	$164,029	$5,746	$0	$5,746
363000B210	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #210	1964	1,536	$164,029	$5,746	$0	$5,746
363000B211	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #211	1964	1,536	$164,029	$5,746	$0	$5,746
363000B212	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #212	1964	1,536	$164,029	$5,746	$0	$5,746
363000B213	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #213	1964	1,536	$164,029	$5,746	$0	$5,746
363000B214	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #214	1964	1,536	$164,029	$5,746	$0	$5,746
363000B215	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #215	1964	1,536	$164,029	$5,746	$0	$5,746
363000B216	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #216	1964	1,536	$164,029	$5,746	$0	$5,746
363000B217	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #217	1965	1,536	$164,029	$5,746	$0	$5,746
363000B218	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #218	1965	1,536	$164,029	$5,746	$0	$5,746
363000B219	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #219	1965	1,536	$164,029	$5,746	$0	$5,746
363000B220	IOWA	AMES	ALL OTHER	BARN	FIELD BARN #220	1965	1,536	$164,029	$5,746	$0	$5,746
363000B221	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BUILDING WITH FIELD PEN #221	1979	960	$158,122	$6,588	$0	$6,588
363000B222	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BUILDING WITH FIELD PEN #222	1979	960	$158,122	$6,588	$0	$6,588
363000B223	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BUILDING WITH FIELD PEN #223	1979	960	$158,122	$6,588	$0	$6,588
363000B224	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BUILDING WITH FIELD PEN #224	1979	960	$158,122	$6,588	$0	$6,588
363000B225	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BUILDING WITH FIELD PEN #225	1979	960	$158,122	$6,588	$0	$6,588
363000B226	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	HAY STORAGE BUILDING #226	1983	5,760	$615,110	$3,814	$0	$3,814
363000B227	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSING BLDG #200A	1996	1,800	$296,478	$0	$0	$0
363000B230	IOWA	AMES	ALL OTHER	BARN	BARN #230	1966	1,560	$166,592	$5,836	$0	$5,836
363000B231	IOWA	AMES	ALL OTHER	BARN	BARN #231	1966	1,560	$166,592	$5,836	$0	$5,836
363000B232	IOWA	AMES	ALL OTHER	BARN	BARN #232	1966	1,560	$166,592	$5,836	$0	$5,836
363000B233	IOWA	AMES	ALL OTHER	BARN	BARN #233	1966	1,560	$166,592	$5,836	$0	$5,836
363000B234	IOWA	AMES	ALL OTHER	BARN	BARN #234	1967	896	$95,684	$27,585	$2,753	$30,338
363000B303	IOWA	AMES	ALL OTHER	WASTE FACILITY	WASTE TREATMENT BUILDING #303	1963	312	$102,497	$9,009	$3,095	$12,104

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
363000B311	IOWA	AMES	SERVICE	ALL OTHER	VEHICLE DECONTAMINATION #311	1967	768	$166,895	$17,303	$6,086	$23,389
363000B312	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	FARROWING HOUSE #312	1960	1,664	$274,077	$19,325	$605	$19,929
363000B313	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	FARROWING HOUSE #313	1965	1,664	$274,077	$93,849	$23,202	$117,051
363000B321	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOLDING BUILDING #321	1965	1,520	$250,359	$330	$2,336	$2,666
363000B322	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOLDING BUILDING #322	1965	1,536	$252,995	$334	$2,360	$2,694
363000B323	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HOLDING BUILDING #323	1965	1,536	$252,995	$334	$2,360	$2,694
363000B326	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #326	1969	1,008	$166,028	$56,851	$14,055	$70,906
363000B341	IOWA	AMES	SERVICE	ALL OTHER	CAGE WASH BUILDING #341	1966	1,536	$337,789	$34,606	$12,171	$46,777
363000B342	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #342	1966	1,536	$252,995	$334	$2,360	$2,694
363000B343	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #343	1966	1,536	$252,995	$334	$2,360	$2,694
363000B344	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #344	1964	1,536	$252,995	$86,630	$21,418	$108,047
363000B345	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #345	1966	1,536	$252,995	$334	$2,360	$2,694
363000B346	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #346	1966	1,536	$252,995	$334	$2,360	$2,694
363000B352	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #352	1969	816	$134,403	$46,022	$11,378	$57,400
363000B353	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #353	1969	1,056	$173,934	$59,558	$14,725	$74,283
363000B354	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #354	1969	1,152	$189,746	$64,972	$16,063	$81,035
363000B355	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #355	1963	396	$65,225	$22,550	$5,522	$28,072
363000B356	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #356	1963	396	$65,225	$22,550	$5,522	$28,072
363000B357	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #357	1963	396	$65,225	$22,550	$5,522	$28,072
363000B358	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #358	1963	396	$65,225	$22,550	$5,522	$28,072
363000B359	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #359	1969	1,190	$196,005	$67,115	$16,593	$83,709
363000B368	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	VEHICLE STORAGE BUILDING #368	1952	1,440	$153,778	$11,435	$0	$11,435
363000B375	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE BUILDING #375	1954	1,152	$123,022	$9,148	$0	$9,148
363000B378	IOWA	AMES	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING #378	1914	444	$47,415	$371	$20,187	$20,558
363000B379	IOWA	AMES	LABORATORIES	LABORATORY	LABORATORY #379	1914	715	$242,006	$9,082	$8,801	$17,883
363000B380	IOWA	AMES	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL PRODUCTION BLDG #380	1956	1,017	$167,510	$79,652	$9,029	$88,680
363500B001	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	MAIN LABORATORY 1	1938	9,772	$4,690,931	$489,415	$123,743	$613,158
363500B002	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	WEST BROODER HOUSE 2	1938	4,494	$786,827	$107,089	$3,725	$110,814
363500B003	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	WEST ISOLATION LAB 3	1938	2,145	$1,029,682	$226,804	$4,104	$230,909
363500B004	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	EAST BROODER HOUSE 4	1938	4,494	$786,827	$107,089	$3,725	$110,814
363500B005	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	EAST ISOLATION LAB 5	1938	4,295	$2,061,763	$454,138	$8,218	$462,356
363500B006	MICHIGAN	EAST LANSING	SERVICE	SHOP	SHOP BUILDING 6	1939	3,456	$538,597	$41,749	$45,876	$87,625
363500B007	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	WEST LAYING HOUSE 7	1939	3,308	$579,178	$78,827	$2,742	$81,569
363500B008	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	EAST LAYING HOUSE 8	1939	3,308	$579,178	$78,827	$2,742	$81,569
363500B009	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	MATING HOUSE 9	1940	1,580	$276,633	$5,565	$4,329	$9,894
363500B010	MICHIGAN	EAST LANSING	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE 10	1939	229	$100,676	$13,932	$3,034	$16,966
363500B013	MICHIGAN	EAST LANSING	WAREHOUSES	SHED, STORAGE	STORAGE SHED 13	1942	1,100	$124,668	$3,095	$7,147	$10,243
363500B014	MICHIGAN	EAST LANSING	WAREHOUSES	SHED, STORAGE	FEED SHED 14	1968	690	$78,326	$4,759	$2,374	$7,134
363500B015	MICHIGAN	EAST LANSING	WAREHOUSES	GARAGE	STORAGE GARAGE 15	1940	800	$89,274	$0	$24,795	$24,795
363500B016	MICHIGAN	EAST LANSING	WAREHOUSES	STORAGE BUILDING	QUONSET BLDG 16	1949	4,212	$478,129	$36,116	$0	$36,116
363500B017	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	IBCA POULTRY BLDG 17	1951	6,384	$1,117,736	$240,792	$30,371	$271,163
363500B018	MICHIGAN	EAST LANSING	WAREHOUSES	STORAGE BUILDING	SHED & FEED BINS 18	1956	448	$50,865	$801	$4,757	$5,558
363500B019	MICHIGAN	EAST LANSING	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CHICKEN HOUSE 19	1971	5,662	$969,575	$1,902	$8,505	$10,407
363500B01A	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	AVIAN LEUK RESEARCH LAB 1A	1973	6,700	$3,218,255	$252,709	$43,000	$295,710
363500B020	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	AVIAN LEUK (SVCL) 20	1973	3,050	$1,464,116	$115,039	$19,575	$134,614
363500B021	MICHIGAN	EAST LANSING	SERVICE	ALL OTHER	SERVICE BUILDING 21	1981	1,500	$350,649	$7,049	$3,094	$10,144
363500B022	MICHIGAN	EAST LANSING	LABORATORIES	CONTAINMENT FACILITY	POULTRY ISOLATOR 22	1982	5,120	$2,457,795	$193,115	$32,860	$225,975
363500B023	MICHIGAN	EAST LANSING	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 23	1982	1,440	$163,463	$946	$22,064	$23,010
363500B024	MICHIGAN	EAST LANSING	ALL OTHER	WASTE FACILITY	WASTE WATER TREATMENT PLANT :	1990	912	$318,476	$2,767	$4,118	$6,886
363500B026	MICHIGAN	EAST LANSING	OFFICE	TRAILER, OFFICE	TRAILER 26	1991	448	$52,579	$1,123	$1,010	$2,133
363500B028	MICHIGAN	EAST LANSING	SERVICE	PUMPHOUSE, SERVICE	PUMPING STATION 28	1996	160	$70,341	$0	$0	$0
363500B029	MICHIGAN	EAST LANSING	ALL OTHER	WATER SYSTEM BUILDING	WATER METER HOUSE 29	1995	243	$101,922	$0	$5,717	$5,717
363500B031	MICHIGAN	EAST LANSING	ALL OTHER	WASTE FACILITY	CHICKEN WASTE 31	2002	112	$39,111	$340	$506	$846
363500B032	MICHIGAN	EAST LANSING	WAREHOUSES	HAZMAT FACILITY	HAZ WASTE 32	1989	137	$37,166	$0	$0	$0
363500B033	MICHIGAN	EAST LANSING	WAREHOUSES	SHED, STORAGE	STORAGE SHED 33	2000	80	$9,081	$0	$0	$0
363500B034	MICHIGAN	EAST LANSING	ALL OTHER	WASTE FACILITY	LAB PLASTIC WASTE SHED 34	2003	192	$67,048	$583	$867	$1,450
363500B035	MICHIGAN	EAST LANSING	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BUILDING 35	2007	96	$28,906	$0	$0	$0
363520B005	MICHIGAN	EAST LANSING	ALL OTHER	GREENHOUSE	GREENHOUSE 5	1949	4,032	$853,332	$641	$249,791	$250,432
363520B024	MICHIGAN	EAST LANSING	ALL OTHER	GREENHOUSE	GREENHOUSE/PASSAGEWAY 24	1981	4,117	$871,322	$50,754	$374,142	$424,896
363520B031	MICHIGAN	EAST LANSING	ALL OTHER	GREENHOUSE	GREENHOUSE/PASSAGEWAY 33	1967	3,800	$804,232	$223,569	$275,257	$498,826
363520B032	MICHIGAN	EAST LANSING	ALL OTHER	GREENHOUSE	GREENHOUSE/PASSAGEWAY 31	1967	3,800	$804,232	$223,569	$275,257	$498,826
363600B001	INDIANA	WEST LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1964	108	$22,239	$6,431	$640	$7,071
363600B002	INDIANA	WEST LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1963	108	$22,239	$6,017	$0	$6,017
363600B003	INDIANA	WEST LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1963	108	$22,239	$6,017	$0	$6,017
363600B004	INDIANA	WEST LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 4	1963	108	$22,239	$6,017	$0	$6,017
363600B005	INDIANA	LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 5	1966	1,798	$370,244	$107,406	$132,237	$239,643
363600B006	INDIANA	LAFAYETTE	ALL OTHER	ALL OTHER	GENERAL PURPOSE 317-2	1969	1,040	$270,615	$7,920	$20,879	$28,799
363600B010	INDIANA	LAFAYETTE	LABORATORIES	LABORATORY	SOYBEAN LABORATORY 317-7	1978	4,840	$1,694,310	$63,296	$13,549	$76,846
363600B011	INDIANA	LAFAYETTE	LABORATORIES	LABORATORY	SOIL EROSION LAB 317-8	1978	1,600	$560,102	$3,904	$0	$3,904
363600B013	INDIANA	LAFAYETTE	WAREHOUSES	STORAGE BUILDING	MACHINE STOR EQUIP BLDG 317-11	1983	4,000	$441,792	$2,824	$0	$2,824
363600B014	INDIANA	LAFAYETTE	LABORATORIES	LABORATORY	LIVESTOCK BEHAVIOR LAB 317-14	1995	13,200	$4,620,845	$46,229	$68,791	$115,020

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
363600B015	INDIANA	WEST LAFAYETTE	ALL OTHER	GREENHOUSE	GREENHOUSE 317-15	1992	288	$59,305	$1,248	$0	$1,248
363600B017	INDIANA	WEST LAFAYETTE	LABORATORIES	LABORATORY	FARM ANIMAL BEHAVIOR & WELL BE	2005	2,500	$675,160	$0	$0	$0
363600B018	INDIANA	LAFAYETTE	LABORATORIES	LABORATORY	SOIL EROSION LAB 317-12	1981	32,375	$11,333,322	$1,085,078	$162,451	$1,247,529
363600B020	INDIANA	WEST LAFAYETTE	WAREHOUSES	STORAGE WAREHOUSE	POLE BARN 20 WAREHOUSE	2000	900	$99,403	$0	$0	$0
363600B021	INDIANA	LAFAYETTE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE BLDG 317-13	1990	4,224	$466,532	$38,495	$3,879	$42,374
364000B321	MINNESOTA	ROSEMOUNT	WAREHOUSES	SHED, STORAGE	MACHINE SHED 321	1968	1,200	$159,017	$10,449	$5,213	$15,661
364000B322	MINNESOTA	ROSEMOUNT	ALL OTHER	ALL OTHER	AGRONOMY BUILDING 1009	1967	1,920	$599,412	$16,031	$42,264	$58,296
364000B399	MINNESOTA	ST. PAUL	LABORATORIES	LABORATORY	CEREAL DISEASE LAB 399	1973	10,816	$4,542,742	$501,755	$85,378	$587,132
364000B400	MINNESOTA	ST. PAUL	ALL OTHER	GREENHOUSE	GREENHOUSE 400	1973	4,428	$1,093,982	$66	$778,733	$778,799
364000B401	MINNESOTA	ST. PAUL	ALL OTHER	GREENHOUSE	GREENHOUSE 401	1976	4,482	$1,107,323	$42,201	$360,136	$402,338
364000B402	MINNESOTA	ST. PAUL	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 402	1989	600	$79,508	$1,524	$5,199	$6,723
364000B403	MINNESOTA	ST. PAUL	ALL OTHER	HEADHOUSE	HEADHOUSE 398	1965	2,592	$573,431	$68,178	$1,997	$70,175
364000B404	MINNESOTA	ST. PAUL	ALL OTHER	GREENHOUSE	GREENHOUSE 398A	1965	3,892	$961,558	$254,918	$313,853	$568,770
364500B001	MINNESOTA	MORRIS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1960	11,209	$4,204,294	$320,993	$119,630	$440,623
364500B002	MINNESOTA	MORRIS	SERVICE	SHOP	MACHINE SHOP/PLANT PROC 2	1960	6,200	$1,127,941	$97,931	$9,743	$107,674
364500B003	MINNESOTA	MORRIS	WAREHOUSES	STORAGE BUILDING	BUTLER STORAGE #3	1960	1,984	$262,908	$15,320	$8,198	$23,518
364500B004	MINNESOTA	MORRIS	ALL OTHER	HEADHOUSE/GREENHOUSE	GREENHOUSE/HEADHOUSE 4	1988	4,394	$1,021,434	$14,886	$11,819	$26,705
364500B005	MINNESOTA	MORRIS	WAREHOUSES	CHEMICAL STORAGE	FLAMMABLE STORAGE BUILDING 5	1960	240	$84,360	$248	$22,446	$22,694
364500B006	MINNESOTA	MORRIS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 6	1961	2,160	$286,230	$17	$14,870	$14,887
364500B007	MINNESOTA	MORRIS	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE BUILDING 7	1961	5,900	$742,078	$45	$38,552	$38,597
364500B008	MINNESOTA	MORRIS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY/ADDITION 8	1971	9,249	$3,469,133	$221,961	$43,789	$265,750
364500B009	MINNESOTA	MORRIS	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 9	1985	784	$275,575	$4,489	$0	$4,489
364500B011	MINNESOTA	MORRIS	OFFICE	OFFICE	TECHNOLOGY TRANSFER CENTER 1	1996	6,000	$1,852,950	$13,610	$39,990	$53,600
364500B012	MINNESOTA	MORRIS	WAREHOUSES	SHED, STORAGE	MACHINE SHED 12	2001	7,200	$954,101	$0	$0	$0
364500B01A	MINNESOTA	MORRIS	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE BUILDING 1A	1961	4,000	$530,056	$32	$27,537	$27,569
365500B010	WISCONSIN	STURGEON BAY	ALL OTHER	GREENHOUSE	GREENHOUSE 10	1951	998	$212,534	$161	$62,760	$62,921
365510B001	WISCONSIN	MADISON	LABORATORIES	LABORATORY	CEREAL CROPS LAB 1	1949	12,773	$4,652,897	$271,951	$62,738	$334,689
365510B002	WISCONSIN	MADISON	WAREHOUSES	GARAGE	GARAGE/STORAGE 2	1949	775	$87,563	$28,855	$0	$28,855
365510B003	WISCONSIN	MADISON	LABORATORIES	RESEARCH OFFICE/LABORATORY	NEW CEREAL CROPS LAB	2007	280,000	$91,088,480	$0	$47,237	$47,237
365510B069	WISCONSIN	MADISON	ALL OTHER	GREENHOUSE	GREENHOUSE 69	1970	1,314	$281,564	$101	$0	$101
365510B070	WISCONSIN	MADISON	ALL OTHER	GREENHOUSE	GREENHOUSE 70	1970	2,050	$439,274	$40	$432,324	$432,363
365520B001	WISCONSIN	ARLINGTON	ALL OTHER	HEADHOUSE	HEADHOUSE 1	1970	3,953	$758,494	$96,315	$2,822	$99,137
365520B002	WISCONSIN	ARLINGTON	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1970	1,095	$234,637	$84	$0	$84
365520B003	WISCONSIN	ARLINGTON	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1977	2,729	$584,770	$23,802	$203,123	$226,926
365530B001	WISCONSIN	PRAIRIE DU SAC	LABORATORIES	LABORATORY	DAIRY RESEARCH COMPLEX	1981	91,000	$33,149,116	$3,026,722	$453,143	$3,479,864
365530B003	WISCONSIN	PRAIRIE DU SAC	WAREHOUSES	STORAGE BUILDING	MISCELLANEOUS & EQUIPMENT STC	1981	4,160	$478,117	$3,153	$0	$3,153
365530B004	WISCONSIN	PRAIRIE DU SAC	FAMILY HOUSING	RESIDENCE	RESIDENCE	1980	3,122	$614,247	$12,457	$28,839	$41,297
365530B005	WISCONSIN	PRAIRIE DU SAC	FAMILY HOUSING	RESIDENCE	RESIDENCE	1984	3,050	$600,081	$12,170	$28,174	$40,344
365530B006	WISCONSIN	PRAIRIE DU SAC	SERVICE	SHOP	MACHINE SHOP/EQUIP STORAGE 6	1984	8,640	$1,363,288	$38,545	$0	$38,545
365530B007	WISCONSIN	MADISON	LABORATORIES	LABORATORY	MAIN LABORATORY	1981	69,714	$25,395,137	$2,318,735	$347,147	$2,665,882
365530B008	WISCONSIN	PRAIRIE DU SAC	WAREHOUSES	STORAGE BUILDING	HAY & BEDDING STORAGE (K3)	1984	14,000	$1,609,048	$19,186	$0	$19,186
365530B009	WISCONSIN	PRAIRIE DU SAC	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BUILDING	1992	1,085	$330,775	$0	$0	$0
365530B010	WISCONSIN	PRAIRIE DU SAC	ALL OTHER	ANIMAL FACILITY, ALL OTHER	48 STALL FREE STALL (K4)	1996	2,400	$425,443	$0	$0	$0
365530B011	WISCONSIN	MADISON	WAREHOUSES	STORAGE BUILDING	RESEARCH EQUIPMENT & SAMPLE 1	2000	4,480	$514,866	$0	$0	$0
365530B012	WISCONSIN	PRAIRIE DU SAC	WAREHOUSES	STORAGE BUILDING	AGRONOMY STORAGE 1500	2000	96	$11,033	$0	$0	$0
365530B22D	WISCONSIN	BARABOO	ALL OTHER	ALL OTHER	GATE HOUSE	1984	80	$21,662	$506	$0	$506
365530B23D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B24D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B25D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B26D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	145	$16,806	$126	$11,388	$11,514
365530B27D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B28D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	145	$16,806	$126	$11,388	$11,514
365530B29D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B30D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B31D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B32D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B33D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B34D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B35D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	GENERAL PURPOSE MAGAZINE	1967	407	$47,174	$353	$31,966	$32,318
365530B36D	WISCONSIN	BARABOO	ALL OTHER	WATER SYSTEM BUILDING	WELL HOUSE	1969	360	$152,879	$10,955	$3,763	$14,718
365530B37D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	MAGAZINE	1969	1,972	$228,567	$56,554	$0	$56,554
365530B38D	WISCONSIN	BARABOO	SERVICE	CHANGING FACILITY, SERVICE	CHANGE HOUSE & OFFICE	1969	1,125	$301,331	$38,458	$6,046	$44,504
365530B39D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B40D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B41D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B42D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	IGLOO MAGAZINE	1996	1,608	$186,377	$0	$0	$0
365530B43D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	MAGAZINE (250,000#)	1969	1,972	$228,567	$56,554	$0	$56,554
365530B44D	WISCONSIN	BARABOO	SERVICE	CHANGING FACILITY, SERVICE	CHANGE HOUSE & OFFICE	1969	1,125	$301,331	$38,458	$6,046	$44,504
365530B45D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B46D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B47D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	IGLOO MAGAZINE	1966	1,608	$186,377	$10,536	$0	$10,536

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
365530B48D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	MAGAZINE (250,000#)	1969	1,972	$228,567	$56,554	$0	$56,554
365530B49D	WISCONSIN	BARABOO	WAREHOUSES	STORAGE BUILDING	DUNNAGE STORAGE	1969	3,000	$344,796	$64,366	$0	$64,366
365530B50D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B51D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B52D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	ABOVE GROUND MAGAZINE	1969	2,221	$257,427	$63,695	$0	$63,695
365530B53D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	IGLOO MAGAZINE	1966	1,608	$186,377	$10,536	$0	$10,536
365530B54F	WISCONSIN	BARABOO	ALL OTHER	UTILITY BUILDING	METERING BUILDING	1999	240	$97,244	$0	$5,822	$5,822
365530B55G	WISCONSIN	BARABOO	ALL OTHER	ALL OTHER	AGRONOMY OFFICE WORK SPACE 6	1969	4,275	$1,157,550	$347,114	$0	$347,114
365530B56G	WISCONSIN	BARABOO	WAREHOUSES	STORAGE WAREHOUSE	BARRACKS OFFICE WAREHOUSE	1968	2,195	$252,276	$24,879	$2,289	$27,168
365530B57G	WISCONSIN	BARABOO	ALL OTHER	ALL OTHER	RANGE HOUSE	1984	273	$73,921	$1,728	$0	$1,728
365530B58D	WISCONSIN	BARABOO	WAREHOUSES	ALL OTHER	COTTON LINTER WAREHOUSE	1969	6,900	$799,751	$197,881	$0	$197,881
365530B59G	WISCONSIN	BARABOO	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE BUILDING	2006	7,500	$861,990	$0	$0	$0
365530B60G	WISCONSIN	BARABOO	WAREHOUSES	STORAGE BUILDING	AGRONOMY STORAGE 6600	1987	1,200	$137,918	$836	$19,491	$20,327
530202B001	CALIFORNIA	PARLIER	OFFICE	OFFICE	MAIN OFFICE BLDG 1	2001	10,611	$3,133,959	$20,359	$59,821	$80,180
530202B002	CALIFORNIA	PARLIER	LABORATORIES	LABORATORY	MAIN LAB 2	2001	18,191	$7,306,888	$0	$0	$0
530202B003	CALIFORNIA	PARLIER	OFFICE	OFFICE	MAIN OFFICE 3	2001	11,411	$3,370,239	$21,894	$64,331	$86,225
530202B004	CALIFORNIA	PARLIER	LABORATORIES	LABORATORY	MAIN LAB 4	2001	18,191	$7,306,888	$0	$0	$0
530202B005	CALIFORNIA	PARLIER	LABORATORIES	LABORATORY	ENVIRONMENTAL ROOM BLDG 5	2001	3,680	$1,478,168	$0	$0	$0
530202B006	CALIFORNIA	PARLIER	ALL OTHER	UTILITY BUILDING	CENTRAL PLANT BLDG 6	2001	5,265	$2,352,318	$0	$134,021	$134,021
530202B007	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 7	2001	841	$198,711	$0	$0	$0
530202B008	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 8	2001	646	$152,637	$0	$0	$0
530202B009	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 9	2001	646	$152,637	$0	$0	$0
530202B010	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 10	2001	646	$152,637	$0	$0	$0
530202B011	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 11	2001	841	$198,711	$0	$0	$0
530202B012	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 12	2001	646	$152,637	$0	$0	$0
530202B013	CALIFORNIA	PARLIER	ALL OTHER	UTILITY BUILDING	UTILITY BLDG 13	2002	360	$160,942	$0	$9,164	$9,164
530202B014	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 14	2001	1,681	$397,187	$0	$0	$0
530202B015	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GWSS GREENHOUSE 15	2002	2,288	$540,609	$0	$0	$0
530202B016	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	CTV GREENHOUSE 16	2002	1,840	$434,755	$0	$0	$0
530202B017	CALIFORNIA	PARLIER	ALL OTHER	INSECT FACILITY	INSECT REARING BLDG 17	2001	1,483	$222,984	$0	$0	$0
530202B023	CALIFORNIA	PARLIER	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE CONTAINER	1987	176	$59,165	$861	$0	$861
530202B071	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	CTV GREENHOUSE	2002	800	$169,024	$0	$0	$0
530220B051	CALIFORNIA	PARLIER	ALL OTHER	BARN	FUMIGATION BARN	1963	6,100	$773,065	$25,235	$0	$25,235
530220B053	CALIFORNIA	PARLIER	ALL OTHER	BARN	POLE BARN	1949	6,300	$798,412	$132,032	$29,258	$161,290
530220B054	CALIFORNIA	PARLIER	LABORATORIES	LABORATORY	NPGS/CTV LABORATORY	1957	2,285	$917,830	$45,011	$4,143	$49,154
530220B060	CALIFORNIA	PARLIER	OFFICE	TRAILER, OFFICE	FARM TRAILER	1989	1,440	$188,680	$31,254	$4,701	$35,955
530220B062	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE 62	1993	1,080	$255,162	$1,610	$0	$1,610
530220B067	CALIFORNIA	PARLIER	ALL OTHER	SCREENHOUSE	SCREEN HOUSE (NPGS)	1997	6,208	$926,767	$0	$0	$0
530220B068	CALIFORNIA	PARLIER	ALL OTHER	GREENHOUSE	GREENHOUSE (CTV)	1998	2,075	$490,281	$0	$0	$0
530220B069	CALIFORNIA	PARLIER	LABORATORIES	TRAILER, LABORATORY	CTV TRAILER	1998	1,440	$439,223	$1,046	$7,782	$8,828
530220B070	CALIFORNIA	PARLIER	ALL OTHER	HEADHOUSE	NPGS/CTV HEAD HOUSE	2000	1,600	$338,525	$4,882	$22,349	$27,231
530500B003	CALIFORNIA	SALINAS	OFFICE	OFFICE	OFFICE BUILDING 003	1942	4,238	$1,349,591	$110,795	$57,329	$168,124
530500B012	CALIFORNIA	SALINAS	OFFICE	OFFICE	OFFICE/STORAGE #12	1954	702	$223,552	$21,768	$23,060	$44,828
530500B017	CALIFORNIA	SALINAS	LABORATORIES	LABORATORY	LAB BLDG 17	1943	12,875	$5,376,060	$86,864	$422,258	$509,122
530500B018	CALIFORNIA	SALINAS	LABORATORIES	LABORATORY	LAB 018	1942	6,000	$2,598,552	$40,480	$196,780	$237,261
530500B019	CALIFORNIA	SALINAS	LABORATORIES	LABORATORY	LAB 019	1942	11,555	$5,004,378	$77,958	$378,966	$456,925
530500B020	CALIFORNIA	SALINAS	WAREHOUSES	GARAGE	GARAGE/STORAGE 020	1928	1,792	$240,716	$16,669	$129,498	$146,167
530500B021	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG BEET LAB 021	1943	7,500	$1,024,630	$989	$146,308	$147,197
530500B022	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 022	1966	3,640	$927,326	$256,968	$316,377	$573,345
530500B023	CALIFORNIA	SALINAS	ALL OTHER	HEADHOUSE/GREENHOUSE	HDHSE W/3 GREENHOUSES 023	1943	9,784	$2,345,284	$107,830	$629,631	$737,461
530500B024	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 024	1954	336	$85,599	$22,123	$0	$22,123
530500B025	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 025	1956	1,008	$256,798	$192	$74,932	$75,124
530500B026	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 026	1956	1,038	$264,441	$198	$77,162	$77,360
530500B027	CALIFORNIA	SALINAS	ALL OTHER	HEADHOUSE/GREENHOUSE	HDHSE W/1 GREENHOUSE 027	1954	1,515	$363,155	$16,697	$97,495	$114,192
530500B028	CALIFORNIA	SALINAS	ALL OTHER	HEADHOUSE/GREENHOUSE	HDHSE W/2 GREENHOUSES 1 & 2 28	1955	6,861	$1,544,623	$75,616	$441,527	$517,142
530500B037	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	BLOWERHSE W/4 GREENHOUSES 03	1960	227	$57,831	$14,946	$0	$14,946
530500B038	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE/ORLYT 038	1964	336	$85,599	$240	$86,236	$86,476
530500B039	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	3 GREENHOUSES/ISOLATION 039	1965	1,340	$341,378	$94,598	$116,468	$211,066
530500B040	CALIFORNIA	SALINAS	SERVICE	SHOP	A/E MACHINE SHOP 040	1969	3,800	$712,865	$119,501	$19,965	$139,465
530500B041	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 041-SUGARBEE	1969	2,160	$295,151	$59,457	$0	$59,457
530500B042	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 042(SPENCE)	1971	1,152	$157,414	$1,568	$5,138	$6,706
530500B043	CALIFORNIA	SALINAS	LABORATORIES	LABORATORY	LABORATORY 043	1971	1,248	$540,499	$0	$0	$0
530500B044	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 044	1973	4,000	$546,576	$453	$0	$453
530500B045	CALIFORNIA	SALINAS	SERVICE	SHOP	SERVICE BUILDING FARM SHOP 045	1973	3,825	$717,555	$31,413	$26,117	$57,530
530500B047	CALIFORNIA	SALINAS	ALL OTHER	ALL OTHER	GROWTH CHAMBERS 047	1974	2,009	$546,745	$189,804	$0	$189,804
530500B048	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 048	1976	704	$179,351	$83	$0	$83
530500B060	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 060 - ARTICHOKE	1976	704	$179,351	$83	$0	$83
530500B061	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 061 - VIROLOGY	1978	704	$179,351	$83	$0	$83
530500B062	CALIFORNIA	SALINAS	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 062	1982	4,580	$1,097,853	$43,018	$3,559	$46,577
530500B063	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE 22 X 32 063	1979	704	$179,351	$83	$0	$83
530500B065	CALIFORNIA	SALINAS	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL BUILDING 065	1989	260	$94,238	$1,604	$0	$1,604

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
530500B068	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE - UCD	1994	3,724	$948,726	$6,157	$0	$6,157
530500B069	CALIFORNIA	SALINAS	ALL OTHER	GREENHOUSE	GREENHOUSE - ORLYT	1956	400	$101,904	$26,337	$0	$26,337
530500B070	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	SOIL BINS	1993	1,590	$217,264	$0	$0	$0
530500B071	CALIFORNIA	SALINAS	ALL OTHER	TRAILER	INSECTORY TRAILER	1960	720	$98,384	$0	$7,257	$7,257
530500B072	CALIFORNIA	SALINAS	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED - SPENCE	1942	1,600	$218,630	$6,123	$14,139	$20,262
530500B073	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG - SPENCE	1942	408	$55,751	$6,699	$533	$7,232
530500B074	CALIFORNIA	SALINAS	OFFICE	OFFICE	OFFICE BLDG - SPENCE	1994	480	$152,856	$1,683	$1,514	$3,196
530500B075	CALIFORNIA	SALINAS	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE - SPENCE	1995	126	$45,669	$0	$0	$0
530500B076	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG - SPENCE	1973	154	$21,043	$1,302	$2,480	$3,782
530500B077	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG - SPENCE	1973	154	$21,043	$1,302	$2,480	$3,782
530500B078	CALIFORNIA	SALINAS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG	1973	154	$21,043	$1,302	$2,480	$3,782
530500B079	CALIFORNIA	SALINAS	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE - ALISAL	2001	132	$47,844	$0	$0	$0
530610B011	CALIFORNIA	DAVIS	ALL OTHER	HEADHOUSE	HEADHOUSE 11	1970	960	$205,952	$25,074	$735	$25,809
530610B012	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 12/SOUTH	1969	1,200	$287,496	$99	$0	$99
530610B015	CALIFORNIA	DAVIS	LABORATORIES	LABORATORY	MAIN LAB 15	1977	2,400	$977,486	$6,323	$0	$6,323
530610B024	CALIFORNIA	DAVIS	LABORATORIES	TRAILER, LABORATORY	TRAILER, PHOTOLAB 24	1976	800	$247,421	$10,886	$1,973	$12,859
530610B025	CALIFORNIA	DAVIS	OFFICE	TRAILER, OFFICE	OFFICE TRAILER 25	1980	400	$53,143	$2,030	$453	$2,483
530610B026	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE (NORTH) 26	1981	720	$172,498	$78	$0	$78
530610B028	CALIFORNIA	DAVIS	LABORATORIES	TRAILER, LABORATORY	LAB TRAILER	1995	1,440	$445,357	$1,117	$8,311	$9,427
530615B001	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1961	406	$97,269	$24,628	$0	$24,628
530615B002	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1961	406	$97,269	$24,628	$0	$24,628
530615B003	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1961	406	$97,269	$24,628	$0	$24,628
530615B004	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 4	1961	406	$97,269	$24,628	$0	$24,628
530615B005	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 5	1961	406	$97,269	$24,628	$0	$24,628
530615B006	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1961	406	$97,269	$24,628	$0	$24,628
530615B007	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 7	1967	406	$97,269	$24,276	$0	$24,276
530615B008	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 8	1967	406	$97,269	$24,276	$0	$24,276
530615B009	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 9	1969	406	$97,269	$29,767	$0	$29,767
530615B010	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE 10	1969	406	$97,269	$29,767	$0	$29,767
530615B014	CALIFORNIA	DAVIS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING (AGRONOMY) 14	1977	2,500	$321,255	$5,761	$417	$6,178
530615B015	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GREENHOUSE (ORCHARD PARK) 43	1976	2,400	$574,992	$22,965	$191,330	$214,295
530620B027	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GRNHSE A/GH1-4510	1982	540	$129,373	$37,447	$0	$37,447
530620B028	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GRNHSE C/GH 2-4512	1982	540	$129,373	$37,447	$0	$37,447
530620B034	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	SCNHSE A/SH 6-4517	1984	1,165	$176,347	$18,244	$40,308	$58,552
530620B035	CALIFORNIA	DAVIS	LABORATORIES	LABORATORY	MAIN LAB - 4514	1984	1,957	$797,059	$3,872	$6,894	$10,767
530620B036	CALIFORNIA	DAVIS	ALL OTHER	HEADHOUSE	HDHSE/4515	1984	3,879	$832,174	$12,091	$55,355	$67,446
530620B037	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GRNHSE B/GH 3-4511	1984	540	$129,373	$35,011	$3,482	$38,493
530620B038	CALIFORNIA	DAVIS	ALL OTHER	GREENHOUSE	GRNHSE D/GH 4-4513	1984	540	$129,373	$35,011	$3,482	$38,493
530620B039	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	LATH HOUSE 39/E5-4516	1984	1,640	$248,248	$25,683	$56,743	$82,425
530620B040	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	SCNHSE B/SH 7-4559	1985	1,200	$181,645	$18,792	$41,519	$60,311
530620B041	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 8-4560	1984	1,200	$181,645	$18,792	$41,519	$60,311
530620B042	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	SCNHSE D/SH 9-4698	1992	1,200	$181,645	$0	$0	$0
530620B043	CALIFORNIA	DAVIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 10-4699	1995	1,200	$181,645	$0	$0	$0
530620B044	CALIFORNIA	DAVIS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB TRAILER	1996	1,440	$523,765	$1,117	$8,311	$9,427
531020B060	CALIFORNIA	RIVERSIDE	LABORATORIES	RESEARCH OFFICE/LABORATORY	US SALINITY LAB	1995	92,000	$32,356,584	$70,341	$523,357	$593,698
531030B056	CALIFORNIA	RIVERSIDE	LABORATORIES	LABORATORY	GERMPLASM BUILDING 56	1987	2,875	$1,132,238	$316,639	$5,066	$321,705
531030B057	CALIFORNIA	RIVERSIDE	ALL OTHER	SCREENHOUSE	SCREENHOUSE 57	1987	16,200	$2,371,145	$249,670	$551,616	$801,287
531030B062	CALIFORNIA	RIVERSIDE	OFFICE	TRAILER, OFFICE	MOBILE TRAILER	1986	720	$92,496	$16,584	$2,494	$19,078
531030B063	CALIFORNIA	RIVERSIDE	ALL OTHER	GREENHOUSE	GREENHOUSE	1987	6,048	$1,401,080	$8,931	$0	$8,931
531030B064	CALIFORNIA	RIVERSIDE	ALL OTHER	SCREENHOUSE	SCREENHOUSE 64	2007	436	$63,816	$102	$0	$102
532000B001	HAWAII	HONOLULU	LABORATORIES	LABORATORY	LABORATORY, REARING 1	1973	4,800	$2,177,578	$235,382	$40,052	$275,434
532000B002	HAWAII	HONOLULU	LABORATORIES	LABORATORY	LABORATORY, REARING 2	1973	5,716	$2,593,132	$280,301	$47,695	$327,996
532000B003	HAWAII	HONOLULU	LABORATORIES	LABORATORY	SCIENTIST OFFICES/LABS #3	1973	2,615	$1,186,326	$128,234	$21,820	$150,054
532000B005	HAWAII	HONOLULU	LABORATORIES	LABORATORY	LABORATORY, REARING 5	1975	1,160	$526,248	$3,987	$22,208	$26,195
532000B006	HAWAII	HONOLULU	LABORATORIES	LABORATORY	LABORATORY, REARING 6	1975	1,560	$707,713	$5,362	$29,866	$35,228
532000B007	HAWAII	HONOLULU	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE	1975	460	$95,842	$0	$0	$0
532003B001	HAWAII	KAPAA	OFFICE	OFFICE	OFFICE (PAVILLION) 1	1981	1,904	$635,127	$10,736	$2,396	$13,132
532003B002	HAWAII	KAPAA	SERVICE	ALL OTHER	FRUIT PROCESSING 2	1988	1,188	$350,174	$7,565	$3,321	$10,887
532003B005	HAWAII	KAPAA	OFFICE	OFFICE	OFFICE 5	1992	2,114	$705,178	$6,760	$6,082	$12,842
532003B007	HAWAII	HILO	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY F	1966	1,225	$484,843	$17,783	$9,204	$26,988
532003B008	HAWAII	HILO	LABORATORIES	RESEARCH OFFICE/LABORATORY	IPM LABORATORY E	1966	614	$243,015	$8,913	$4,613	$13,527
532003B009	HAWAII	HILO	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY G	1966	1,237	$489,562	$17,957	$9,295	$27,252
532003B018	HAWAII	HILO	SERVICE	SHOP	SHOP BLDG. C	1981	3,029	$581,477	$17,273	$0	$17,273
532003B019	HAWAII	HILO	LABORATORIES	LABORATORY	LABORATORY BLDG. A	1980	2,109	$934,688	$17,259	$40,286	$57,544
532003B020	HAWAII	HILO	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY BLDG. B	1980	2,109	$834,721	$96,090	$21,008	$117,097
532003B028	HAWAII	HILO	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY BLDG. P	1987	2,127	$841,845	$156,529	$53,525	$210,054
532003B029	HAWAII	HILO	LABORATORIES	LABORATORY	OLFACTOMETER BLDG. D	1988	820	$363,416	$1,821	$3,242	$5,063
532003B030	HAWAII	HILO	LABORATORIES	LABORATORY	LABORATORY BLDG. S	1990	2,438	$1,080,497	$10,349	$15,399	$25,748
532003B031	HAWAII	HILO	ALL OTHER	INSECT FACILITY	INSECT FACILITY 54	1992	480	$79,632	$1,756	$0	$1,756
532003B032	HAWAII	HILO	ALL OTHER	INSECT FACILITY	INSECT FACILITY 55	1992	480	$79,632	$1,756	$0	$1,756
532003B056	HAWAII	KAPAA	WAREHOUSES	TRAILER, STORAGE	REFRIGERATION TRAILER 56	1991	400	$59,194	$56	$0	$56

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
532010B001	HAWAII	HILO	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1986	1,875	$488,813	$82,750	$0	$82,750
532010B002	HAWAII	HILO	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1986	3,000	$782,100	$24,363	$18,856	$43,219
532010B003	HAWAII	HILO	LABORATORIES	LABORATORY	LAB 3	1986	1,172	$519,419	$2,603	$4,634	$7,237
532010B004	HAWAII	HILO	ALL OTHER	HEADHOUSE	HEADHOUSE 4	1986	2,400	$560,268	$7,956	$36,422	$44,377
532010B005	HAWAII	HILO	ALL OTHER	QUARANTINE	PLANT QUARANTINE 5	1988	329	$96,687	$1,174	$1,746	$2,920
532010B006	HAWAII	HILO	ALL OTHER	GREENHOUSE	GREENHOUSE	2001	1,134	$295,634	$0	$0	$0
532010B007	HAWAII	HILO	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE	1991	2,304	$322,168	$6,116	$20,869	$26,985
532010B008	HAWAII	HILO	WAREHOUSES	STORAGE BUILDING	POTTING STORAGE	1991	2,016	$281,897	$5,352	$18,260	$23,612
532010B009	HAWAII	HILO	WAREHOUSES	SHED, STORAGE	STORAGE SHED	1986	450	$62,924	$971	$0	$971
532500B0*1	CALIFORNIA	ALBANY	WAREHOUSES	SHED, STORAGE	SMOKING SHELTER	2004	40	$5,565	$0	$0	$0
532500B0*2	CALIFORNIA	ALBANY	ALL OTHER	ALL OTHER	OVERPASS BUILDING	2003	7,500	$2,458,215	$0	$0	$0
532500B0*3	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	QUARANTINE GREENHOUSE (PHASE	1985	2,400	$622,512	$20,362	$3,866	$24,228
532500B0*4	CALIFORNIA	ALBANY	ALL OTHER	ALL OTHER	WALK-IN GROWTH CHAMBER	2002	400	$131,105	$0	$0	$0
532500B0*5	CALIFORNIA	ALBANY	OFFICE	TRAILER, OFFICE	TRAILER	1999	360	$51,762	$0	$0	$0
532500B0*6	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	NEW WRRC GREENHOUSE	2007	2,100	$544,698	$0	$0	$0
532500B003	CALIFORNIA	ALBANY	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY	1941	192,817	$75,928,635	$4,844,002	$1,654,264	$6,498,266
532500B004	CALIFORNIA	ALBANY	SERVICE	ALL OTHER	SERVICE BUILDING	1940	8,442	$2,418,608	$635,870	$29,656	$665,526
532500B007	CALIFORNIA	ALBANY	WAREHOUSES	CHEMICAL STORAGE	STORAGE (SOLVENT)	1941	430	$158,682	$3,752	$9,820	$13,572
532500B008	CALIFORNIA	ALBANY	ALL OTHER	SCREENHOUSE	LATH HOUSE	1945	225	$36,873	$2,159	$6,104	$8,263
532500B009	CALIFORNIA	ALBANY	WAREHOUSES	HAZMAT FACILITY	HAZARD WASTE STORAGE BUILDING	1962	800	$265,962	$7,433	$0	$7,433
532500B010	CALIFORNIA	ALBANY	WAREHOUSES	CHEMICAL STORAGE	STORAGE SOLVENT EXTRACTION	1958	920	$339,505	$103,594	$5,003	$108,597
532500B011	CALIFORNIA	ALBANY	WAREHOUSES	STORAGE BUILDING	WOOL BUILDING	1959	16,000	$2,225,952	$246,379	$77,647	$324,026
532500B017	CALIFORNIA	ALBANY	WAREHOUSES	CHEMICAL STORAGE	STORAGE SOLVENT EXTRACTION	1962	520	$191,894	$3,929	$0	$3,929
532500B020	CALIFORNIA	ALBANY	LABORATORIES	LABORATORY	WEST ANNEX BLDG	1968	54,910	$24,212,345	$1,074,591	$523,680	$1,598,271
532500B025	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE ON BLDG 003	1971	6,000	$1,556,280	$66,832	$0	$66,832
532500B036	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE/HEADHOUSE	1983	4,500	$1,167,210	$55,062	$158,143	$213,205
532500B044	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE (PGEC)	1988	8,364	$2,169,454	$24,183	$0	$24,183
532500B045	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE (PGEC)	1989	8,170	$2,119,135	$9,093	$0	$9,093
532500B047	CALIFORNIA	ALBANY	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE	1990	8,368	$2,042,238	$12,282	$0	$12,282
532500B059	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE (BELKNAP)	1987	1,150	$298,287	$34,851	$626	$35,477
532500B061	CALIFORNIA	ALBANY	WAREHOUSES	HAZMAT FACILITY	RADIOACTIVE WASTE SHED	1996	220	$73,145	$855	$0	$855
532500B063	CALIFORNIA	ALBANY	ALL OTHER	GREENHOUSE	GREENHOUSE/HEADHOUSE (WRRC)	1998	4,700	$1,219,086	$0	$0	$0
534200B101	ARIZONA	TUCSON	OFFICE	OFFICE	BUILDING 101	1962	2,560	$611,072	$28,141	$10,942	$39,084
534200B102	ARIZONA	TUCSON	SERVICE	SHOP	SHOP	1958	3,244	$456,158	$41,431	$4,122	$45,553
534200B103	ARIZONA	TUCSON	WAREHOUSES	STORAGE BUILDING	QUONSET BLDG	1962	8,000	$819,392	$36,908	$19,749	$56,657
534200B104	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 104	1964	108	$20,624	$5,466	$0	$5,466
534200B105	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 105	1964	108	$20,624	$5,466	$0	$5,466
534200B106	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 106	1962	108	$20,624	$5,466	$0	$5,466
534200B107	ARIZONA	TUCSON	LABORATORIES	LABORATORY	BEE LAB	1969	16,200	$5,259,038	$497,750	$84,696	$582,446
534200B108	ARIZONA	TUCSON	ALL OTHER	HEADHOUSE	HEADHOUSE	1969	2,400	$410,390	$52,297	$1,532	$53,829
534200B110	ARIZONA	TUCSON	ALL OTHER	HAZMAT FACILITY	HAZMAT BUILDING	1986	600	$146,866	$10	$678	$688
534200B111	ARIZONA	TUCSON	ALL OTHER	ALL OTHER	HONEY PROCESSING BLDG	1975	200	$48,261	$33	$0	$33
534200B201	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 201	1965	108	$20,624	$59	$21,305	$21,364
534200B202	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 202	1965	108	$20,624	$59	$21,305	$21,364
534200B203	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 203	1965	108	$20,624	$59	$21,305	$21,364
534200B204	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 204	1965	108	$20,624	$59	$21,305	$21,364
534200B205	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 205	1965	108	$20,624	$59	$21,305	$21,364
534200B207	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 207	1965	108	$20,624	$59	$21,305	$21,364
534200B208	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 208	1965	108	$20,624	$59	$21,305	$21,364
534200B209	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 209	1965	108	$20,624	$59	$21,305	$21,364
534200B210	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 210	1965	108	$20,624	$59	$21,305	$21,364
534200B211	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 211	1965	108	$20,624	$59	$21,305	$21,364
534200B213	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 213	1967	108	$20,624	$59	$21,305	$21,364
534200B214	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 214	1960	108	$20,624	$5,466	$0	$5,466
534200B301	ARIZONA	TUCSON	WAREHOUSES	STORAGE BUILDING	BEE EQUIPMENT STORAGE BUILDIN	1966	1,200	$122,909	$18,317	$0	$18,317
534200B302	ARIZONA	TUCSON	OFFICE	OFFICE	BLDG 302	1958	1,595	$380,727	$17,533	$6,818	$24,351
534200B303	ARIZONA	TUCSON	WAREHOUSES	STORAGE BUILDING	CHART STORAGE BLDG 303	1967	165	$16,900	$839	$2,055	$2,894
534200B304	ARIZONA	TUCSON	OFFICE	OFFICE	BLDG 304	1967	800	$190,960	$24,387	$3,834	$28,221
534200B305	ARIZONA	TUCSON	LABORATORIES	LABORATORY	BLDG 305	1965	800	$259,706	$21,251	$0	$21,251
534200B315	ARIZONA	TUCSON	SERVICE	SHOP	SERVICE BUILDING 315	1971	454	$63,840	$2,022	$5,012	$7,034
534200B316	ARIZONA	TUCSON	SERVICE	SHOP	BUILDING 316	1971	960	$134,991	$4,276	$10,598	$14,874
534200B319	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 319	1972	108	$20,624	$2	$20,369	$20,371
534200B320	ARIZONA	TUCSON	OFFICE	OFFICE	BLDG 320	1973	7,200	$1,718,640	$219,485	$34,506	$253,991
534200B321	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 321	1974	108	$20,624	$10	$0	$10
534200B406	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 406	1975	716	$136,727	$65	$0	$65
534200B407	ARIZONA	TUCSON	ALL OTHER	GREENHOUSE	GREENHOUSE 407	1975	716	$136,727	$65	$0	$65
534200B412	ARIZONA	TUCSON	OFFICE	OFFICE	BLDG 412	1982	1,200	$286,440	$3,861	$862	$4,723
534200B413	ARIZONA	TUCSON	LABORATORIES	LABORATORY	BLDG 413	1983	4,800	$1,558,234	$114,541	$35,663	$150,203
534245B221	ARIZONA	TOMBSTONE	OFFICE	OFFICE	TOMBSTONE OFFICE	1961	4,000	$954,800	$48,085	$7,311	$55,396
534245B222	ARIZONA	TOMBSTONE	SERVICE	SHOP	TOMBSTONE SHOP	1966	4,000	$562,464	$68,523	$22,477	$91,000
534245B223	ARIZONA	TOMBSTONE	OFFICE	TRAILER, OFFICE	MOBILE HOME	2001	1,190	$126,016	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
534400B100	ARIZONA	MARICOPA	OFFICE	OFFICE	ADMINISTRATION	2006	23,660	$5,810,305	$0	$0	$0
534400B200	ARIZONA	MARICOPA	LABORATORIES	LABORATORY	LABORATORY	2006	42,270	$14,117,419	$40,168	$0	$40,168
534400B300	ARIZONA	MARICOPA	SERVICE	GARAGE, SERVICE	HIGH BAY	2006	9,120	$1,380,075	$1,187	$0	$1,187
534400B400	ARIZONA	MARICOPA	ALL OTHER	UTILITY BUILDING	CENTRAL PLANT	2006	2,467	$916,461	$0	$0	$0
534400B500	ARIZONA	MARICOPA	SERVICE	SHOP	WORKSHOP	2006	5,020	$726,223	$653	$0	$653
534400B600	ARIZONA	MARICOPA	ALL OTHER	HEADHOUSE	HEADHOUSE	2006	4,094	$720,221	$0	$0	$0
534400B700	ARIZONA	MARICOPA	ALL OTHER	GREENHOUSE	GREENHOUSES	2006	12,800	$2,514,688	$0	$0	$0
534400B800	ARIZONA	MARICOPA	WAREHOUSES	HAZMAT FACILITY	HAZMAT STORAGE	2006	2,079	$523,546	$1,027	$0	$1,027
534400B900	ARIZONA	MARICOPA	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE	2006	171	$69,785	$0	$0	$0
534420B067	ARIZONA	MARICOPA	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG.	1996	2,400	$252,888	$0	$0	$0
534600B003	NEVADA	RENO	ALL OTHER	GREENHOUSE	GREENHOUSE 003	1975	1,984	$429,496	$17,009	$423,599	$440,607
534600B004	NEVADA	RENO	LABORATORIES	LABORATORY	WORKSHOP/SEED LAB 004	1966	2,016	$741,920	$44,843	$0	$44,843
534600B005	NEVADA	RENO	ALL OTHER	HEADHOUSE/GREENHOUSE	GRNHSE/HEADHOUSE 005	1966	2,016	$410,635	$19,162	$111,886	$131,048
534600B007	NEVADA	RENO	LABORATORIES	LABORATORY	ANIMAL CAPTURE LAB	1990	600	$220,810	$1,960	$2,916	$4,876
534600B008	NEVADA	RENO	LABORATORIES	TRAILER, LABORATORY	LAB TRAILER	1989	2,880	$864,833	$100,973	$22,075	$123,049
534800B105	WASHINGTON	PULLMAN	LABORATORIES	LABORATORY	RAIN TOWER 105	1964	3,575	$1,271,535	$1,620	$0	$1,620
534800B111	WASHINGTON	Pullman	WAREHOUSES	SHED, STORAGE	STORAGE SHED (1996)	1969	1,840	$206,481	$12,035	$6,004	$18,040
534800B120	WASHINGTON	Pullman	WAREHOUSES	STORAGE BUILDING	SHEAF STORAGE BLDG 120	1969	1,600	$179,549	$30,709	$0	$30,709
534800B139	WASHINGTON	Pullman	WAREHOUSES	STORAGE BUILDING	SEED STORAGE (BLDG 109SS)	1981	5,791	$649,854	$3,926	$0	$3,926
534800B147	WASHINGTON	PULLMAN	ALL OTHER	GREENHOUSE	GREENHOUSE 147	1989	1,092	$228,468	$4,573	$0	$4,573
534800B152	WASHINGTON	PULLMAN	WAREHOUSES	STORAGE BUILDING	COVERED STORAGE/SOIL SAMPLES	1964	2,867	$321,729	$16,940	$33,282	$50,222
534800B153	WASHINGTON	PULLMAN	ALL OTHER	SCREENHOUSE	SCREENHOUSE (BLDG 109B SHW)	1995	3,000	$396,567	$0	$0	$0
534801B131	WASHINGTON	PULLMAN	ALL OTHER	GREENHOUSE	GREENHOUSE 114-1A	1979	1,332	$278,681	$15,058	$95,026	$110,083
534801B143	WASHINGTON	PULLMAN	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 143	1982	1,740	$517,934	$2,361	$0	$2,361
534801B144	WASHINGTON	PULLMAN	WAREHOUSES	CHEMICAL STORAGE	GAS SHED 144	1991	192	$57,151	$0	$0	$0
534801B154	WASHINGTON	PULLMAN	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE	1988	3,400	$391,541	$0	$0	$0
534801B155	WASHINGTON	PULLMAN	WAREHOUSES	SHED, STORAGE	POTTING SHED 109E	2001	900	$89,774	$0	$0	$0
534802B140	IDAHO	MOSCOW	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HEMOPARISITE BARN	1983	4,000	$692,328	$17,815	$0	$17,815
535000B001	WASHINGTON	WENATCHEE	WAREHOUSES	STORAGE BUILDING	FRUIT HANDLING BLDG 1	1967	3,200	$393,082	$72,622	$0	$72,622
535000B004	WASHINGTON	WENATCHEE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 4	1968	1,600	$196,541	$36,311	$0	$36,311
535000B005	WASHINGTON	WENATCHEE	SERVICE	SHOP	SHOP BLDG 5	1968	3,840	$647,585	$100,835	$16,846	$117,682
535000B006	WASHINGTON	WENATCHEE	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1959	1,710	$391,624	$291	$113,219	$113,510
535000B007	WASHINGTON	WENATCHEE	ALL OTHER	GREENHOUSE	GREENHOUSE 7	1949	3,240	$742,025	$551	$214,521	$215,071
535000B008	WASHINGTON	WENATCHEE	WAREHOUSES	STORAGE BUILDING	STORAGE 8	1948	960	$117,924	$12,995	$1,034	$14,029
535000B010	WASHINGTON	WENATCHEE	WAREHOUSES	HAZMAT FACILITY	HAZ. MAT STORAGE BLDG 10	1991	544	$159,598	$0	$8,620	$8,620
535200B001	WASHINGTON	WAPATO	LABORATORIES	RESEARCH OFFICE/LABORATORY	MAIN LAB/OFFICE 001	1995	59,879	$19,319,600	$40,976	$304,875	$345,852
535200B002	WASHINGTON	WAPATO	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING	1998	2,315	$263,882	$0	$0	$0
535205B040	WASHINGTON	MOXEE CITY	LABORATORIES	LABORATORY	INSECT REARING LAB	1970	780	$281,862	$25,995	$0	$25,995
535400B091	WASHINGTON	PROSSER	LABORATORIES	LABORATORY	METAL BUILDING PEA/BEAN RES	1985	1,440	$520,249	$2,514	$4,476	$6,989
535400B092	WASHINGTON	PROSSER	LABORATORIES	LABORATORY	POTATOE TISSUE CULTURE FACILIT	1989	1,800	$850,311	$6,006	$8,937	$14,943
535400B093	WASHINGTON	PROSSER	ALL OTHER	SCREENHOUSE	SCREENHOUSE 093	1985	3,072	$412,490	$44,250	$97,765	$142,015
535400B094	WASHINGTON	PROSSER	WAREHOUSES	STORAGE BUILDING	SOIL STORAGE BLDG. 094	1974	812	$92,558	$4,938	$9,404	$14,342
535400B095	WASHINGTON	PROSSER	OFFICE	OFFICE	OFFICE/BREAKROOM BUILDING 95	1983	3,000	$796,950	$13,237	$2,954	$16,191
535400B099	WASHINGTON	PROSSER	WAREHOUSES	CHEMICAL STORAGE	CHEM STORAGE BLDG (PORTABLE)	1989	240	$72,568	$1,065	$0	$1,065
535400B101	WASHINGTON	PROSSER	ALL OTHER	SCREENHOUSE	SCREENHOUSE 101	1967	4,125	$553,880	$904	$0	$904
535400B102	WASHINGTON	PROSSER	ALL OTHER	HEADHOUSE/GREENHOUSE	GREENHSE/HHOUSE 102	1962	10,000	$1,999,620	$169,055	$596,082	$765,137
535400B103	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 103	1967	730	$155,140	$40,149	$0	$40,149
535400B104	WASHINGTON	PROSSER	SERVICE	SHOP	STORAGE/MAINTENANCE 104	1967	440	$68,856	$12,394	$7,075	$19,469
535400B105	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 105	1966	246	$52,280	$12,940	$0	$12,940
535400B106	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 106	1966	246	$52,280	$12,940	$0	$12,940
535400B107	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 107	1966	246	$52,280	$12,940	$0	$12,940
535400B108	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 108	1966	246	$52,280	$12,940	$0	$12,940
535400B109	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 109	1966	246	$52,280	$12,940	$0	$12,940
535400B110	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 110	1966	246	$52,280	$12,940	$0	$12,940
535400B111	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 111	1966	246	$52,280	$12,940	$0	$12,940
535400B112	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 112	1966	246	$52,280	$12,940	$0	$12,940
535400B113	WASHINGTON	PROSSER	ALL OTHER	HEADHOUSE	HEADHOUSE 113	1967	1,560	$296,871	$37,478	$1,098	$38,576
535400B114	WASHINGTON	PROSSER	WAREHOUSES	CHEMICAL STORAGE	ALFALFA SEED BUILDING 114	1991	4,096	$1,238,458	$0	$0	$0
535400B116	WASHINGTON	PROSSER	ALL OTHER	ALL OTHER	GROWTH CHAMBER BLDG 116	1970	800	$214,838	$2,770	$0	$2,770
535400B117	WASHINGTON	PROSSER	OFFICE	OFFICE	SOIL PREP/OFFICE BUILDING 117	1971	1,600	$425,040	$66,882	$10,515	$77,397
535400B118	WASHINGTON	PROSSER	ALL OTHER	ALL OTHER	SOIL PREP BLDG 118	1967	200	$53,710	$692	$0	$692
535400B119	WASHINGTON	PROSSER	ALL OTHER	ALL OTHER	BUTLER BUILDING 119	1976	2,880	$773,418	$230,575	$0	$230,575
535400B120	WASHINGTON	PROSSER	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 120	1975	3,200	$364,762	$8,417	$2,708	$11,125
535400B121	WASHINGTON	PROSSER	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 121	1976	3,171	$361,456	$6,247	$453	$6,700
535400B122	WASHINGTON	PROSSER	OFFICE	OFFICE	PEA/BEAN SEED 122	1984	1,500	$398,475	$6,618	$1,477	$8,095
535400B123	WASHINGTON	PROSSER	WAREHOUSES	SHED, STORAGE	EQUIPMENT STORAGE SHED 123	1987	3,900	$444,553	$0	$0	$0
535400B124	WASHINGTON	PROSSER	ALL OTHER	ALL OTHER	GROWTH CHAMBER BUILDING 124	1978	1,698	$455,995	$135,943	$0	$135,943
535400B134	WASHINGTON	PROSSER	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 134	2001	408	$46,507	$0	$0	$0
535400B135	WASHINGTON	PROSSER	ALL OTHER	GREENHOUSE	GREENHOUSE 135	2007	1,536	$328,431	$0	$0	$0
535600B001	OREGON	ADAMS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB/GREENHOUSE 001	1970	15,032	$5,106,040	$317,565	$62,650	$380,215
535600B002	OREGON	ADAMS	WAREHOUSES	GARAGE	EQUIPMENT GARAGE BUILDING 002	1976	4,867	$574,170	$3,997	$0	$3,997

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
535600B003	OREGON	ADAMS	SERVICE	SHOP	MACHINE/METAL SHOP BLDG. 003	1977	4,864	$801,363	$40,515	$166,652	$207,168
535600B011	OREGON	ADAMS	WAREHOUSES	STORAGE BUILDING	SAMPLE STORAGE BLDG 011	1986	4,500	$540,027	$40,662	$4,097	$44,758
535600B012	OREGON	ADAMS	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED	1985	3,400	$408,020	$5,446	$0	$5,446
535602B026	OREGON	CORVALLIS	ALL OTHER	BARN	POLE BLDG 26	1995	1,920	$231,091	$0	$0	$0
535602B036	OREGON	CORVALLIS	ALL OTHER	GREENHOUSE	NORTH FARM GH #1	1999	2,700	$605,880	$0	$0	$0
535602B037	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	NORTH FARM SH #1	1999	2,700	$382,806	$0	$0	$0
535602B038	IDAHO	PARMA	LABORATORIES	RESEARCH OFFICE/LABORATORY	MODULAR LAB	2002	1,440	$434,307	$1,121	$0	$1,121
535805B019	OREGON	CORVALLIS	SERVICE	SHOP	SHOP/SOIL STORAGE 19	1983	2,100	$347,004	$11,893	$0	$11,893
535805B023	OREGON	CORVALLIS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 23	1966	20,000	$6,813,500	$1,295,846	$443,117	$1,738,963
535805B024	OREGON	CORVALLIS	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 24	1987	10,000	$2,111,400	$357,145	$4,470	$361,615
535810B001	OREGON	CORVALLIS	LABORATORIES	LABORATORY	LAB OFFICE 1	1973	30,825	$11,759,121	$699,198	$814,647	$1,513,845
535810B007	OREGON	CORVALLIS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 7	1975	925	$111,333	$1,346	$10,132	$11,478
535810B008	OREGON	CORVALLIS	ALL OTHER	GREENHOUSE	GREENHOUSE 8	1976	1,300	$291,720	$7,623	$0	$7,623
535810B009	OREGON	CORVALLIS	SERVICE	SHOP	SHOP BLDG 9	1976	2,619	$432,764	$22,822	$93,876	$116,698
535810B017	OREGON	CORVALLIS	ALL OTHER	HEADHOUSE	ANNEX BLDG/HEADHOUSE 17	1982	7,000	$1,406,580	$165,249	$19,735	$184,985
535810B018	OREGON	CORVALLIS	ALL OTHER	GREENHOUSE	GREENHOUSE 18	1982	2,240	$502,656	$150,772	$0	$150,772
535810B025	OREGON	CORVALLIS	ALL OTHER	ALL OTHER	ENV CHAMBER BLDG 25	1990	3,150	$893,214	$10,728	$1,996	$12,724
535810B031	OREGON	CORVALLIS	ALL OTHER	ALL OTHER	GAZEBO	1992	600	$170,136	$2,003	$0	$2,003
535810B033	OREGON	CORVALLIS	ALL OTHER	GREENHOUSE	GREENHOUSE 33	1995	1,500	$336,600	$2,218	$0	$2,218
535810B034	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 034	1995	1,800	$255,204	$0	$0	$0
535815B012	OREGON	CORVALLIS	LABORATORIES	LABORATORY	MAIN LAB	1983	7,180	$2,739,026	$240,755	$74,960	$315,715
535815B013	OREGON	CORVALLIS	ALL OTHER	GREENHOUSE	GREENHOUSES COMPLEX 1-4	1983	15,000	$3,366,000	$530,035	$41,539	$571,574
535815B014	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 5	1983	2,975	$421,796	$45,220	$99,908	$145,128
535815B015	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 6	1983	2,975	$421,796	$45,220	$99,908	$145,128
535815B016	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 7	1983	2,975	$421,796	$45,220	$99,908	$145,128
535815B020	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 8	1983	2,975	$421,796	$45,220	$99,908	$145,128
535815B021	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 9	1983	2,975	$421,796	$45,220	$99,908	$145,128
535815B022	OREGON	CORVALLIS	ALL OTHER	SCREENHOUSE	SCREENHOUSE 10	1983	2,975	$421,796	$45,220	$99,908	$145,128
536000B001	OREGON	RILEY	ALL OTHER	VISITORS CENTER	VISITOR CENTER	1937	961	$441,756	$40,641	$4,787	$45,428
536000B002	OREGON	Riley	FAMILY HOUSING	RESIDENCE	RESIDENCE(BIG HOUSE) 02	1937	2,992	$614,659	$11,124	$25,772	$36,896
536000B003	OREGON	Riley	FAMILY HOUSING	RESIDENCE	RESIDENCE(MIDDLE HSE) 03	1937	641	$131,683	$2,383	$5,521	$7,904
536000B006	OREGON	RILEY	WAREHOUSES	SHED, STORAGE	WOODSHED/GARAGE W/005 06	1937	336	$40,322	$0	$4,662	$4,662
536000B007	OREGON	Riley	FAMILY HOUSING	RESIDENCE	RESIDENCE(SOUTH HOUSE) 07	1937	1,276	$262,134	$4,744	$10,991	$15,735
536000B008	OREGON	RILEY	WAREHOUSES	SHED, STORAGE	WOODSHED/GARAGE W/007 08	1937	25	$3,000	$0	$348	$348
536000B010	OREGON	RILEY	WAREHOUSES	STORAGE BUILDING	STRG BLDG VETERINARY BARN 10	1937	250	$30,002	$396	$0	$396
536000B012	OREGON	RILEY	ALL OTHER	ALL OTHER	DIPPING VAT 12	1937	624	$176,421	$6,137	$4,082	$10,219
536000B013	OREGON	RILEY	SERVICE	SCALE HOUSE, SERVICE	SCALE HOUSE 13	1937	252	$58,433	$0	$4,832	$4,832
536000B014	OREGON	RILEY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HORSE BARN 14	1937	985	$182,318	$28,265	$469	$28,734
536000B016	OREGON	RILEY	SERVICE	SHOP	SHOP/DRY LAB 16	1937	1,240	$204,265	$19,269	$21,174	$40,444
536000B018	OREGON	RILEY	SERVICE	SHOP	SERVICE/SHOP BLDG 18	1937	933	$153,715	$14,499	$15,932	$30,431
536000B019	OREGON	RILEY	SERVICE	ALL OTHER	GAS HOUSE 19	1937	75	$18,535	$413	$3,553	$3,966
536000B020	OREGON	RILEY	WAREHOUSES	SHED, STORAGE	OPEN SHED EAST OF 021	1937	800	$96,005	$0	$11,147	$11,147
536000B021	OREGON	RILEY	ALL OTHER	ALL OTHER	MEETING HALL/CONF BLDG 21	1937	1,224	$346,057	$51,764	$6,096	$57,860
536000B022	OREGON	RILEY	WAREHOUSES	SHED, STORAGE	OPEN SHED WEST OF 021	1937	141	$16,921	$0	$1,965	$1,965
536000B034	OREGON	RILEY	WAREHOUSES	STORAGE BUILDING	STORAGE	2000	700	$84,004	$0	$0	$0
536000B903	OREGON	RILEY	LABORATORIES	TRAILER, LABORATORY	MODULAR A" & "B" SEED BUILDING"	1980	1,440	$415,912	$18,314	$3,319	$21,633
536200B003	IDAHO	BOISE	ALL OTHER	ALL OTHER	QUONSET BLDG	1963	4,000	$1,004,136	$29,942	$7,215	$37,157
536200B004	IDAHO	BOISE	WAREHOUSES	STORAGE BUILDING	WEST END/BLDG 04	1965	675	$71,924	$4,294	$1,316	$5,610
536200B005	IDAHO	BOISE	WAREHOUSES	GARAGE	VEHICLE STORAGE	1969	3,510	$367,995	$2,555	$0	$2,555
536200B006	IDAHO	BOISE	DORMITORIES/BARRACKS	BUNKHOUSE	BUNKHOUSE CABIN	1972	384	$49,932	$3,470	$7,286	$10,756
536200B007	IDAHO	BOISE	ALL OTHER	ALL OTHER	INSTRUMENT BLDG	1973	49	$12,301	$4	$0	$4
536200B008	IDAHO	BOISE	ALL OTHER	ALL OTHER	INSTRUMENT BLDG 8	1973	49	$12,301	$4	$0	$4
536200B009	IDAHO	BOISE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 9	1960	63	$6,713	$2,331	$222	$2,553
536200B011	IDAHO	BOISE	ALL OTHER	UTILITY BUILDING	GENERATOR CABIN 11	1978	252	$94,663	$7,191	$2,470	$9,661
536400B003	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 3	1920	1,926	$350,925	$13,496	$20,922	$34,419
536400B004	IDAHO	DUBOIS	SERVICE	ALL OTHER	SERVICE BUILDING 4	1918	1,650	$391,657	$6,577	$56,559	$63,136
536400B005	IDAHO	DUBOIS	WAREHOUSES	STORAGE BUILDING	STORAGE 5	1918	315	$33,527	$246	$13,421	$13,667
536400B007	IDAHO	DUBOIS	WAREHOUSES	SHED, STORAGE	SHED 7	1918	6,090	$648,195	$5,255	$102,976	$108,231
536400B006	IDAHO	DUBOIS	WAREHOUSES	STORAGE BUILDING	STORAGE/HORSE BARN 8	1921	7,815	$831,797	$821	$102,098	$102,919
536400B009	IDAHO	DUBOIS	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	RESIDENCE 9 DORM	1918	4,165	$770,150	$45,555	$103,713	$149,268
536400B010	IDAHO	DUBOIS	WAREHOUSES	STORAGE BUILDING	STORAGE	1918	1,520	$161,783	$1,143	$35,555	$36,698
536400B014	IDAHO	DUBOIS	WAREHOUSES	STORAGE BUILDING	STORAGE 14	1926	3,648	$388,279	$19,146	$22,041	$41,187
536400B015	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 15	1928	2,856	$520,375	$8,871	$20,569	$29,440
536400B016	IDAHO	DUBOIS	WAREHOUSES	GARAGE	GARAGE/STOR BLDG 16	1920	3,850	$402,833	$22,851	$177,530	$200,382
536400B017	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 17	1936	2,100	$382,628	$8,243	$15,455	$23,697
536400B018	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 18	1937	2,772	$505,069	$8,871	$20,551	$29,422
536400B019	IDAHO	DUBOIS	OFFICE	LABORATORY, OFFICE	OFFICE AND LAB 19	1937	8,896	$2,527,620	$163,512	$99,821	$263,333
536400B020	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 20	1938	2,265	$412,692	$14,714	$7,763	$22,476
536400B021	IDAHO	DUBOIS	LABORATORIES	LABORATORY	RAM BARN 21	1939	6,864	$2,315,557	$29,540	$143,596	$173,135
536400B022	IDAHO	DUBOIS	WAREHOUSES	GARAGE	GARAGE 22	1938	2,430	$254,258	$297	$47,941	$48,238
536400B024	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 24	1940	1,680	$306,103	$12,922	$6,696	$19,618

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
536400B026	IDAHO	DUBOIS	WAREHOUSES	GARAGE	GARAGE 26	1939	420	$43,945	$0	$12,866	$12,866
536400B027	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 27	1941	2,763	$503,430	$8,871	$20,536	$29,406
536400B028	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 28	1942	2,763	$503,430	$8,871	$20,536	$29,406
536400B040	IDAHO	DUBOIS	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 40	1933	1,550	$164,976	$14,596	$23,958	$38,554
536400B044	IDAHO	DUBOIS	WAREHOUSES	SHED, STORAGE	STORAGE BLDG 44 HUMPHREY	1941	616	$65,565	$323	$9,122	$9,446
536400B047	IDAHO	DUBOIS	SERVICE	ALL OTHER	SERVICE BUILDING 47 HUMP.	1933	426	$93,373	$0	$5,911	$5,911
536400B051	IDAHO	DUBOIS	OFFICE	OFFICE	OFFICE 51 HUMPHREY	1962	707	$175,371	$13,670	$14,481	$28,152
536400B053	IDAHO	DUBOIS	WAREHOUSES	SHED, STORAGE	STORAGE SHED 53	1969	1,152	$122,614	$6,896	$3,440	$10,336
536400B056	IDAHO	DUBOIS	LABORATORIES	LABORATORY	RANGE LAB 56	1971	1,024	$345,444	$46,306	$28,765	$75,071
536400B059	IDAHO	DUBOIS	ALL OTHER	UTILITY BUILDING	LUNCH ROOM/UTILITY 59	1973	600	$225,139	$17,120	$5,882	$23,002
536400B060	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 60	1940	2,772	$505,069	$8,871	$20,551	$29,422
536400B061	IDAHO	DUBOIS	WAREHOUSES	GARAGE	GARAGE/STORAGE 61	1940	756	$79,102	$0	$20,334	$20,334
536400B062	IDAHO	DUBOIS	FAMILY HOUSING	RESIDENCE	RESIDENCE 62	1934	2,016	$367,323	$16,698	$4,301	$20,999
536400B063	IDAHO	DUBOIS	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	DORM/GARAGE 63	1938	2,924	$540,677	$26,424	$55,480	$81,904
536400B066	IDAHO	DUBOIS	LABORATORIES	LABORATORY	LABORATORY - PHYSIOLOGY	1975	5,730	$1,903,004	$13,361	$74,420	$87,781
536400B067	IDAHO	DUBOIS	ALL OTHER	BARN	NUTRITION BARN 67	1975	2,460	$261,833	$42,771	$0	$42,771
536400B071	IDAHO	DUBOIS	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE/GARAGE 71	1938	300	$123,664	$16,756	$3,649	$20,405
536400B07A	IDAHO	DUBOIS	WAREHOUSES	SHED, STORAGE	SHED 7A	1918	300	$31,931	$1,683	$7,311	$8,993
536400B092	IDAHO	DUBOIS	LABORATORIES	LABORATORY	LARF BUILDING 92	1979	3,000	$1,012,044	$16,655	$38,876	$55,531
536400B093	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SURGERY 93	1978	3,624	$594,930	$18,575	$0	$18,575
536400B098	IDAHO	DUBOIS	SERVICE	SHOP	SHOP BUILDING 98	1973	4,200	$813,721	$22,658	$18,839	$41,497
536400B099	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LAMBING SHED 99	1981	3,065	$503,163	$13,304	$0	$13,304
536400B103	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	KENNEL 103	1980	1,700	$279,079	$9,064	$0	$9,064
536400B110	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	FEED BUNKS(HQ)	1989	7,064	$1,159,654	$150,631	$0	$150,631
536400B118	IDAHO	Mudlake	WAREHOUSES	STORAGE BUILDING	STORAGE (MUD LK)	1991	6,000	$673,308	$101	$0	$101
536400B121	IDAHO	DUBOIS	WAREHOUSES	SHED, STORAGE	HAY SHED 121	1993	8,000	$851,488	$0	$0	$0
536400B124	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LAMBING BARN 124	1993	5,400	$886,496	$6,740	$2,443	$9,184
536400B125	IDAHO	DUBOIS	WAREHOUSES	HAZMAT FACILITY	STORAGE BLDG (RADIOACTIVE)	1994	1,680	$427,332	$0	$0	$0
536400B126	IDAHO	DUBOIS	ALL OTHER	BARN	QUONSET BARN 126	1997	6,120	$651,388	$0	$0	$0
536401B127	IDAHO	DUBOIS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	VETERINARY SHED	2002	300	$49,249	$0	$0	$0
536600B100	IDAHO	ABERDEEN	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB/HH/GH FACIL 100	1988	50,264	$15,142,935	$2,526,170	$863,828	$3,389,998
536600B101	IDAHO	ABERDEEN	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE	1984	2,400	$255,446	$1,270	$0	$1,270
536600B102	IDAHO	ABERDEEN	ALL OTHER	GREENHOUSE	GREENHOUSE 102	1987	1,800	$357,192	$64,639	$0	$64,639
536600B103	IDAHO	ABERDEEN	LABORATORIES	LABORATORY	MODULAR BUILDING 103	1985	1,536	$518,167	$2,330	$4,147	$6,477
536600B105	IDAHO	ABERDEEN	ALL OTHER	GREENHOUSE	GREENHOUSE COMPLEX 105	1992	2,880	$571,507	$11,754	$0	$11,754
536600B106	IDAHO	ABERDEEN	WAREHOUSES	SHED, STORAGE	MACHINE STORAGE SHED	1998	1,200	$127,723	$0	$0	$0
536800B001	IDAHO	KIMBERLY	LABORATORIES	RESEARCH OFFICE/LABORATORY	MAIN OFFICE AND LABORATORY 001	1963	19,440	$5,811,199	$435,706	$162,383	$598,089
536800B002	IDAHO	KIMBERLY	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 002	1963	13,920	$2,578,889	$230,136	$811,454	$1,041,590
536800B003	IDAHO	KIMBERLY	LABORATORIES	LABORATORY	IRRIGATION LAB 003	1963	3,600	$1,205,028	$1,610	$0	$1,610
536800B004	IDAHO	KIMBERLY	WAREHOUSES	GARAGE	VEHICLE STORAGE 004	1963	4,800	$498,336	$10,703	$25,265	$35,968
536800B005	IDAHO	KIMBERLY	SERVICE	SHOP	SERVICE BUILDINGS/SHOPS 005	1963	6,720	$974,333	$102,968	$7,369	$110,336
536800B011	IDAHO	KIMBERLY	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BUILDING 011	1980	4,000	$422,440	$9,888	$3,181	$13,070
536800B017	IDAHO	KIMBERLY	ALL OTHER	UTILITY BUILDING	SOUTH FARM BLDG 017	1994	4,000	$1,489,280	$0	$93,572	$93,572
540200B053	COLORADO	FORT COLLINS	SERVICE	SHOP	STORAGE/SHOP,ENG.RES.CENTER	1987	2,880	$443,699	$66,415	$11,096	$77,511
540202B002	COLORADO	FORT COLLINS	LABORATORIES	LABORATORY	LAB/OFFICE	1969	25,494	$9,067,553	$940,958	$160,111	$1,101,069
540202B003	COLORADO	FORT COLLINS	ALL OTHER	HEADHOUSE	HEADHOUSE	1969	10,782	$2,019,975	$135,067	$61,768	$196,835
540202B004	COLORADO	FORT COLLINS	ALL OTHER	GREENHOUSE	GREENHOUSE C (EAST)	1969	3,478	$727,667	$65	$712,091	$712,156
540202B005	COLORADO	FORT COLLINS	ALL OTHER	GREENHOUSE	GREENHOUSE D (WEST)	1969	3,385	$708,210	$64	$693,050	$693,114
540202B007	COLORADO	FORT COLLINS	WAREHOUSES	STORAGE BUILDING	STRGE BLD ON BAY RD (CSU LAND)	1967	1,200	$134,662	$22,762	$0	$22,762
540202B053	COLORADO	FORT COLLINS	SERVICE	SHOP	SHOP	1982	1,000	$154,062	$4,313	$0	$4,313
540202B056	COLORADO	FORT COLLINS	ALL OTHER	GREENHOUSE	GREENHOUSES A&B 056	1979	5,256	$1,099,660	$143,077	$841,655	$984,731
540202B058	COLORADO	FORT COLLINS	ALL OTHER	ALL OTHER	FT.COLLINS RESEARCH FARM SHAR	2002	5,628	$1,487,919	$0	$0	$0
540202B059	COLORADO	FORT COLLINS	WAREHOUSES	STORAGE BUILDING	EQUIP. STORAGE ON RESEARCH FAI	2005	10,000	$1,122,180	$0	$0	$0
540205B001	COLORADO	FORT COLLINS	LABORATORIES	LABORATORY	LABORATORY 001	1958	82,924	$29,493,911	$1,473,425	$135,620	$1,609,045
540700B001	COLORADO	AKRON	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 001	1978	9,850	$3,039,868	$338,970	$74,107	$413,077
540700B002	COLORADO	AKRON	LABORATORIES	LABORATORY	SEED HOUSE 002	1914	2,240	$774,090	$78,650	$31,605	$110,255
540700B003	COLORADO	AKRON	WAREHOUSES	BARN, STORAGE	BARN/STORAGE/GARAGE	1914	3,660	$392,293	$3,424	$67,095	$70,519
540700B004	COLORADO	AKRON	WAREHOUSES	GARAGE	GARAGE 004	1916	3,150	$337,630	$20,270	$157,475	$177,745
540700B005	COLORADO	AKRON	ALL OTHER	UTILITY BUILDING	FUEL HEAD HOUSE 005	1916	131	$50,354	$9,936	$2,164	$12,100
540700B006	COLORADO	AKRON	ALL OTHER	ALL OTHER	SAMPLE PROC BLDG 006	1916	6,100	$1,566,919	$46,478	$33,425	$79,903
540700B007	COLORADO	AKRON	SERVICE	SHOP	SERVICE SHOP	1957	3,000	$449,064	$39,390	$3,919	$43,309
540700B008	COLORADO	AKRON	WAREHOUSES	STORAGE BUILDING	STORAGE ROUND TOP	1962	4,000	$436,128	$23,022	$12,319	$35,341
540700B009	COLORADO	AKRON	WAREHOUSES	STORAGE BUILDING	STORAGE SQUARE TOP	1981	5,000	$545,160	$3,363	$0	$3,363
540700B011	COLORADO	AKRON	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG. 011	1982	759	$219,512	$1,022	$0	$1,022
540700B013	COLORADO	AKRON	WAREHOUSES	STORAGE BUILDING	SM EQUIP STRG NORTH	1990	3,000	$327,096	$26,050	$2,625	$28,675
540700B016	COLORADO	AKRON	OFFICE	OFFICE	OFFICE MODULAR	1996	1,440	$365,904	$3,472	$3,124	$6,596
540700B018	COLORADO	AKRON	WAREHOUSES	STORAGE BUILDING	SAMPLE STORAGE BLDG	1992	3,000	$327,096	$50	$0	$50
540700B020	COLORADO	AKRON	WAREHOUSES	STORAGE BUILDING	MACHINERY STORAGE SOUTH	2004	7,750	$844,998	$0	$0	$0
540700B022	COLORADO	AKRON	ALL OTHER	ALL OTHER	RAINOUT SHELTER BLDG 22	1981	2,500	$642,180	$1,124	$0	$1,124
540900B001	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 001	1929	2,250	$391,325	$4,349	$35,596	$39,945
540900B002	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 002	1929	2,250	$391,325	$4,349	$35,596	$39,945

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
540900B003	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 003	1929	3,150	$547,854	$6,089	$49,834	$55,923
540900B004	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 004	1929	4,410	$766,996	$8,525	$69,767	$78,292
540900B005	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 005	1928	2,104	$365,932	$5,335	$12,370	$17,704
540900B006	WYOMING	CHEYENNE	LABORATORIES	RESEARCH OFFICE/LABORATORY	MAIN OFFICE/LABORATORY 006	1929	4,200	$1,207,811	$34,244	$39,036	$73,281
540900B007	WYOMING	CHEYENNE	FAMILY HOUSING	RESIDENCE	RESIDENCE 007	1928	2,104	$365,932	$5,335	$12,370	$17,704
540900B008	WYOMING	CHEYENNE	OFFICE	OFFICE	OFFICE 008	1928	3,321	$788,330	$12,659	$30,922	$43,581
540900B009	WYOMING	CHEYENNE	LABORATORIES	LABORATORY	PHONE SYSTEM	1928	4,000	$1,288,056	$104,554	$42,014	$146,568
540900B010	WYOMING	CHEYENNE	WAREHOUSES	GARAGE	GARAGE 010	1929	560	$55,931	$0	$14,205	$14,205
540900B011	WYOMING	CHEYENNE	WAREHOUSES	GARAGE	GARAGE 011	1929	420	$41,948	$0	$10,653	$10,653
540900B012	WYOMING	CHEYENNE	WAREHOUSES	GARAGE	GARAGE 012	1929	740	$73,908	$378	$11,528	$11,906
540900B013	WYOMING	CHEYENNE	WAREHOUSES	GARAGE	GARAGE 013	1929	740	$73,908	$378	$11,528	$11,906
540900B014	WYOMING	CHEYENNE	WAREHOUSES	CHEMICAL STORAGE	GARAGE/PESTICIDE SHED 014	1929	740	$199,425	$434	$39,398	$39,833
540900B015	WYOMING	CHEYENNE	ALL OTHER	ALL OTHER	ENVIRONMENTAL CHAMBERS 015	1939	1,798	$430,366	$61,294	$7,219	$68,513
540900B016	WYOMING	CHEYENNE	WAREHOUSES	STORAGE BUILDING	STORAGE CELLAR 016	1929	2,804	$264,561	$11,316	$13,028	$24,344
540900B017	WYOMING	CHEYENNE	ALL OTHER	BARN	BARN 017	1929	4,192	$425,899	$50,955	$49,922	$100,888
540900B018	WYOMING	CHEYENNE	SERVICE	SHOP	SHOP 018	1929	7,500	$1,046,115	$35,557	$26,091	$61,648
540900B019	WYOMING	CHEYENNE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 019	1930	7,737	$1,378,942	$60,339	$352,325	$412,664
540900B020	WYOMING	CHEYENNE	ALL OTHER	SCREENHOUSE	SCREENHOUSE 020	1937	7,390	$884,428	$88,888	$196,387	$285,275
540900B021	WYOMING	CHEYENNE	SERVICE	PUMPHOUSE, SERVICE	PUMPHOUSE 021	1935	150	$59,022	$6,956	$1,515	$8,470
540950B001	COLORADO	NUNN	OFFICE	OFFICE	MAIN OFFICE	1994	2,760	$721,809	$4,854	$14,263	$19,118
540950B002	COLORADO	NUNN	WAREHOUSES	STORAGE BUILDING	STORAGE/FORAGE	1961	896	$100,547	$33,396	$1,715	$35,111
540950B003	COLORADO	NUNN	ALL OTHER	ALL OTHER	LUNCHROOM	1964	560	$148,052	$4,205	$11,086	$15,291
540950B006	COLORADO	NUNN	SERVICE	GARAGE, SERVICE	LARGE GARAGE/SHOP	1938	4,080	$647,973	$50,510	$55,503	$106,013
540950B008	COLORADO	NUNN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HORSE BARN	1933	1,500	$259,623	$40,912	$679	$41,591
540950B009	COLORADO	NUNN	WAREHOUSES	STORAGE BUILDING	STORAGE-FEED	1964	1,120	$125,684	$6,540	$12,850	$19,390
540950B010	COLORADO	NUNN	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE	1985	120	$35,720	$510	$0	$510
540950B011	COLORADO	NUNN	FAMILY HOUSING	RESIDENCE	RESIDENCE #1	1959	2,480	$476,413	$8,996	$20,826	$29,822
540950B012	COLORADO	NUNN	WAREHOUSES	GARAGE	GARAGE FOR RES. #1	1962	600	$66,190	$1,364	$3,220	$4,584
540950B013	COLORADO	NUNN	FAMILY HOUSING	RESIDENCE	RESIDENCE #2	1982	1,200	$230,522	$4,353	$10,077	$14,430
540950B014	COLORADO	NUNN	WAREHOUSES	GARAGE	GARAGE FOR RESIDENCE #2	1992	484	$53,393	$913	$3,114	$4,026
540950B017	COLORADO	NUNN	WAREHOUSES	STORAGE BUILDING	WEST METAL STORAGE	1964	1,120	$125,684	$6,540	$12,850	$19,390
541000B004	WYOMING	LARAMIE	LABORATORIES	CONTAINMENT FACILITY	LARGE ANIMIL ISOLATION BUILDING	1992	2,676	$1,149,714	$73,786	$12,555	$86,341
541000B005	WYOMING	LARAMIE	ALL OTHER	CONTAINMENT FACILITY	DECONTAMINATON BULDING	1991	1,865	$801,277	$110,093	$1,716	$111,809
541000B006	WYOMING	LARAMIE	ALL OTHER	UTILITY BUILDING	GENERATOR BUILDING	1991	306	$109,602	$0	$6,112	$6,112
541000B007	WYOMING	LARAMIE	SERVICE	SHOP	SHOP	1969	1,518	$211,734	$26,035	$4,350	$30,385
541000B008	WYOMING	LARAMIE	WAREHOUSES	STORAGE BUILDING	BUTLER STORAGE BUILDING	1955	1,000	$101,598	$6,162	$0	$6,162
541000B009	WYOMING	LARAMIE	WAREHOUSES	TRAILER, STORAGE	TRAILER	1970	960	$100,840	$4,649	$11,393	$16,042
541000B010	WYOMING	LARAMIE	LABORATORIES	LABORATORY	CELL CULTURE BLDG.	2003	1,344	$432,787	$0	$0	$0
542805B001	UTAH	LOGAN	ALL OTHER	SCREENHOUSE	SCREEN HOUSE - BEE LAB	2000	1,440	$170,536	$0	$0	$0
542810B001	UTAH	LOGAN	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/OFFICE 001	1962	20,400	$5,805,187	$400,105	$149,115	$549,220
542810B002	UTAH	LOGAN	ALL OTHER	GREENHOUSE	GREENHOUSE 002	1962	4,160	$779,750	$613	$238,800	$239,413
542810B003	UTAH	LOGAN	ALL OTHER	GREENHOUSE	GREENHOUSE 003	1966	4,160	$779,750	$226,781	$278,211	$505,992
542810B004	UTAH	LOGAN	ALL OTHER	GREENHOUSE	GREENHOUSE 004	1962	4,160	$779,750	$613	$238,800	$239,413
542810B005	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 005	1962	6,480	$651,473	$32,292	$17,279	$49,571
542810B008	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 008 - EVANS FARM	1969	1,032	$103,753	$17,015	$0	$17,015
542810B009	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG - NORTH FARM F&R/	1967	525	$52,781	$8,617	$5,241	$13,858
542810B010	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	USDA/ARS NORTH FARM/GREENVILL	2007	5,750	$578,082	$0	$0	$0
542810B011	UTAH	LOGAN	ALL OTHER	ALL OTHER	SUGAR BEET FLD HS 011-F&R CMPD	1963	5,894	$1,396,029	$85,263	$2,201	$87,464
542810B035	UTAH	LOGAN	SERVICE	SHOP	SHOP/STORAGE BLDG - F&R CMPD	1978	3,000	$414,072	$4,098	$140	$4,239
542810B046	UTAH	LOGAN	WAREHOUSES	SHED, STORAGE	SOIL SHED 046 - F&R CMPD	1984	480	$48,257	$0	$0	$0
542810B06A	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	METAL STOR. BLDG/EVANS FRM F&R	1999	4,800	$482,573	$0	$0	$0
542820B001	UTAH	LOGAN	LABORATORIES	LABORATORY	POISONOUS PLANT LABORATORY	2005	26,750	$8,523,834	$24,253	$0	$24,253
542820B018	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	SHOP/STORAGE GOLD" 018 - PPRL"	1977	3,175	$319,202	$5,209	$377	$5,587
542820B025	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP & GOAT PENS 025 - PPRL	1958	6,855	$1,031,961	$113,593	$32,375	$145,967
542820B026	UTAH	LOGAN	ALL OTHER	ALL OTHER	TREATMENT ROOM 026-PPRL	1962	13,884	$3,283,772	$200,558	$5,176	$205,734
542820B028	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	METABOLISM BLDG. 028 - PPRL	1967	1,536	$238,178	$13,900	$4,722	$18,622
542820B031	UTAH	LOGAN	SERVICE	SHOP	SHOP/VEH. STORAGE 031 - PPRL	1967	3,280	$452,719	$66,617	$11,130	$77,746
542820B032	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP & HAY BARN 032-PPRL	1972	2,250	$348,894	$7,468	$9,681	$17,149
542820B036	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SMALL ANIMAL ROOM 036 - PPRL	1958	6,305	$977,679	$107,619	$30,672	$138,290
542820B039	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B040	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B041	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B042	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B043	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B044	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SOW FARROW HOUSE, RICH FARM F	1984	50	$8,017	$328	$0	$328
542820B045	UTAH	LOGAN	WAREHOUSES	STORAGE BUILDING	RANGE STORAGE- PPRL	1984	600	$60,322	$4,511	$454	$4,965
542820B055	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP LAMBING BUILDING - PPRL	1995	3,200	$496,205	$0	$0	$0
542820B056	UTAH	RICHMOND	WAREHOUSES	SHED, STORAGE	POLE HAY SHED/RICHMOND FARM P	1999	3,360	$349,299	$0	$0	$0
542820B057	UTAH	LOGAN	ALL OTHER	HEADHOUSE	HEADHOUSE	2002	1,344	$225,582	$3,511	$16,076	$19,587
542820B058	UTAH	LOGAN	ALL OTHER	GREENHOUSE	GREENHOUSE FOR 057 HH	2006	1,450	$271,788	$0	$0	$0
542820B059	UTAH	LOGAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SURGERY BUILDING	2006	4,800	$744,307	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
542820B060	UTAH	LOGAN	LABORATORIES	LABORATORY	PLANT EXTRACTION	2006	1,628	$518,759	$0	$0	$0
542820B200	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BLDG, RICHMOND FARM PP	2000	5,000	$801,710	$0	$0	$0
542820B205	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	DEER PEN SLTR -RICHMOND FRM PF	2000	392	$62,854	$0	$0	$0
542820B206	UTAH	RICHMOND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	DEER PEN SLTR-RICHMOND FRM PP	2000	392	$62,854	$0	$0	$0
543000B001	KANSAS	MANHATTAN	LABORATORIES	LABORATORY	LABORATORY 001	1971	56,112	$21,636,451	$1,294,757	$717,672	$2,012,429
543000B003	KANSAS	MANHATTAN	ALL OTHER	HEADHOUSE	GRAIN PILOT HEADHOUSE 003	1971	17,972	$3,650,239	$244,656	$114,004	$358,660
543000B004	KANSAS	MANHATTAN	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE 004	1973	864	$278,815	$26,696	$0	$26,696
543000B005	KANSAS	MANHATTAN	SERVICE	SHOP	SHOP/STORAGE 005	1977	5,000	$835,110	$44,613	$183,506	$228,119
543000B006	KANSAS	MANHATTAN	LABORATORIES	LABORATORY	BRU RESEARCH BUILDING 006	1988	1,600	$616,950	$6,314	$9,396	$15,710
543000B019	KANSAS	MANHATTAN	ALL OTHER	UTILITY BUILDING	UTILITY BLDG ROCKY FD 019 MOU	1968	3,200	$1,372,467	$102,524	$35,222	$137,746
543000B034	KANSAS	MANHATTAN	WAREHOUSES	SHED, STORAGE	10X20 WDEN SHED-PACKAGING RES	1995	200	$24,332	$0	$0	$0
543000B035	KANSAS	MANHATTAN	WAREHOUSES	SHED, STORAGE	10X20 WDEN SHED-PACKAGING RES	1995	200	$24,332	$0	$0	$0
543000B036	KANSAS	MANHATTAN	WAREHOUSES	SHED, STORAGE	10X20 WDN SHED-PACKAGING RES	1995	200	$24,332	$0	$0	$0
543000B037	KANSAS	MANHATTAN	WAREHOUSES	SHED, STORAGE	10X20 WDN SHED-PACKAGING RES	1995	200	$24,332	$0	$0	$0
543000B038	KANSAS	MANHATTAN	WAREHOUSES	SHED, STORAGE	10X20 WDN SHED-PACKAGING RES	1995	200	$24,332	$0	$0	$0
543000B051	KANSAS	MANHATTAN	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING WEL 051 MOU	1966	800	$97,326	$6,153	$0	$6,153
543000B052	KANSAS	MANHATTAN	LABORATORIES	LABORATORY	SOIL EROS LAB/GNHS WEL 052 MOU	1965	6,828	$2,555,717	$39,589	$50,964	$90,553
543000B060	KANSAS	MANHATTAN	ALL OTHER	GREENHOUSE	ENTOMOLOGY RES GRNHS 060 MOU	1969	1,675	$425,288	$152	$0	$152
543010B053	KANSAS	MANHATTAN	WAREHOUSES	STORAGE BUILDING	STORAGE/VEHICLE & EQUIP WEL 53	1986	1,500	$182,487	$15,811	$1,593	$17,404
543400B001	MONTANA	MILES CITY	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE & LABORATORY (1)	1970	10,696	$3,250,928	$179,846	$35,441	$215,086
543400B003	MONTANA	MILES CITY	ALL OTHER	ALL OTHER	ANNEX BUILDING	1955	1,008	$251,081	$7,225	$5,196	$12,421
543400B004	MONTANA	MILES CITY	SERVICE	SHOP	CARPENTER SHOP	1920	21,600	$3,135,283	$121,447	$89,115	$210,562
543400B007	MONTANA	MILES CITY	SERVICE	GARAGE, SERVICE	5-STALL GARAGE	1980	1,716	$256,789	$6,528	$0	$6,528
543400B009	MONTANA	MILES CITY	SERVICE	SHOP	RANGE SHOP	1980	1,200	$174,182	$4,565	$0	$4,565
543400B010	MONTANA	MILES CITY	SERVICE	SHOP	MACHINE/AUTOMOTIVE SHOP	1956	3,200	$464,486	$11,471	$13,759	$25,230
543400B011	MONTANA	MILES CITY	SERVICE	SHOP	FARM SHOP	1952	2,460	$357,074	$8,818	$10,577	$19,395
543400B012	MONTANA	MILES CITY	WAREHOUSES	STORAGE BUILDING	TIRE AND IRON STORAGE	1932	605	$63,965	$32	$6,102	$6,134
543400B013	MONTANA	MILES CITY	WAREHOUSES	STORAGE BUILDING	OLD FIRE STATION	1960	1,344	$142,098	$6,718	$3,595	$10,313
543400B014	MONTANA	MILES CITY	WAREHOUSES	GARAGE	VEHICLE STORAGE	1970	4,128	$429,048	$2,830	$0	$2,830
543400B019	MONTANA	MILES CITY	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE - HORSEBARN	1924	88	$36,034	$4,840	$1,054	$5,893
543400B020	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HORSE BARN/PHYSIOLOGY COMPLE	1934	10,892	$1,743,566	$113,826	$119,764	$233,591
543400B021	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HORSE BARN FEEDING FACILITY	1969	225	$36,681	$12,048	$2,979	$15,026
543400B022	MONTANA	MILES CITY	ALL OTHER	ALL OTHER	FEED MILL HOUSE AND BINS	1965	1,980	$493,194	$28,718	$741	$29,459
543400B023	MONTANA	MILES CITY	WAREHOUSES	STORAGE WAREHOUSE	FEED WAREHOUSE	1969	1,800	$190,310	$15,725	$1,447	$17,172
543400B026	MONTANA	MILES CITY	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE	1988	1,452	$407,210	$5,382	$0	$5,382
543400B027	MONTANA	MILES CITY	WAREHOUSES	STORAGE BUILDING	FENCING STORAGE	1883	772	$81,622	$569	$30,969	$31,538
543400B029	MONTANA	MILES CITY	WAREHOUSES	SHED, STORAGE	OLD WAGON SHED	1921	3,240	$342,559	$2,632	$51,582	$54,215
543400B030	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN	1951	3,280	$534,878	$114,933	$14,497	$129,430
543400B031	MONTANA	MILES CITY	SERVICE	SCALE HOUSE, SERVICE	SCALEHOUSE	1955	6,000	$1,225,728	$70,472	$7,011	$77,483
543400B032	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	INDIVIDUAL FEEDING BARN	1970	25,750	$4,199,104	$1,171,382	$83,475	$1,254,858
543400B035	MONTANA	MILES CITY	SERVICE	PUMPHOUSE, SERVICE	PUMPHOUSE -PRIMARY WELL	1980	106	$43,404	$2,937	$1,009	$3,946
543400B037	MONTANA	MILES CITY	WAREHOUSES	STORAGE BUILDING	GREEN STORAGE BUILDING	1970	5,000	$528,640	$49,524	$9,286	$58,810
543400B038	MONTANA	MILES CITY	ALL OTHER	ALL OTHER	SECURITY BUILDING	1905	4,160	$1,035,206	$155,166	$18,274	$173,440
543400B040	MONTANA	MILES CITY	FAMILY HOUSING	RESIDENCE	RESIDENCE 1	1959	1,650	$334,035	$5,695	$13,183	$18,878
543400B041	MONTANA	MILES CITY	FAMILY HOUSING	RESIDENCE	RESIDENCE 2	1959	1,625	$294,112	$5,002	$11,580	$16,582
543400B042	MONTANA	MILES CITY	FAMILY HOUSING	RESIDENCE	RESIDENCE 3	1932	884	$159,997	$2,007	$16,426	$18,433
543400B044	MONTANA	MILES CITY	FAMILY HOUSING	RESIDENCE	RESIDENCE 4	1959	1,625	$294,112	$5,002	$11,580	$16,582
543400B051	MONTANA	MILES CITY	WAREHOUSES	SHED, STORAGE	CAKE SHED	1984	1,152	$121,799	$1,540	$0	$1,540
543400B061	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ARTIFICIAL INSEMINATION BLDG.	1996	1,152	$187,859	$0	$0	$0
543400B064	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	UPPERCOTTONWOOD LIVESTOCK F/	1982	384	$62,620	$2,502	$0	$2,502
543400B065	MONTANA	MILES CITY	SERVICE	PUMPHOUSE, SERVICE	PUMPHOUSE - MAIN IRRIGATION	1916	48	$19,655	$2,640	$575	$3,215
543400B071	MONTANA	MILES CITY	WAREHOUSES	GARAGE	GARAGE - RES 1&2 (B040 &B041)	1995	1,248	$129,712	$0	$0	$0
543400B072	MONTANA	MILES CITY	WAREHOUSES	GARAGE	GARAGE - RES 3&4 (B042 & B044)	1995	1,248	$129,712	$0	$0	$0
543400B092	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK FACILITY (HOGBACK)	1932	560	$91,320	$25,279	$6,860	$32,139
543400B093	MONTANA	MILES CITY	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	HOGBACK RANGE UNIT HOUSE	1931	224	$41,144	$1,944	$4,092	$6,026
543400B094	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ROSEBUSH CALVING UNIT	1976	1,600	$293,530	$7,736	$0	$7,736
543400B096	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SANDRIDGE LIVESTOCK FACILITY	1971	536	$87,407	$0	$0	$0
543400B098	MONTANA	MILES CITY	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	NO. 2 CAMP HOUSE	1931	440	$80,819	$3,819	$8,018	$11,837
543400B099	MONTANA	MILES CITY	ALL OTHER	BARN	NO. 2 CAMP BARN	1931	500	$52,864	$14,934	$272	$15,206
543400B100	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK FACILITY #2 CAMP	1931	540	$88,059	$24,376	$6,615	$30,991
543400B101	MONTANA	MILES CITY	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	LONE PINE HOUSE	1932	284	$52,165	$2,465	$5,176	$7,641
543400B102	MONTANA	MILES CITY	SERVICE	SHOP	LONE PINE WORKING UNIT	1932	520	$75,479	$0	$7,006	$7,006
543400B109	MONTANA	MILES CITY	ALL OTHER	BARN	RADAR BASE BARN	1936	480	$50,749	$14,336	$261	$14,598
543400B110	MONTANA	MILES CITY	ALL OTHER	ALL OTHER	RADAR BASE BUILDING	1936	4,200	$1,046,170	$36,432	$24,233	$60,665
543400B111	MONTANA	MILES CITY	WAREHOUSES	GARAGE	6 STALL GARAGE	2005	2,739	$284,681	$1,407	$0	$1,407
543408107A	MONTANA	MILES CITY	ALL OTHER	ALL OTHER	RADAR BASE SHED	1936	500	$124,544	$18,650	$2,196	$20,846
543408108A	MONTANA	MILES CITY	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE WKING FAC AT RADAR BASE	1994	256	$41,746	$987	$291	$1,278
543600B001	MONTANA	SIDNEY	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 001	1965	8,935	$2,873,924	$177,906	$16,716	$194,622
543600B002	MONTANA	SIDNEY	ALL OTHER	HEADHOUSE	HEADHOUSE/LAB 002	1965	4,494	$793,245	$52,239	$23,890	$76,129
543600B003	MONTANA	SIDNEY	ALL OTHER	GREENHOUSE	GREENHOUSE 010, GENERAL USE	1968	980	$193,178	$60,383	$0	$60,383
543600B004	MONTANA	SIDNEY	WAREHOUSES	STORAGE BUILDING	SOIL PREP & STORAGE 004	1967	3,456	$365,396	$57,154	$0	$57,154

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
543600B005	MONTANA	SIDNEY	ALL OTHER	ALL OTHER	BIOCLIMATIC BLDG	1967	3,200	$797,082	$46,413	$1,198	$47,611
543600B011	MONTANA	SIDNEY	OFFICE	OFFICE	OFFICE BUILDING	1996	1,440	$354,816	$2,995	$2,694	$5,689
543600B012	MONTANA	SIDNEY	ALL OTHER	INSECT FACILITY	INSECT REARING BLDG 005	1977	900	$112,896	$5,863	$0	$5,863
543600B013	MONTANA	SIDNEY	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING	1997	2,520	$266,435	$0	$0	$0
543600B014	MONTANA	SIDNEY	WAREHOUSES	GARAGE	VEHICLE GARAGE	1997	2,520	$261,919	$0	$0	$0
543600B015	MONTANA	SIDNEY	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLD 008	1992	360	$100,961	$0	$0	$0
543600B016	MONTANA	CULBERTSON	ALL OTHER	HEADHOUSE	CULBERTSON HH GOV OWNED 09	1966	1,200	$211,814	$26,340	$772	$27,111
543600B017	MONTANA	SIDNEY	LABORATORIES	LABORATORY	OFFICE BUILDING-MODULAR	1998	550	$184,307	$0	$0	$0
543600B018	MONTANA	SIDNEY	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB COMPLEX (YR. 2002)	2002	21,500	$6,434,176	$0	$257	$257
543600B019	MONTANA	SIDNEY	ALL OTHER	GREENHOUSE	GREENHOUSE, PLANT PATHOLOGY	2001	1,080	$212,890	$0	$0	$0
543600B022	MONTANA	SIDNEY	SERVICE	SHOP	EQUIPMENT REPAIR SHOP	2006	5,000	$725,760	$581	$0	$581
543800B001	NEBRASKA	CLAY CENTER	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE-LABORATORY 1-24	1972	56,306	$16,831,553	$1,634,822	$288,058	$1,922,880
543800B002	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	ANIMAL LAB 2-24	1972	19,000	$4,727,390	$279,894	$13,769	$293,663
543800B003	NEBRASKA	CLAY CENTER	SERVICE	FEED MILL, SERVICE	FEED MILL COMPLEX 3-25	1972	20,289	$10,703,045	$198,140	$14,873	$213,013
543800B004	NEBRASKA	CLAY CENTER	SERVICE	SHOP	AUTOMOTIVE SHOP 4-25	1972	19,175	$2,780,163	$187,446	$14,070	$201,516
543800B017	NEBRASKA	CLAY CENTER	LABORATORIES	RESEARCH OFFICE/LABORATORY	MEAT RESEARCH LAB 17-24	1980	37,983	$11,354,258	$1,142,370	$171,029	$1,313,399
543800B018	NEBRASKA	CLAY CENTER	LABORATORIES	RESEARCH OFFICE/LABORATORY	AGRI ENGINEERING 18-24	1980	19,628	$5,867,398	$590,328	$88,380	$678,709
543800B019	NEBRASKA	CLAY CENTER	LABORATORIES	RESEARCH OFFICE/LABORATORY	ANML HEALTH SYS RES LAB 19-24	1991	25,204	$7,534,232	$302,500	$77,830	$380,331
543800B030	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LAMBING BARN/HEADHOUSE 30-25	1972	11,120	$1,811,337	$60,063	$36,524	$96,586
543800B031	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 31-25	1972	6,912	$1,125,896	$2,285	$10,744	$13,029
543800B032	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 32-25	1971	7,680	$1,250,995	$2,570	$11,492	$14,062
543800B033	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 33-25	1971	7,680	$1,250,995	$2,570	$11,492	$14,062
543800B034	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 34-25	1971	7,680	$1,250,995	$2,570	$11,492	$14,062
543800B035	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 35-25	1971	7,680	$1,250,995	$2,570	$11,492	$14,062
543800B036	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ALL-WEATHER LAMBING FAC 36-25	1976	30,000	$4,886,700	$23,969	$395,585	$419,554
543800B037	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP SERVICE COMPLEX 37-25	1977	15,600	$2,541,064	$13,337	$206,541	$219,878
543800B038	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP WORKING FACILITY 38-25	1979	6,000	$977,340	$8,049	$1,092	$9,140
543800B040	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF HEADHOUSE 40-25	1972	2,962	$482,480	$38,505	$14,412	$52,917
543800B041	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BULL BARN 41-25	1972	6,000	$977,340	$0	$10,645	$10,645
543800B042	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE INDIV FEED BARN 42-25	1971	9,600	$1,563,744	$2,506	$13,655	$16,161
543800B043	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE GROUP FEED BARN 43-25	1971	15,360	$2,501,990	$2,506	$10,415	$12,921
543800B044	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN, INDIVDL FEED 44-25	1972	12,000	$1,954,680	$1,951	$15,978	$17,930
543800B045	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN, GROUP FEED 45-25	1972	16,000	$2,606,240	$2,506	$19,909	$22,415
543800B046	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN, INDIVDL FEED 46-25	1972	12,000	$1,954,680	$1,951	$15,978	$17,930
543800B047	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN,GROUP FEED 47-25	1972	16,000	$2,606,240	$2,506	$19,909	$22,415
543900B048	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN, INDIVDL FEED 48-25	1972	12,000	$1,954,680	$1,951	$15,978	$17,930
543800B049	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BEEF BARN, GROUP HANDLNG 49-25	1972	16,000	$2,606,240	$2,506	$19,909	$22,415
543800B050	NEBRASKA	CLAY CENTER	WAREHOUSES	SHED, STORAGE	TRACTOR SHED 50-24	1973	2,887	$384,896	$6,028	$0	$6,028
543800B051	NEBRASKA	CLAY CENTER	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 51-24	1974	12,556	$1,326,039	$961	$0	$961
543800B052	NEBRASKA	CLAY CENTER	SERVICE	ALL OTHER	FIRE STATION 52-25	1973	3,609	$784,903	$84,567	$29,742	$114,310
543800B053	NEBRASKA	CLAY CENTER	SERVICE	SHOP	HEAVY EQUIP/HAY SHOP 53-25	1973	10,558	$1,530,804	$62,774	$52,192	$114,966
543800B054	NEBRASKA	CLAY CENTER	SERVICE	SHOP	MAINTENANCE SHOP 54-25	1974	5,645	$818,469	$33,563	$27,905	$61,469
543800B055	NEBRASKA	CLAY CENTER	SERVICE	ALL OTHER	SILAGE MIX DISTRIB 55-25	1980	7,200	$1,565,892	$34,235	$15,028	$49,263
543800B057	NEBRASKA	CLAY CENTER	SERVICE	SHOP	PAINT SHOP 57-25	1980	3,000	$434,970	$12,773	$0	$12,773
543800B058	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	NECROPSY FACILITY 58-25	1981	1,550	$410,537	$27,208	$7,497	$34,706
543800B059	NEBRASKA	CLAY CENTER	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG 59-24	1981	2,132	$597,248	$2,805	$0	$2,805
543800B060	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BREEDING 60-25	1973	10,752	$1,751,393	$16,443	$0	$16,443
543800B061	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BREEDING 61-25	1973	8,536	$1,390,429	$13,054	$0	$13,054
543800B062	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BREEDING 62-25	1973	8,536	$1,390,429	$13,054	$0	$13,054
543800B063	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE HEADHOUSE 63-25	1973	1,860	$302,975	$17,901	$1,850	$19,752
543800B064	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BARN 64-25	1972	2,200	$358,358	$7,837	$10,159	$17,995
543800B065	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BLDG 65-25	1973	3,904	$635,923	$12,996	$6,992	$19,988
543800B066	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BLDG 66-25	1973	3,904	$635,923	$5,970	$0	$5,970
543800B067	NEBRASKA	CLAY CENTER	SERVICE	SHOP	SWINE SHOP 67-25	1973	4,880	$707,551	$29,015	$24,124	$53,138
543800B068	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BUILDING 68-25	1980	1,880	$306,233	$10,420	$0	$10,420
543800B069	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BLDG 69-25	1975	3,960	$645,044	$18,430	$3,061	$21,491
543800B070	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BLDG 70-25	1975	3,960	$645,044	$18,430	$3,061	$21,491
543800B072	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BREEDING BLDG 72-25	1980	4,080	$684,591	$8,088	$0	$8,088
543800B073	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING FAC 73-25	1981	4,000	$651,560	$18,049	$0	$18,049
543800B074	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	SHOWER FACILITY 74(63-N)-25	1983	1,800	$447,858	$5,948	$2,183	$8,131
543800B075	NEBRASKA	CLAY CENTER	WAREHOUSES	STORAGE WAREHOUSE	INERT STORAGE 75-96	1967	10,168	$1,073,842	$57,772	$0	$57,772
543800B076	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FINISHING BLDG 76-25	1992	7,360	$1,198,870	$129	$0	$129
543800B077	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE NURSERY BLDG 77-25 (77A)	1992	5,868	$923,261	$161	$0	$161
543800B078	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FARROWING BLDG 78-25 78B	1992	6,580	$1,071,816	$211	$0	$211
543800B079	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE FARROWING BLDG 79-25 79	1992	6,020	$980,598	$193	$0	$193
543800B080	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE BUILDING 80-25	1992	896	$145,949	$3,698	$1,092	$4,789
543800B098	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	TRANSFER DEPOT 98	1967	12,000	$2,985,720	$77,184	$24,140	$101,324
543800B099	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	TRANSFER DEPOT 99	1967	12,000	$2,985,720	$77,184	$24,140	$101,324
543800B115	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 116-18	2005	12,000	$1,954,680	$0	$0	$0
543800B117	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 117-73	1969	9,600	$1,563,744	$3,104	$4,124	$7,228
543800B131	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 131-15	1969	9,600	$1,563,744	$3,104	$4,124	$7,228

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
543800B134	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 134-27	1971	9,600	$1,563,744	$2,506	$13,655	$16,161
543800B140	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 140-67	1971	9,600	$1,563,744	$2,506	$13,655	$16,161
543800B141	NEBRASKA	CLAY CENTER	SERVICE	SHOP	FARM SHOP BLDG 141-56	1970	3,600	$521,964	$19,743	$4,733	$24,476
543800B142	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE WORKING FACILITY 142-42	1993	4,640	$755,810	$6,021	$2,183	$8,203
543800B144	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 144-42	1972	9,600	$1,563,744	$2,506	$13,655	$16,161
543800B145	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	WEATHER STATION 145-25	1971	120	$29,857	$9,027	$842	$9,870
543800B146	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 146-12	1973	7,040	$1,146,746	$23,435	$12,609	$36,044
543800B147	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 147-84	1973	2,800	$456,092	$9,321	$5,015	$14,336
543800B148	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 148-58	1973	8,448	$1,376,095	$28,122	$15,131	$43,253
543800B149	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 149-46	1975	5,376	$875,697	$25,021	$4,155	$29,176
543800B150	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED AND PENS 150-52	1980	6,600	$1,075,074	$29,780	$0	$29,780
543800B151	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 151-82	1980	3,840	$625,498	$7,612	$0	$7,612
543800B152	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POLE SHED 152-53	1981	3,840	$625,498	$17,327	$0	$17,327
543800B401	NEBRASKA	CLAY CENTER	SERVICE	SCALE HOUSE, SERVICE	BEEF SCALE HOUSE 401-25	1975	3,000	$612,180	$19,654	$80,845	$100,499
543800B501	NEBRASKA	CLAY CENTER	ALL OTHER	ALL OTHER	PHYSICAL FITNESS FACIL 501-24	1991	1,800	$447,858	$910	$10,975	$11,885
543800B571	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	PHYSIOLOGY BLDG 571-42	1975	4,600	$749,294	$21,409	$3,555	$24,964
543800B596	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	RAM FACILITY 596-37	1978	1,800	$293,202	$9,977	$0	$9,977
543800B63A	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SWINE SURGERY FACILITY 63A-25	1975	1,997	$325,291	$9,187	$0	$9,187
543900B998	NEBRASKA	CLAY CENTER	WAREHOUSES	STORAGE WAREHOUSE	INERT STORAGE 74-86	1967	10,168	$1,073,842	$57,772	$0	$57,772
543800B999	NEBRASKA	CLAY CENTER	WAREHOUSES	STORAGE WAREHOUSE	INERT STORAGE 73-86	1967	10,168	$1,073,842	$57,772	$0	$57,772
54380B1000	NEBRASKA	CLAY CENTER	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SICK PEN ANIMAL BUILDING	1994	8,892	$1,448,418	$0	$0	$0
544000B001	NEBRASKA	LINCOLN	LABORATORIES	LABORATORY	FORAGE RESEARCH LABORATORY 1	1958	2,400	$717,432	$41,949	$3,861	$45,810
544000B002	NEBRASKA	LINCOLN	ALL OTHER	GREENHOUSE	FORAGE RESEARCH EAST GRNHS 2	1958	2,495	$491,286	$395	$153,705	$154,100
544000B004	NEBRASKA	LINCOLN	ALL OTHER	GREENHOUSE	FORAGE RESEARCH WEST GRNHS 4	1958	2,495	$491,286	$395	$153,705	$154,100
544000B007	NEBRASKA	ITHACA	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BLDG-INSECT RES	1993	2,400	$253,454	$0	$0	$0
544000B010	NEBRASKA	ITHACA	WAREHOUSES	STORAGE BUILDING	MTL STRG BD-WHEAT SORG & FORA	2002	8,500	$897,985	$0	$0	$0
544000B017	NEBRASKA	LINCOLN	WAREHOUSES	STORAGE WAREHOUSE	SORGHUM PHYSIOLOGY WAREHOUS	1964	3,456	$364,988	$0	$0	$0
544200B001	NORTH DAKOTA	FARGO	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 001-BIOSCIENCES LAB	1964	78,120	$23,352,412	$1,662,282	$429,627	$2,091,909
544200B002	NORTH DAKOTA	FARGO	SERVICE	SHOP	SHOP/OFFICE/GARAGE	1964	5,080	$696,224	$746,517	$22,880	$769,397
544200B003	NORTH DAKOTA	FARGO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL HUSBANDRY 003	1964	14,206	$2,187,326	$362,052	$34,047	$396,099
544200B004	NORTH DAKOTA	FARGO	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 004	1964	481	$127,369	$2,266	$0	$2,266
544200B005	NORTH DAKOTA	FARGO	LABORATORIES	RESEARCH OFFICE/LABORATORY	SUPPORT/LAB 005(INSECT-ANIMAL)	1964	8,300	$2,345,281	$96,151	$18,727	$114,879
544200B006	NORTH DAKOTA	FARGO	LABORATORIES	RESEARCH OFFICE/LABORATORY	INSECTARY 006	1979	8,185	$2,312,786	$81,328	$10,381	$91,709
544200B007	NORTH DAKOTA	FARGO	WAREHOUSES	SHED, STORAGE	GENERAL STORAGE SHED 007	1979	1,600	$159,725	$1,196	$0	$1,196
544200B008	NORTH DAKOTA	FARGO	LABORATORIES	RESEARCH OFFICE/LABORATORY	NORTHERN CROPS SCIENCE LAB 00	1988	48,610	$13,735,436	$1,147,816	$201,467	$1,349,283
544200B010	NORTH DAKOTA	FARGO	WAREHOUSES	SHED, STORAGE	SUNFLOWER STORAGE SHED	1992	2,304	$230,004	$38	$0	$38
544200B011	NORTH DAKOTA	FARGO	ALL OTHER	GREENHOUSE	GREENHOUSE IGB-BIOSCI LAB	2002	882	$164,158	$0	$0	$0
544200B012	NORTH DAKOTA	FARGO	ALL OTHER	GREENHOUSE	GREENHOUSE SUNFLOWER-BIOSCI	2002	2,880	$536,026	$0	$0	$0
544200B013	NORTH DAKOTA	FARGO	ALL OTHER	GREENHOUSE	GREENHOUSE-CEREAL BIOSCIENCE	2004	882	$164,158	$0	$0	$0
544200B033	NORTH DAKOTA	FARGO	ALL OTHER	QUARANTINE	NCSL GREENHOUSE COMPLEX	1981	54,957	$11,530,418	$733,542	$7,964	$741,506
544200B999	NORTH DAKOTA	FARGO	WAREHOUSES	STORAGE BUILDING	SUGARBEET STORAGE BARN	1983	2,400	$239,587	$1,093	$0	$1,093
544230B001	MINNESOTA	EAST GRAND FORKS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1966	11,988	$3,387,377	$230,914	$21,696	$252,610
544230B003	MINNESOTA	EAST GRAND FORKS	WAREHOUSES	STORAGE WAREHOUSE	CONTROL RM WRHOUSE ON LEASD	1969	4,302	$429,460	$6,795	$23,166	$29,961
544500B001	NORTH DAKOTA	MANDAN	LABORATORIES	LABORATORY	MAIN LAB & ADMIN OFFICE 1	1968	13,200	$4,171,596	$961,067	$76,335	$1,037,403
544500B002	NORTH DAKOTA	MANDAN	OFFICE	OFFICE	FORAGE/RANGE PLANT BREED OFF	1914	2,400	$557,700	$10,362	$25,310	$35,672
544500B003	NORTH DAKOTA	MANDAN	LABORATORIES	RESEARCH OFFICE/LABORATORY	FORAGE/RANGE PHYS, NUTR, MGMT	1914	3,460	$976,516	$31,957	$36,428	$68,385
544500B004	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	BLDG/GRNDS MAINT. OFFICE/STRG	1914	10,012	$998,297	$931	$115,801	$116,733
544500B005	NORTH DAKOTA	MANDAN	ALL OTHER	GREENHOUSE	GREENHOUSE & FIELD STORAGE 5	1950	1,560	$290,004	$222	$86,531	$86,753
544500B006	NORTH DAKOTA	MANDAN	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 6	1977	12,160	$2,126,966	$71,413	$5,907	$77,320
544500B007	NORTH DAKOTA	MANDAN	SERVICE	SHOP	SHOP/PLANT PROCESSING 7	1975	1,536	$210,263	$8,889	$36,564	$45,453
544500B008	NORTH DAKOTA	MANDAN	LABORATORIES	LABORATORY	PLANT DRYING & PROCESSING LAB 8	1975	3,072	$970,844	$6,726	$37,460	$44,185
544500B009	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	FIELD RES EQUIP STOR/OVEN 9	1934	3,104	$309,500	$25,878	$42,477	$68,355
544500B010	NORTH DAKOTA	MANDAN	ALL OTHER	ALL OTHER	FORAGE PROCESSING CENTER	1916	3,000	$704,730	$20,724	$14,904	$35,628
544500B011	NORTH DAKOTA	MANDAN	SERVICE	SHOP	CARPENTER SHOP 11	1921	1,485	$203,282	$8,256	$6,058	$14,313
544500B012	NORTH DAKOTA	MANDAN	SERVICE	SHOP	EQUIPMENT REPAIR SHOP 12	1939	2,520	$344,963	$27,208	$29,897	$57,105
544500B013	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	STORAGE	1914	2,274	$226,741	$1,514	$47,093	$48,607
544500B014	NORTH DAKOTA	MANDAN	WAREHOUSES	GARAGE	GARAGE, (BUILDING 5) 14	1970	360	$35,287	$232	$0	$232
544500B015	NORTH DAKOTA	MANDAN	OFFICE	OFFICE	OFFICE BUILDING/COFA	1914	4,368	$1,015,014	$18,858	$46,064	$64,923
544500B016	NORTH DAKOTA	MANDAN	ALL OTHER	SCREENHOUSE	PLANT HARDENING (SHADEHOUSE)	1980	2,935	$344,730	$37,226	$82,246	$119,472
544500B017	NORTH DAKOTA	MANDAN	ALL OTHER	REST ROOM (SEPARATE BUILDING)	SAFETY SHOWERS/REST ROOMS 17	1989	660	$153,368	$17,437	$5,990	$23,428
544500B018	NORTH DAKOTA	MANDAN	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG.	1997	560	$148,112	$0	$0	$0
544500B01A	NORTH DAKOTA	MANDAN	ALL OTHER	ALL OTHER	ANNEX/CONFERENCE ROOM/LAB	1980	5,000	$1,174,550	$74,236	$20,456	$94,692
544500B01F	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 1F	1928	1,660	$157,513	$7,806	$8,987	$16,793
544500B020	NORTH DAKOTA	MANDAN	WAREHOUSES	BARN, STORAGE	HAY BARN/SHELTER	1993	480	$47,050	$0	$0	$0
544500B024	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	HISTORICAL SAMPLE STORAGE 24	1938	3,960	$394,852	$19,913	$31,329	$51,243
544500B025	NORTH DAKOTA	MANDAN	WAREHOUSES	ALL OTHER	UNDERGROUND STORAGE 25	1938	660	$66,308	$0	$17,899	$17,899
544500B028	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	SOIL PROCESSING/STORAGE 28	1914	5,190	$517,495	$483	$60,029	$60,512
544500B029	NORTH DAKOTA	MANDAN	WAREHOUSES	ALL OTHER	UNDERGROUND STORAGE	1918	2,400	$241,332	$12,612	$97,978	$110,589
544500B02F	NORTH DAKOTA	MANDAN	WAREHOUSES	BARN, STORAGE	BARN STORAGE 2F	1928	1,440	$141,149	$8,148	$16,240	$24,388
544500B030	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE 30	1966	4,000	$398,840	$62,202	$0	$62,202
544500B031	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE 31	1974	4,000	$398,840	$256	$0	$256

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
544500B033	NORTH DAKOTA	MANDAN	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE RESEARCH BARN	2003	3,328	$511,813	$0	$0	$0
544500B05F	NORTH DAKOTA	MANDAN	WAREHOUSES	CHEMICAL STORAGE	OIL & GAS STORAGE 5F	1949	80	$21,159	$50	$4,554	$4,604
544500B07F	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	FORAGE STORAGE 7F	1953	1,385	$138,098	$9,124	$0	$9,124
544500B12A	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	NORTH STORAGE 12A	1921	100	$9,971	$69	$3,772	$3,841
544500B12B	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	SOUTH STORAGE 12B	1921	100	$9,971	$69	$3,772	$3,841
544500B12C	NORTH DAKOTA	MANDAN	WAREHOUSES	CHEMICAL STORAGE	OIL STORAGE 12C	1921	484	$128,011	$304	$27,551	$27,855
544500B15A	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	SURVEY EQUIPMENT STORAGE 15A	1916	416	$41,479	$288	$15,692	$15,980
544500B27A	NORTH DAKOTA	MANDAN	ALL OTHER	ALL OTHER	FIRE HOUSE 27A	1948	48	$11,276	$401	$267	$668
544500B28A	NORTH DAKOTA	MANDAN	WAREHOUSES	STORAGE BUILDING	SOIL STORAGE	1937	1,350	$134,609	$3,627	$0	$3,627
544500B7FC	NORTH DAKOTA	MANDAN	WAREHOUSES	CHEMICAL STORAGE	OIL & GAS STORAGE 7FC	1960	12	$3,174	$8	$683	$691
544700B001	SOUTH DAKOTA	BROOKINGS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 001	1962	51,800	$13,927,466	$976,796	$364,041	$1,340,836
544700B002	SOUTH DAKOTA	BROOKINGS	SERVICE	SHOP	SHOP BUILDING 02	1962	4,800	$625,968	$45,744	$6,627	$52,371
544700B003	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	STORAGE BUILDING	SEEDHOUSE 003	1965	1,600	$151,984	$9,127	$2,797	$11,924
544700B004	SOUTH DAKOTA	BROOKINGS	ALL OTHER	HEADHOUSE	HEADHOUSE 004	1962	9,520	$1,509,729	$105,389	$48,196	$153,585
544700B006	SOUTH DAKOTA	BROOKINGS	ALL OTHER	ALL OTHER	SEED DRYING FACILITY 006	1986	1,200	$268,548	$3,370	$627	$3,997
544700B007	SOUTH DAKOTA	BROOKINGS	ALL OTHER	GREENHOUSE	GREENHOUSE 007	1964	3,000	$531,300	$422	$164,436	$164,858
544700B008	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	STORAGE BUILDING	SOIL HOUSE 008	1964	1,152	$109,428	$5,586	$10,974	$16,560
544700B009	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 009	1967	3,006	$285,540	$47,344	$0	$47,344
544700B011	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BUILDING 011	1985	784	$197,541	$2,767	$0	$2,767
544700B012	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	STORAGE BUILDING	SOIL STORAGE BUILDING 012	1986	1,560	$146,184	$11,204	$1,129	$12,333
544700B014	SOUTH DAKOTA	BROOKINGS	WAREHOUSES	GARAGE	VEHICLE STORAGE	2004	5,460	$509,855	$0	$0	$0
545000B001	NORTH DAKOTA	GRAND FORKS	LABORATORIES	LABORATORY	LABS/OFFICES 001	1969	79,806	$25,250,938	$1,316,886	$1,534,326	$2,851,212
545000B002	NORTH DAKOTA	GRAND FORKS	WAREHOUSES	STORAGE BUILDING	RESIDENCE (LOT 10) STORAGE 02	1928	1,281	$127,880	$6,082	$7,002	$13,085
545000B003	NORTH DAKOTA	GRAND FORKS	ALL OTHER	GREENHOUSE	GREENHOUSE ON UND BIOLOGY BLI	1986	496	$92,316	$756	$36,248	$37,004
620220B991	TEXAS	SOMERVILLE	WAREHOUSES	STORAGE BUILDING	BUILDING 8 (S)	2005	3,750	$391,613	$0	$0	$0
620220B992	TEXAS	SOMERVILLE	OFFICE	OFFICE	MAIN PECAN BUILDING (S)	2003	4,000	$973,500	$5,743	$16,875	$22,618
620230B001	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 1 LAB/OFFICE	1972	47,434	$14,021,016	$1,255,534	$221,227	$1,476,761
620230B002	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 2 LAB/OFFICE	1972	8,000	$2,364,720	$211,753	$37,311	$249,064
620230B003	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 3 LAB/OFFICE	1972	1,600	$472,944	$42,351	$7,462	$49,813
620230B004	TEXAS	COLLEGE STATION	WAREHOUSES	STORAGE BUILDING	BLDG 4 CHEMICAL STORAGE	1972	1,040	$108,607	$10,400	$1,950	$12,350
620230B005	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 5 ANIMAL REARING	1967	10,800	$1,739,556	$98,347	$0	$98,347
620230B006	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 6 WAREHOUSE	1972	4,522	$728,359	$55,848	$20,902	$76,751
620230B007	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 7 OFFICE	1972	3,838	$1,270,340	$127,035	$21,616	$148,651
620230B008	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 8 LAB/OFFICE	1972	2,698	$797,502	$71,414	$12,583	$83,997
620230B009	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 9 NECROPSY	1972	4,836	$1,600,668	$160,068	$27,237	$187,304
620230B010	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 10 LAB/OFFICE	1972	7,450	$2,465,876	$246,589	$41,959	$288,548
620230B016	TEXAS	COLLEGE STATION	SERVICE	SHOP	BLDG 16 MAINTENANCE SHOP	1972	2,784	$356,142	$28,061	$2,106	$30,167
620230B017	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 17 ANIMAL REARING	1973	2,880	$463,882	$26,333	$2,722	$29,055
620230B018	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 18 LAB/OFFICE	1973	2,400	$709,418	$63,526	$11,193	$74,719
620230B019	TEXAS	COLLEGE STATION	WAREHOUSES	STORAGE BUILDING	BLDG 19 STORAGE	1972	4,394	$458,865	$43,940	$8,239	$52,179
620230B020	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 20 ANIMAL REARING	1973	5,120	$1,694,669	$169,468	$28,836	$198,304
620230B021	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 21 ANIMAL REARING	1973	2,240	$360,797	$20,481	$2,117	$22,598
620230B022	TEXAS	COLLEGE STATION	OFFICE	OFFICE	BLDG 22 OFFICE	1975	2,448	$595,782	$81,775	$12,856	$94,631
620230B023	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 23 ANIMAL SHED	1995	1,200	$193,284	$0	$0	$0
620230B024	TEXAS	COLLEGE STATION	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BLDG 24 ANIMAL SHED	1995	800	$128,856	$3,137	$926	$4,063
620230B025	TEXAS	COLLEGE STATION	WAREHOUSES	STORAGE BUILDING	BLDG 25 IMPLEMENT STORAGE	2003	2,500	$261,075	$0	$0	$0
620230B041	TEXAS	COLLEGE STATION	ALL OTHER	ALL OTHER	BLDG 41 FEED MIXING	1977	1,816	$397,584	$120,205	$0	$120,205
620230B042	TEXAS	COLLEGE STATION	SERVICE	SHOP	BLDG 42 MAINTENANCE STORAGE	1977	2,940	$421,508	$19,860	$81,690	$101,550
620230B044	TEXAS	COLLEGE STATION	WAREHOUSES	STORAGE BUILDING	BLDG 44 LOADING DOCK	1999	400	$41,772	$0	$0	$0
620230B056	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 56 GREENHOUSE	1968	3,244	$631,607	$21,171	$16,385	$37,556
620230B057	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 57 GREENHOUSE	1968	3,244	$631,607	$21,171	$16,385	$37,556
620230B058	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 58 LAB	1991	512	$169,457	$1,467	$2,183	$3,650
620230B059	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 59 GREENHOUSE	1991	3,244	$631,607	$13,075	$0	$13,075
620230B060	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 60 GREENHOUSE	1991	3,244	$631,607	$13,075	$0	$13,075
620230B061	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 61 LAB	1991	660	$219,453	$1,891	$2,814	$4,705
620230B062	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 62 GREENHOUSE	2002	2,400	$467,280	$0	$0	$0
620240B011	TEXAS	COLLEGE STATION	LABORATORIES	RESEARCH OFFICE/LABORATORY	BLDG 11 LAB/OFFICE	1972	13,483	$3,985,440	$356,883	$62,883	$419,766
620240B012	TEXAS	COLLEGE STATION	LABORATORIES	LABORATORY	BLDG 12 HEADHOUSE	1972	3,588	$1,187,592	$118,760	$20,208	$138,968
620240B013	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 13 GREENHOUSE	1972	2,544	$495,317	$19,910	$495,871	$515,781
620240B014	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 14 GREENHOUSE	1972	2,544	$495,317	$19,910	$495,871	$515,781
620240B015	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 15 GREENHOUSE	1973	2,544	$495,317	$45	$491,493	$491,538
620240B028	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 28 GREENHOUSE	1970	2,784	$542,045	$49	$537,861	$537,910
620240B033	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 33 GREENHOUSE	1966	1,950	$379,665	$108,385	$133,442	$241,827
620240B034	TEXAS	COLLEGE STATION	ALL OTHER	GREENHOUSE	BLDG 34 GREENHOUSE	1967	5,600	$1,285,020	$366,841	$451,651	$818,492
620240B040	TEXAS	COLLEGE STATION	WAREHOUSES	STORAGE BUILDING	BLDG 40 IMPLEMENT STORAGE	2003	2,400	$250,632	$0	$0	$0
620240B043	TEXAS	COLLEGE STATION	OFFICE	OFFICE	BLDG 43 OFFICE	1977	1,100	$267,713	$36,745	$5,777	$42,522
620240B046	TEXAS	COLLEGE STATION	WAREHOUSES	TRAILER, STORAGE	BLDG 46 STORAGE (MOBILE)	1981	480	$51,826	$81	$0	$81
620240B048	TEXAS	COLLEGE STATION	ALL OTHER	ALL OTHER	BLDG 48 COTTON GINNING	1984	1,344	$330,664	$4,030	$750	$4,780
620240B050	TEXAS	BRYAN	OFFICE	OFFICE	BLDG 50 OFFICE (RS)	1986	1,456	$354,354	$23,648	$3,557	$27,204
620240B051	TEXAS	BRYAN	SERVICE	SHOP	BLDG 51 SHOP (RS)	1974	5,000	$716,850	$30,652	$25,485	$56,137
620240B052	TEXAS	BRYAN	SERVICE	AVIATION	BLDG 52 HANGAR (RS)	1987	3,000	$722,160	$21,505	$2,167	$23,672

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
620240B053	TEXAS	BRYAN	SERVICE	AVIATION	BLDG 53 HANGAR (RS)	1987	3,000	$722,160	$21,505	$2,167	$23,672
620240B054	TEXAS	BRYAN	SERVICE	AVIATION	BLDG 54 HANGAR (RS)	1987	3,000	$722,160	$21,505	$2,167	$23,672
620240B055	TEXAS	BRYAN	SERVICE	AVIATION	BLDG 55 HANGAR (RS)	1987	3,000	$722,160	$21,505	$2,167	$23,672
620300B081	TEXAS	BEAUMONT	LABORATORIES	LABORATORY	RICE BREEDING LABORATORY 1	1968	2,795	$869,715	$52,199	$0	$52,199
620300B083	TEXAS	BEAUMONT	SERVICE	SHOP	BREEDING SHOP	1969	1,000	$134,784	$21,769	$3,637	$25,406
620400B200	TEXAS	WESLACO	LABORATORIES	LABORATORY	CROP QUALITY & FRUIT INSECTS	2000	23,863	$6,988,089	$19,883	$0	$19,883
620400B201	TEXAS	WESLACO	LABORATORIES	LABORATORY	INTEGRATED FARMING	1960	19,355	$5,667,957	$324,497	$74,860	$399,357
620400B202	TEXAS	WESLACO	OFFICE	OFFICE	REMOTE SENSING	1970	2,380	$512,474	$25,394	$4,121	$29,515
620400B203	TEXAS	WESLACO	LABORATORIES	LABORATORY	BENEFICIAL INSECTS 203	1969	9,800	$2,869,852	$161,465	$83,229	$244,694
620400B204	TEXAS	WESLACO	ALL OTHER	INSECT FACILITY	BENEFICIAL INSECTS 204	1969	3,212	$352,099	$23,179	$2,447	$25,626
620400B205	TEXAS	WESLACO	LABORATORIES	LABORATORY	INTEGRATED FARMING 205	1969	2,224	$651,281	$11,670	$3,850	$15,520
620400B208	TEXAS	WESLACO	ALL OTHER	HEADHOUSE	HEADHOUSE (208)	1960	1,760	$271,482	$19,502	$1,942	$21,444
620400B209	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (209)	2002	2,340	$403,088	$6,531	$0	$6,531
620400B210	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (210)	2002	2,418	$416,525	$0	$0	$0
620400B213	TEXAS	WESLACO	LABORATORIES	LABORATORY	HONEY BEE RESEARCH LAB (213)	1994	21,800	$6,383,956	$187,912	$4,333	$192,245
620400B221	TEXAS	WESLACO	LABORATORIES	LABORATORY	INTEGRATED FARMING 221	1973	3,360	$983,949	$21,468	$23,553	$45,021
620400B222	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (222)	1973	1,650	$284,229	$620	$248,148	$248,768
620400B223	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (223)	1980	1,250	$215,325	$12,656	$0	$12,656
620400B224	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	IMPLEMENT EQUIPMENT SHELTER	1979	3,400	$314,140	$1,998	$0	$1,998
620400B301	TEXAS	WESLACO	SERVICE	SHOP	SHOP (301)	1958	1,200	$152,215	$10,577	$0	$10,577
620400B302	TEXAS	WESLACO	LABORATORIES	LABORATORY	FARM HEADQUARTERS	1960	1,000	$292,842	$1,935	$12,931	$14,866
620400B303	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	FARM STORAGE	1975	616	$56,915	$124	$0	$124
620400B304	TEXAS	WESLACO	LABORATORIES	LABORATORY	FIELD LAB	1958	1,920	$562,257	$18,769	$10,399	$29,168
620400B305	TEXAS	WESLACO	LABORATORIES	LABORATORY	FIELD LAB	1963	1,467	$429,599	$8,058	$9,449	$17,507
620400B306	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	STORAGE (306)	1968	1,000	$92,394	$5,810	$0	$5,810
620400B307	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	IMPLEMENT STORAGE 307	1970	4,000	$369,576	$265	$17,809	$18,074
620400B309	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (309)	1985	2,500	$430,650	$14,161	$10,960	$25,121
620400B401	TEXAS	WESLACO	OFFICE	OFFICE	OFFICE	1960	2,880	$620,135	$7,247	$298	$7,545
620400B403	TEXAS	WESLACO	OFFICE	OFFICE	BUILDING (403)	1988	1,500	$322,988	$1,079	$29,123	$30,202
620400B405	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	FARM STORAGE 405	1982	240	$22,175	$2,020	$0	$2,020
620400B406	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	STORAGE (406)	1980	800	$73,915	$1,995	$0	$1,995
620400B407	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (407)	1980	726	$125,061	$1,020	$48,928	$49,948
620400B408	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (408)	1980	726	$125,061	$1,020	$43,103	$44,123
620400B409	TEXAS	WESLACO	LABORATORIES	LABORATORY	FIELD LAB	1980	1,875	$549,079	$9,219	$2,656	$11,875
620400B410	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (410)	1980	1,000	$172,260	$15,508	$95,526	$111,034
620400B411	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (411)	1980	1,000	$172,260	$10,685	$304	$10,989
620400B412	TEXAS	WESLACO	SERVICE	SHOP	FARM SHOP 412	1980	1,800	$202,954	$23,834	$0	$23,834
620400B415	TEXAS	WESLACO	WAREHOUSES	STORAGE BUILDING	FARM STORAGE	1987	196	$18,109	$126	$0	$126
620400B416	TEXAS	WESLACO	SERVICE	SHOP	MULTI-USE MAINTENANCE SHOP	1990	9,000	$1,141,614	$30,104	$36,209	$66,313
620400B417	TEXAS	WESLACO	ALL OTHER	HEADHOUSE/GREENHOUSE	GREENHOUSE/HEADHOUSE (417)	1995	3,600	$583,492	$774	$0	$774
620400B418	TEXAS	WESLACO	ALL OTHER	SCREENHOUSE	SHADEHOUSE-BUILDING (418)	1995	8,640	$940,352	$6,512	$5,611	$12,123
620400B211	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (211)	1998	1,500	$258,390	$11,952	$0	$11,952
620400B212	TEXAS	WESLACO	ALL OTHER	GREENHOUSE	GREENHOUSE (212)	1998	1,500	$258,390	$11,952	$0	$11,952
620500B001	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB DIRECTOR BUILDING	1967	2,400	$865,328	$23,139	$4,193	$27,331
620500B002	TEXAS	KERRVILLE	OFFICE	OFFICE	ADMINISTRATIVE BUILDING 2	1969	1,680	$383,460	$51,742	$8,135	$59,877
620500B003	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	TICK OFFICES & LAB	1961	3,200	$887,104	$29,325	$15,179	$44,504
620500B004	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	TICK REARING	1967	800	$248,336	$21,411	$0	$21,411
620500B005	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	TICK PHYSIOLOGY	1961	1,200	$332,664	$11,928	$5,036	$16,964
620500B006	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	IMMUNOLOGY/PROTEOMICS	1961	960	$266,131	$9,543	$4,029	$13,571
620500B007	TEXAS	KERRVILLE	SERVICE	SHOP	TICK RESEARCH SHOP/STORAGE	1965	2,029	$272,819	$15,242	$2,778	$18,020
620500B008	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	TICK BITING FLY RESEARCH	1965	800	$221,776	$7,331	$3,795	$11,126
620500B009	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	BIOASSAY LAB	1968	960	$268,003	$25,693	$0	$25,693
620500B010	TEXAS	KERRVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE	1965	640	$166,286	$401	$36,352	$36,753
620500B011	TEXAS	KERRVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE - RESEARCH EQUIP	1965	800	$78,352	$4,496	$1,378	$5,874
620500B012	TEXAS	KERRVILLE	WAREHOUSES	BARN, STORAGE	HAY BARN	1961	1,092	$105,138	$16,468	$4,156	$20,623
620500B013	TEXAS	KERRVILLE	ALL OTHER	ALL OTHER	INCINERATOR/STORAGE 13	1965	800	$184,592	$5,460	$14,394	$19,854
620500B014	TEXAS	KERRVILLE	ALL OTHER	BARN	RESEARCH BARN 14	1965	4,946	$484,411	$17,206	$0	$17,206
620500B015	TEXAS	KERRVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SURGICAL BARN 15	1962	640	$96,678	$33,890	$8,298	$42,188
620500B016	TEXAS	KERRVILLE	ALL OTHER	ALL OTHER	FORMULATION BUILDING 16	1966	180	$41,533	$558	$0	$558
620500B017	TEXAS	KERRVILLE	ALL OTHER	BARN	FEED BARN 17	1963	1,200	$117,528	$4,175	$0	$4,175
620500B018	TEXAS	KERRVILLE	ALL OTHER	INSECT FACILITY	TICK REARING 18	1966	1,120	$130,144	$9,953	$3,381	$13,335
620500B019	TEXAS	KERRVILLE	SERVICE	SHOP	WELDING SHELTER	1966	1,120	$150,595	$19,366	$6,352	$25,719
620500B020	TEXAS	KERRVILLE	ALL OTHER	BARN	SPRAYING BARN 20	1968	384	$37,609	$10,993	$1,097	$12,090
620500B021	TEXAS	KERRVILLE	ALL OTHER	INSECT FACILITY	TICK RESEARCH 21	1969	360	$41,832	$3,199	$1,087	$4,286
620500B022	TEXAS	KERRVILLE	ALL OTHER	INSECT FACILITY	TICK REARING FACILITY 22	1969	768	$89,242	$6,825	$2,319	$9,144
620500B023	TEXAS	KERRVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	BITING FLY REARING	1962	3,200	$887,104	$29,325	$15,179	$44,504
620500B026	TEXAS	KERRVILLE	ALL OTHER	INSECT FACILITY	SCAB MITE RESEARCH LAB 26	1975	1,133	$131,655	$4,825	$801	$5,627
620500B027	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	RESEARCH LAB STORAGE 27	1968	330	$102,439	$8,832	$0	$8,832
620500B028	TEXAS	KERRVILLE	ALL OTHER	ALL OTHER	RESEARCH HISTORY BUILDING 28	1968	640	$147,674	$4,368	$11,515	$15,883
620500B029	TEXAS	KERRVILLE	ALL OTHER	ALL OTHER	MEETING FACILITY 29	1968	960	$221,510	$6,552	$17,273	$23,824
620500B030	TEXAS	KERRVILLE	WAREHOUSES	GARAGE	STORAGE GARAGE 30	1992	8,000	$770,240	$14,876	$35,118	$49,994

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
620500B031	TEXAS	KERRVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 31	1969	192	$49,880	$120	$10,906	$11,026
620500B032	TEXAS	KERRVILLE	SERVICE	SHOP	MAINTENANCE BUILDING 32	1959	1,152	$154,698	$14,851	$1,477	$16,328
620500B035	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	LAB/MOUSE REARING 35	1961	440	$136,585	$5,939	$4,015	$9,953
620500B036	TEXAS	KERRVILLE	SERVICE	SHOP	AGRICULTURE ENGINEER SHOP 36	1962	2,160	$290,434	$23,944	$3,469	$27,413
620500B037	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	TICK GENOMICS/PROTEOMICS	1962	3,200	$993,344	$22,690	$0	$22,690
620500B038	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	TICK GENOMICS/PROTEOMICS	1962	2,560	$794,675	$18,152	$0	$18,152
620500B039	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	CHEMISTRY/TICK PHYSIOLOGY	1962	2,400	$745,008	$17,018	$0	$17,018
620500B040	TEXAS	KERRVILLE	LABORATORIES	LABORATORY	FORMULATIONS LAB 40	1967	672	$208,602	$17,985	$0	$17,985
620500B045	TEXAS	KERRVILLE	ALL OTHER	INSECT FACILITY	SCAB MITE ISOLATION BLDG 46	1978	264	$30,677	$1,695	$0	$1,695
620500B999	TEXAS	KERRVILLE	WAREHOUSES	SHED, STORAGE	HAY STORAGE SHED	1983	1,035	$101,368	$1,298	$0	$1,298
620515B001	TEXAS	EDINBURG	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1983	3,200	$836,870	$80,987	$17,706	$98,693
620515B002	TEXAS	EDINBURG	LABORATORIES	LABORATORY	ACARICIDE LABORATORY 2	1983	520	$152,278	$11,001	$3,425	$14,426
620515B003	TEXAS	EDINBURG	WAREHOUSES	STORAGE BUILDING	SHOP & HAY STORAGE 3	1983	3,900	$360,337	$1,893	$0	$1,893
620515B004	TEXAS	EDINBURG	ALL OTHER	ANIMAL FACILITY, ALL OTHER	DIPPING VAT FACILITY 4	1983	2,262	$322,349	$10,770	$0	$10,770
620515B005	TEXAS	EDINBURG	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN 5	1983	3,000	$427,518	$11,629	$0	$11,629
620515B006	TEXAS	EDINBURG	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BARN 6	1983	3,600	$513,022	$13,954	$0	$13,954
620515B008	TEXAS	EDINBURG	WAREHOUSES	STORAGE BUILDING	STORAGE FACILITY 8	1986	1,880	$155,222	$10,528	$1,061	$11,589
620515B009	TEXAS	EDINBURG	ALL OTHER	ANIMAL FACILITY, ALL OTHER	PROGRAM VAT FACILITY 9	1983	2,262	$322,349	$10,770	$0	$10,770
620515B010	TEXAS	EDINBURG	WAREHOUSES	STORAGE BUILDING	COLD STORAGE BUILDING 10	1985	80	$7,392	$11	$0	$11
620515B011	TEXAS	EDINBURG	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 11	1995	72	$17,646	$0	$691	$691
620515B012	TEXAS	EDINBURG	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 12	1995	72	$17,646	$0	$691	$691
620610B001	TEXAS	TEMPLE	FAMILY HOUSING	RESIDENCE	RESIDENCE 1	1950	800	$129,442	$2,108	$4,881	$6,990
620610B002	TEXAS	TEMPLE	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 2	1937	1,320	$124,764	$0	$13,639	$13,639
620610B003	TEXAS	TEMPLE	ALL OTHER	BARN	FEEDING BARN 3	1951	5,500	$519,849	$93,958	$20,821	$114,779
620610B004	TEXAS	TEMPLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY/OFFICE 4	1974	23,864	$6,384,431	$573,607	$101,070	$674,678
620610B005	TEXAS	TEMPLE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 5	1974	24,012	$3,981,358	$138,920	$11,492	$150,412
620610B006	TEXAS	TEMPLE	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1966	1,056	$186,088	$54,799	$67,469	$122,268
620610B007	TEXAS	TEMPLE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 7	1977	7,200	$680,530	$10,528	$763	$11,291
620610B008	TEXAS	TEMPLE	SERVICE	SHOP	SHOP 8	1977	9,600	$1,245,715	$60,661	$249,518	$310,179
620610B009	TEXAS	TEMPLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL & SEED STORAGE 9	1977	6,200	$1,554,421	$121,773	$0	$121,773
620610B010	TEXAS	TEMPLE	LABORATORIES	LABORATORY	ENGINEERING RESEARCH 10	1977	5,880	$1,761,495	$57,126	$12,229	$69,354
620610B011	TEXAS	TEMPLE	WAREHOUSES	CHEMICAL STORAGE	HAZARDOUS CHEMICAL STORAGE 1	1977	280	$70,200	$5,499	$0	$5,499
620610B012	TEXAS	TEMPLE	ALL OTHER	ALL OTHER	MULTIPURPOSE 12	1977	9,360	$2,084,266	$650,033	$0	$650,033
620610B013	TEXAS	TEMPLE	WAREHOUSES	STORAGE BUILDING	GREENHOUSE STORAGE 13	1977	960	$90,737	$1,404	$102	$1,505
620610B014	TEXAS	TEMPLE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 14	1977	3,840	$362,949	$5,615	$407	$6,022
620610B015	TEXAS	TEMPLE	ALL OTHER	INSECT FACILITY	INSECTARY 15	1979	624	$69,975	$3,860	$0	$3,860
620610B016	TEXAS	TEMPLE	WAREHOUSES	CHEMICAL STORAGE	OIL HOUSE	1978	100	$25,071	$104	$0	$104
620615B001	TEXAS	RIESEL	OFFICE	OFFICE	OFFICE, 1	1938	3,643	$862,462	$47,912	$24,791	$72,703
620615B002	TEXAS	RIESEL	WAREHOUSES	STORAGE BUILDING	STORAGE, 2	1938	682	$64,461	$801	$0	$801
620615B003	TEXAS	RIESEL	LABORATORIES	LABORATORY	LABORATORY, 3	1938	1,700	$509,276	$48,439	$19,465	$67,903
620615B004	TEXAS	RIESEL	SERVICE	SHOP	SHOP, 4	1938	2,265	$293,911	$26,701	$29,340	$56,041
620615B005	TEXAS	RIESEL	WAREHOUSES	GARAGE	VEHICLE STORAGE, 5	1938	1,825	$169,572	$16,623	$23,140	$39,762
620615B006	TEXAS	RIESEL	WAREHOUSES	STORAGE BUILDING	IMPLEMENT STORAGE, 6	1938	1,825	$172,495	$4,633	$0	$4,633
620615B007	TEXAS	RIESEL	WAREHOUSES	CHEMICAL STORAGE	OIL AND GAS STORAGE, 7	1938	400	$100,285	$237	$21,516	$21,753
620615B008	TEXAS	RIESEL	WAREHOUSES	BARN, STORAGE	HAY BARN, 8	1960	1,280	$118,932	$18,280	$4,613	$22,893
620615B009	TEXAS	RIESEL	WAREHOUSES	SHED, STORAGE	FEED SHED, 9	1952	1,080	$102,079	$8,520	$3,822	$12,342
620615B010	TEXAS	RIESEL	WAREHOUSES	SHED, STORAGE	TRAILER SHED, 10	1940	1,450	$137,051	$636	$17,964	$18,600
620615B011	TEXAS	RIESEL	FAMILY HOUSING	RESIDENCE	RESIDENCE WITH GARAGE, 11	1939	1,422	$230,082	$7,583	$4,001	$11,584
620615B012	TEXAS	RIESEL	WAREHOUSES	SHED, STORAGE	TRACTOR SHED, 12	1962	1,440	$136,106	$20,565	$5,190	$25,754
620700B001	TEXAS	BROWNWOOD	LABORATORIES	RESEARCH OFFICE/LABORATORY	BUILDING 1 (B)	1932	3,792	$1,033,487	$54,283	$55,018	$109,301
620700B002	TEXAS	BROWNWOOD	ALL OTHER	GREENHOUSE	BUILDING 2 GREENHOUSE (B)	1969	1,056	$189,573	$72	$0	$72
620700B004	TEXAS	BROWNWOOD	SERVICE	ALL OTHER	BUILDING 4 (B)	1932	375	$74,358	$0	$4,989	$4,989
620700B007	TEXAS	BROWNWOOD	WAREHOUSES	STORAGE BUILDING	BUILDING 7 (B)	1969	2,430	$233,980	$37,477	$0	$37,477
620700B008	TEXAS	BROWNWOOD	ALL OTHER	ALL OTHER	BUILDING 8 (B)	1939	2,700	$612,490	$98,746	$11,630	$110,376
620700B009	TEXAS	BROWNWOOD	WAREHOUSES	STORAGE BUILDING	BUILDING 9 (B)	1939	3,059	$294,545	$2,798	$3,913	$6,711
620700B010	TEXAS	BROWNWOOD	ALL OTHER	GREENHOUSE	BUILDING 10 GREENHOUSE (B)	1977	2,700	$484,704	$20,802	$177,516	$198,317
620700B011	TEXAS	BROWNWOOD	SERVICE	SHOP	BUILDING 11(B)	1979	4,800	$634,522	$6,484	$222	$6,706
620700B993	TEXAS	SOMERVILLE	ALL OTHER	GREENHOUSE	BUILDING 7 GREENHOUSE (S)	1994	2,304	$448,589	$2,999	$0	$2,999
620700B994	TEXAS	SOMERVILLE	ALL OTHER	SCREENHOUSE	BUILDING 6 (S)	1988	4,032	$495,996	$53,960	$119,218	$173,178
620700B995	TEXAS	SOMERVILLE	ALL OTHER	WATER SYSTEM BUILDING	BUILDING 5 (S)	1990	168	$64,624	$0	$3,734	$3,734
620700B997	TEXAS	SOMERVILLE	OFFICE	TRAILER, OFFICE	BUILDING 3 (DOUBLE WIDE) (S)	1984	1,344	$145,112	$4,739	$1,058	$5,796
620700B998	TEXAS	SOMERVILLE	WAREHOUSES	STORAGE BUILDING	BUILDING 2 (S)	1987	4,500	$469,935	$4,799	$0	$4,799
620700B999	TEXAS	SOMERVILLE	WAREHOUSES	TRAILER, STORAGE	BUILDING 1 (TRAILER) (S)	1980	480	$51,826	$81	$0	$81
620805B005	TEXAS	LUBBOCK	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 05	1971	1,440	$134,067	$0	$997	$997
620805B020	TEXAS	LUBBOCK	ALL OTHER	ALL OTHER	CONFERENCE BUILDING 20	1990	2,400	$526,421	$1,026	$12,376	$13,402
620810B006	TEXAS	LUBBOCK	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 06	1971	2,096	$544,445	$16,070	$2,912	$18,982
620810B007	TEXAS	LUBBOCK	SERVICE	SHOP	MACHINE SHOP 07	1969	2,640	$337,440	$43,903	$7,335	$51,238
620810B008	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	GINNING FACILITY 08	1969	16,240	$4,792,197	$405,600	$69,016	$474,616
620810B009	TEXAS	LUBBOCK	WAREHOUSES	TRAILER, STORAGE	COTTON TRAILER STORAGE 09	1969	4,320	$415,835	$56,121	$0	$56,121
620810B029	TEXAS	LUBBOCK	WAREHOUSES	ALL OTHER	BY-PRODUCT STORAGE BLDG 29	1996	1,800	$150,226	$0	$0	$0
620810B035	TEXAS	LUBBOCK	ALL OTHER	UTILITY BUILDING	BOILER BUILDING	2005	180	$59,080	$17	$0	$17

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
620815B011	TEXAS	LUBBOCK	ALL OTHER	ALL OTHER	ADMINISTRATIVE BUILDING 11	1986	3,000	$658,026	$1,282	$15,470	$16,752
620815B012	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	RESEARCH LABORATORY 12	1986	3,000	$885,256	$3,393	$6,041	$9,434
620815B013	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	FIELD LABORATORY 13	1986	1,440	$424,924	$1,629	$2,900	$4,528
620815B014	TEXAS	LUBBOCK	SERVICE	ALL OTHER	ROOT WASHING BUILDING 14	1986	576	$110,435	$2,000	$878	$2,879
620815B015	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	FIELD (ROOT) LAB 15	1986	1,440	$424,924	$1,629	$2,900	$4,528
620815B016	TEXAS	LUBBOCK	ALL OTHER	ALL OTHER	GROWTH CHAMBER FACILITY 16	1988	720	$157,926	$1,922	$358	$2,279
620815B017	TEXAS	LUBBOCK	LABORATORIES	RESEARCH OFFICE/LABORATORY	MICROWAVE LAB 17	1988	1,500	$395,289	$56,221	$19,225	$75,446
620815B021	TEXAS	LUBBOCK	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 21	1993	3,200	$297,926	$0	$0	$0
620815B022	TEXAS	LUBBOCK	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 22	1993	9,920	$1,620,164	$25,387	$20,157	$45,543
620815B023	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	MOLECULAR LAB 23	1995	1,500	$442,629	$3,243	$4,825	$8,068
620815B024	TEXAS	LUBBOCK	LABORATORIES	RESEARCH OFFICE/LABORATORY	PSWCL-PLANT STRESS/WATER CON	1999	62,000	$16,338,612	$36,246	$0	$36,246
620815B025	TEXAS	LUBBOCK	ALL OTHER	GREENHOUSE	GREENHOUSE (POLY #1)	2000	1,800	$312,444	$0	$0	$0
620815B026	TEXAS	LUBBOCK	ALL OTHER	ALL OTHER	DRYING OVEN BUILDING	2000	990	$217,149	$0	$0	$0
620815B027	TEXAS	LUBBOCK	ALL OTHER	BARN	POLE BARN L-SHAPED**	2001	4,400	$409,549	$0	$0	$0
620815B028	TEXAS	LUBBOCK	SERVICE	SHOP	WEWC SHOP/WIND TUNNEL/SOIL PR	2001	2,400	$306,763	$228	$0	$228
620815B030	TEXAS	LUBBOCK	ALL OTHER	GREENHOUSE	GREENHOUSE (POLY #2)	2002	1,800	$312,444	$0	$0	$0
620815B031	TEXAS	LUBBOCK	ALL OTHER	GREENHOUSE	GREENHOUSE (POLY #3)	2003	1,800	$312,444	$0	$0	$0
620815B033	TEXAS	LUBBOCK	ALL OTHER	GREENHOUSE	GREENHOUSE (POLY #4)	2004	1,800	$312,444	$0	$0	$0
620815B034	TEXAS	LUBBOCK	ALL OTHER	GREENHOUSE	GREENHOUSE (POLY #5)	2005	1,800	$312,444	$0	$0	$0
620820B001	TEXAS	BIG SPRING	FAMILY HOUSING	RESIDENCE	RESIDENCE 1	1963	1,404	$231,424	$3,946	$9,135	$13,082
620820B002	TEXAS	BIG SPRING	ALL OTHER	LIBRARY, ALL OTHER	LIBRARY 2	1963	1,404	$274,909	$41,502	$3,719	$45,222
620820B004	TEXAS	BIG SPRING	ALL OTHER	ALL OTHER	WIND TUNNEL AND STORAGE 4	1957	3,568	$809,394	$25,077	$18,034	$43,111
620820B005	TEXAS	BIG SPRING	SERVICE	SHOP	SHOP 5	1974	2,448	$323,606	$12,839	$10,674	$23,513
620820B006	TEXAS	BIG SPRING	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 6	1933	2,340	$225,314	$13,131	$26,173	$39,305
620820B008	TEXAS	BIG SPRING	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 8	1958	7,292	$1,987,391	$69,482	$29,332	$98,814
620820B009	TEXAS	BIG SPRING	WAREHOUSES	GARAGE	VEHICLE STORAGE 9	1957	2,400	$227,174	$18,669	$10,062	$28,731
620820B011	TEXAS	BIG SPRING	ALL OTHER	GREENHOUSE	GREENHOUSE #11	1997	400	$71,808	$0	$0	$0
620820B012	TEXAS	BIG SPRING	ALL OTHER	HEADHOUSE	HEADHOUSE 12	1933	440	$70,731	$9,470	$277	$9,747
620820B013	TEXAS	BIG SPRING	ALL OTHER	BARN	POLE BARN	2002	3,840	$369,746	$0	$0	$0
620820B019	TEXAS	LUBBOCK	LABORATORIES	LABORATORY	PLANT BREEDING LABORATORY 19	1989	672	$198,298	$1,453	$2,162	$3,615
620825B032	TEXAS	LUBBOCK	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL NURSERY/PREP BLDG 32	2004	1,472	$211,376	$0	$0	$0
620900B001	TEXAS	BUSHLAND	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 1	1963	13,068	$3,513,593	$228,259	$85,442	$314,701
620900B003	TEXAS	BUSHLAND	LABORATORIES	LABORATORY	SUNFLOWER BUILDING 3	1939	3,101	$933,618	$11,400	$55,419	$66,819
620900B004	TEXAS	BUSHLAND	ALL OTHER	GREENHOUSE	SAMPLE PROCESSING&GREENHOUS	1966	7,430	$1,315,853	$391,893	$482,495	$874,388
620900B005	TEXAS	BUSHLAND	LABORATORIES	LABORATORY	WIND ENERGY LAB 5	1969	2,610	$785,793	$119,464	$3,369	$122,833
620900B006	TEXAS	BUSHLAND	SERVICE	SHOP	REPAIR/MAINTENANCE SHOP 6	1957	3,416	$445,481	$36,795	$3,661	$40,456
620900B007	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	SUNFLOWER WORKROOM 7	1939	1,200	$268,548	$43,193	$5,087	$48,280
620900B009	TEXAS	BUSHLAND	WAREHOUSES	GARAGE	PICKUP TRUCK STORAGE SHED 9	1940	3,072	$286,863	$308	$49,778	$50,086
620900B010	TEXAS	BUSHLAND	SERVICE	SHOP	TAES REPAIR/MAINTENANCE SHOP1	1956	1,219	$158,970	$4,007	$4,807	$8,814
620900B011	TEXAS	BUSHLAND	WAREHOUSES	SHED, STORAGE	TRACTOR STORAGE #2 11	1942	1,296	$123,107	$2,599	$6,002	$8,601
620900B012	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	FEED PROCESSING 12	1942	1,296	$290,032	$46,648	$5,494	$52,142
620900B013	TEXAS	BUSHLAND	WAREHOUSES	STORAGE BUILDING	MACHINERY STORAGE 13	1963	4,000	$379,960	$22,073	$46,944	$69,017
620900B014	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	DRYING & PROCESSING BUILDING14	1970	1,500	$335,685	$105,681	$0	$105,681
620900B015	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	IRRIGATION BUILDING 15	1985	4,000	$895,160	$11,382	$2,118	$13,500
620900B016	TEXAS	BUSHLAND	WAREHOUSES	STORAGE BUILDING	AUTO STORAGE 16	1966	2,880	$273,571	$41,547	$0	$41,547
620900B017	TEXAS	BUSHLAND	WAREHOUSES	STORAGE BUILDING	RESEARCH EQPMNT STORAGE BLDG	1944	4,350	$413,207	$270	$44,473	$44,743
620900B018	TEXAS	BUSHLAND	FAMILY HOUSING	RESIDENCE	RESIDENCE 18	1939	1,343	$218,385	$7,232	$3,815	$11,047
620900B020	TEXAS	BUSHLAND	WAREHOUSES	STORAGE BUILDING	MACHINERY STORAGE 20	1977	4,800	$455,952	$6,891	$499	$7,390
620900B021	TEXAS	BUSHLAND	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB ANNEX 21	1980	2,700	$725,949	$71,293	$15,586	$86,879
620900B022	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	WIND HYBRID 22	1981	1,500	$335,685	$22,300	$6,145	$28,444
620900B023	TEXAS	BUSHLAND	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL FEED BARN 23	1983	1,440	$210,974	$7,196	$0	$7,196
620900B024	TEXAS	BUSHLAND	LABORATORIES	LABORATORY	MICROBIOLOGY LABORATORY 24	1984	2,700	$812,889	$3,475	$6,187	$9,662
620900B025	TEXAS	BUSHLAND	LABORATORIES	LABORATORY	WIND, LAB ANNEX 25	1984	1,500	$451,605	$1,931	$3,437	$5,368
620900B026	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	ASSEMBLY BUILDING 26	1986	7,200	$1,611,288	$3,281	$39,579	$42,860
620900B027	TEXAS	BUSHLAND	SERVICE	ALL OTHER	HERBICIDE RINSE DOWN 27	1987	1,000	$195,615	$3,896	$1,710	$5,606
620900B028	TEXAS	BUSHLAND	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 28	1989	704	$177,383	$2,276	$0	$2,276
620900B029	TEXAS	BUSHLAND	ALL OTHER	ALL OTHER	RAINOUT SHELTER FACILITY 29	1993	3,200	$716,128	$1,458	$17,591	$19,049
620900B030	TEXAS	BUSHLAND	WAREHOUSES	STORAGE BUILDING	MACHINERY STORAGE 30	1997	3,200	$303,968	$0	$0	$0
620900B031	TEXAS	BUSHLAND	SERVICE	FILLING STATION, SERVICE	FUEL STORAGE HOUSE 31	1998	165	$22,979	$620	$1,536	$2,156
621600B002	OKLAHOMA	WOODWARD	OFFICE	OFFICE	OFFICE/RESIDENCE 2	1914	1,600	$362,560	$6,932	$16,932	$23,864
621600B005	OKLAHOMA	BUFFALO	FAMILY HOUSING	RESIDENCE	RESIDENCE (RANGE) 5	1988	1,128	$187,753	$0	$73,342	$73,342
621600B006	OKLAHOMA	WOODWARD	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 6	1950	26,636	$7,330,653	$408,841	$119,470	$528,311
621600B007	OKLAHOMA	WOODWARD	ALL OTHER	GREENHOUSE	GREENHOUSE 7	1930	7,780	$1,410,358	$1,116	$434,700	$435,816
621600B008	OKLAHOMA	WOODWARD	SERVICE	SHOP	GARAGE/SHOP 8	1914	5,760	$788,891	$32,535	$23,874	$56,409
621600B009	OKLAHOMA	WOODWARD	WAREHOUSES	SHED, STORAGE	MACHINE SHED (NORTH) 9	1932	2,860	$278,084	$16,918	$33,720	$50,637
621600B010	OKLAHOMA	WOODWARD	WAREHOUSES	SHED, STORAGE	MACHINE SHED (SOUTH) 10	1937	2,860	$278,084	$0	$32,694	$32,694
621600B011	OKLAHOMA	WOODWARD	WAREHOUSES	SHED, STORAGE	MACHINE SHED (WEST) 11	1919	1,920	$186,685	$1,533	$30,048	$31,582
621600B012	OKLAHOMA	WOODWARD	ALL OTHER	ALL OTHER	GERMPLASM BUILDING 12	1948	3,600	$824,659	$25,051	$18,016	$43,067
621600B013	OKLAHOMA	WOODWARD	LABORATORIES	LABORATORY	METABOLISM BUILDING 13	1940	5,280	$1,827,169	$158,255	$63,593	$221,848
621600B014	OKLAHOMA	WOODWARD	WAREHOUSES	SHED, STORAGE	MACHINE SHED/STORAGE 14	1948	3,576	$347,702	$8,082	$18,663	$26,746
621600B019	OKLAHOMA	WOODWARD	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE 19	1940	289	$108,828	$15,967	$3,477	$19,444

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
621600B020	OKLAHOMA	WOODWARD	WAREHOUSES	GARAGE	GARAGE 20	1930	100	$9,558	$0	$2,835	$2,835
621600B022	OKLAHOMA	BUFFALO	WAREHOUSES	BARN, STORAGE	FEED STORAGE BARN 22	1944	864	$82,585	$420	$11,842	$12,262
621600B050	OKLAHOMA	BUFFALO	ALL OTHER	WATER SYSTEM BUILDING	SPER WELL HOUSE	2004	68	$24,430	$0	$1,443	$1,443
621600B051	OKLAHOMA	BUFFALO	SERVICE	SHOP	RANGE SHOP/OFFICE 51	1987	4,428	$591,085	$242,693	$67,752	$310,444
621600B052	OKLAHOMA	BUFFALO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	RANGE VET BARN 52	1992	3,330	$499,393	$69,256	$35,025	$104,281
621600B053	OKLAHOMA	WOODWARD	ALL OTHER	GREENHOUSE	EAST GREENHOUSE 53	1993	5,292	$959,334	$6,576	$0	$6,576
621600B054	OKLAHOMA	WOODWARD	ALL OTHER	GREENHOUSE	EAST HEADHOUSE 54	1994	3,600	$652,608	$4,474	$0	$4,474
621600B055	OKLAHOMA	BUFFALO	WAREHOUSES	SHED, STORAGE	MACHINE SHED 55	1995	7,392	$718,738	$0	$0	$0
621600B056	OKLAHOMA	BUFFALO	SERVICE	SCALE HOUSE, SERVICE	CORRAL 43 SCALE HOUSE BLDG 56	1997	1,824	$342,679	$213	$0	$213
621600B057	OKLAHOMA	WOODWARD	ALL OTHER	BARN	SCALE BARN-WOODWARD #57	1998	1,872	$182,018	$0	$0	$0
621600B058	OKLAHOMA	BUFFALO	SERVICE	SCALE HOUSE, SERVICE	CORRAL #9 SCALEHOUSE #58	1999	1,872	$351,696	$219	$0	$219
621600B059	OKLAHOMA	BUFFALO	SERVICE	SCALE HOUSE, SERVICE	CORRAL #5 SCALEHOUSE #59	2001	1,728	$324,643	$202	$0	$202
621600BA29	OKLAHOMA	WOODWARD	SERVICE	SCALE HOUSE, SERVICE	STATION SCALE HOUSE 29	1960	60	$11,272	$1,421	$811	$2,231
621700B001	OKLAHOMA	STILLWATER	SERVICE	SHOP	WEST SHOP 1	1940	964	$128,682	$10,575	$11,620	$22,195
621700B002	OKLAHOMA	STILLWATER	SERVICE	SHOP	EAST SHOP 2	1940	672	$89,704	$7,372	$8,100	$15,472
621700B003	OKLAHOMA	STILLWATER	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHELTER 3	1949	2,160	$210,021	$4,882	$11,273	$16,155
621700B004	OKLAHOMA	STILLWATER	ALL OTHER	ALL OTHER	QUONSET HUT 4	1961	5,000	$1,145,360	$34,908	$8,412	$43,320
621700B005	OKLAHOMA	STILLWATER	WAREHOUSES	ALL OTHER	HYDRAULIC STORAGE BUILDING 5	1986	1,440	$141,201	$5,247	$0	$5,247
621700B006	OKLAHOMA	STILLWATER	LABORATORIES	LABORATORY	HYDRAULIC MODEL BUILDING 6	1986	3,200	$986,163	$6,366	$0	$6,366
621700B008	OKLAHOMA	STILLWATER	LABORATORIES	LABORATORY	MODEL SHELTER A 8	1954	576	$177,509	$7,940	$5,368	$13,308
621700B009	OKLAHOMA	STILLWATER	LABORATORIES	LABORATORY	MODEL BASIN C 9	1963	1,120	$345,157	$1,011	$1,018	$2,029
621700B010	OKLAHOMA	STILLWATER	LABORATORIES	LABORATORY	HYDRAULIC MODEL BLDG 10	1967	4,000	$1,232,704	$16,569	$21,330	$37,899
621700B011	OKLAHOMA	STILLWATER	ALL OTHER	ALL OTHER	VOLUMETRIC TANK 11	1968	840	$146,606	$43,667	$4,074	$47,741
621700B012	OKLAHOMA	STILLWATER	WAREHOUSES	CHEMICAL STORAGE	OIL HOUSE 12	1968	96	$24,760	$63	$5,713	$5,776
621700B013	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 13	1977	3,000	$543,840	$22,884	$195,286	$218,170
621700B014	OKLAHOMA	STILLWATER	WAREHOUSES	STORAGE BUILDING	STORAGE 14	1978	4,000	$388,928	$8,640	$2,780	$11,420
621700B015	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 15	1976	2,976	$539,489	$23,232	$193,558	$216,790
621700B016	OKLAHOMA	STILLWATER	ALL OTHER	HEADHOUSE	HEADHOUSE 16	1960	1,600	$259,725	$3,217	$0	$3,217
621700B017	OKLAHOMA	STILLWATER	LABORATORIES	RESEARCH OFFICE/LABORATORY	PLANT SCIENCE OFFICE/LAB 17	1981	15,500	$4,265,848	$455,331	$99,547	$554,878
621700B018	OKLAHOMA	STILLWATER	ALL OTHER	HEADHOUSE	HEADHOUSE 18	1981	6,325	$1,026,725	$29,898	$28,134	$58,031
621700B019	OKLAHOMA	STILLWATER	WAREHOUSES	STORAGE BUILDING	STORAGE ENTOMOLOGY 19	1972	960	$93,343	$9,347	$1,753	$11,100
621700B020	OKLAHOMA	STILLWATER	WAREHOUSES	STORAGE BUILDING	ENTOMOLOGY STORAGE (LAKE) 20	1975	1,440	$140,014	$2,330	$169	$2,498
621700B021	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	ENTOMOLOGY GREENHOUSE 21	1981	1,760	$319,053	$18,282	$115,370	$133,652
621700B022	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	ENTOMOLOGY GREENHOUSE 22	1981	1,760	$319,053	$18,282	$115,370	$133,652
621700B023	OKLAHOMA	STILLWATER	ALL OTHER	HEADHOUSE	ENTOMOLOGY HEADHOUSE 23	1981	500	$91,154	$1,005	$0	$1,005
621700B024	OKLAHOMA	STILLWATER	ALL OTHER	ALL OTHER	METAL BUILDING 24	1982	3,000	$687,216	$16,606	$0	$16,606
621700B025	OKLAHOMA	STILLWATER	OFFICE	OFFICE	OFFICE BUILDING 25	1986	5,000	$1,133,000	$81,621	$12,276	$93,897
621700B026	OKLAHOMA	STILLWATER	SERVICE	SHOP	PEANUT MAINTENANCE BUILDING 26	1986	1,200	$160,186	$6,198	$0	$6,198
621700B027	OKLAHOMA	STILLWATER	WAREHOUSES	STORAGE BUILDING	WEST METAL STORAGE BUILDING 27	1984	3,000	$291,696	$3,115	$0	$3,115
621700B028	OKLAHOMA	STILLWATER	LABORATORIES	LABORATORY	BIOCONTROL LABORATORY 28	1991	1,800	$554,717	$4,926	$7,330	$12,257
621700B17A	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17A	1981	2,880	$522,086	$70,624	$415,446	$486,070
621700B17B	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17B	1981	2,880	$522,086	$67,123	$167,418	$234,541
621700B17C	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17C	1981	2,880	$522,086	$70,624	$415,446	$486,070
621700B17D	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17D	1981	2,880	$522,086	$67,123	$167,418	$234,541
621700B17E	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17E	1981	2,880	$522,086	$70,624	$415,446	$486,070
621700B17F	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17F	1981	2,880	$522,086	$70,624	$415,446	$486,070
621700B17G	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17G	1981	2,880	$522,086	$70,624	$415,446	$486,070
621700B17H	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17H	1981	2,880	$522,086	$67,123	$167,418	$234,541
621700B17J	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 17J	1981	2,880	$522,086	$67,123	$415,446	$482,569
621700B18A	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18A	1981	2,880	$522,086	$32,021	$95,124	$127,145
621700B18B	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18B	1981	2,880	$522,086	$32,021	$236,049	$268,070
621700B18C	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18C	1981	2,880	$522,086	$32,021	$236,049	$268,070
621700B18D	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18D	1981	2,880	$522,086	$32,021	$236,049	$268,070
621700B18E	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18E	1981	2,880	$522,086	$32,021	$236,049	$268,070
621700B18F	OKLAHOMA	STILLWATER	ALL OTHER	GREENHOUSE	GREENHOUSE 18F	1981	2,880	$522,086	$32,021	$236,049	$268,070
621800B001	OKLAHOMA	EL RENO	OFFICE	OFFICE	MAIN OFFICE 1	1937	30,237	$6,851,704	$109,856	$68,277	$177,933
621800B007	OKLAHOMA	EL RENO	ALL OTHER	VISITORS CENTER	VISITORS CENTER	1876	3,955	$1,473,032	$21,781	$33,985	$55,766
621800B021	OKLAHOMA	EL RENO	ALL OTHER	ALL OTHER	CHAPEL 21	1944	4,096	$938,279	$6,229	$29,315	$35,544
621800B024	OKLAHOMA	EL RENO	ALL OTHER	ALL OTHER	RIDING HALL 24	1950	14,400	$3,298,637	$105,845	$3,864	$109,709
621800B025	OKLAHOMA	EL RENO	WAREHOUSES	SHED, STORAGE	PAINT SHED 25	1942	1,152	$112,011	$4,613	$10,534	$15,147
621800B026	OKLAHOMA	EL RENO	SERVICE	SHOP	MACHINE SHOP 26	1921	5,200	$694,138	$62,584	$132,258	$194,842
621800B028	OKLAHOMA	EL RENO	SERVICE	SHOP	CARPENTER SHOP 28	1922	5,200	$694,138	$59,761	$139,415	$199,176
621800B029	OKLAHOMA	EL RENO	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 29	1894	1,694	$184,711	$0	$136,780	$136,780
621800B030	OKLAHOMA	EL RENO	SERVICE	FILLING STATION, SERVICE	FILLING STATION 30	1942	1,472	$209,837	$11,354	$6,516	$17,870
621800B031	OKLAHOMA	EL RENO	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 31	1885	16,360	$1,590,716	$157,733	$653,870	$811,603
621800B033	OKLAHOMA	EL RENO	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 33	1914	4,944	$480,715	$2,160	$33,901	$36,061
621800B039	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE BARN 39	1909	8,383	$1,257,182	$73,735	$190,397	$264,132
621800B045	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	PHYSIOLOGY BARN 45	1936	15,098	$2,264,217	$13,190	$0	$13,190
621800B051	OKLAHOMA	EL RENO	LABORATORIES	LABORATORY	SOIL PROCESSING LAB 51	1980	5,000	$1,540,880	$25,060	$1,038	$26,098
621800B055	OKLAHOMA	EL RENO	WAREHOUSES	WAREHOUSES	SHELTER SHED 55	1910	4,000	$382,336	$26,889	$75,101	$101,990
621800B065	OKLAHOMA	EL RENO	WAREHOUSES	WAREHOUSES	SHELTER SHED 65	1940	4,000	$382,336	$27,455	$41,493	$68,948

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
621800B067	OKLAHOMA	EL RENO	SERVICE	SCALE HOUSE, SERVICE	SCALE HOUSE 67	1940	4,130	$775,911	$10,219	$14,933	$25,152
621800B069	OKLAHOMA	EL RENO	SERVICE	SCALE HOUSE, SERVICE	SCALE HOUSE 69	1944	326	$61,246	$549	$3,679	$4,228
621800B070	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 70	1923	9,073	$1,350,660	$13,013	$26,950	$39,963
621800B082	OKLAHOMA	EL RENO	WAREHOUSES	BARN, STORAGE	HAY BARN 82	1927	10,027	$958,421	$0	$0	$0
621800B085	OKLAHOMA	EL RENO	WAREHOUSES	BARN, STORAGE	SEED BARN 85	1965	1,800	$152,934	$18,144	$0	$18,144
621800B087	OKLAHOMA	EL RENO	WAREHOUSES	GARAGE	GARAGE 87	1933	2,226	$212,770	$18,564	$624	$19,188
621800B088	OKLAHOMA	EL RENO	WAREHOUSES	GARAGE	GARAGE 88	1933	1,113	$106,385	$9,905	$0	$9,905
621800B095	OKLAHOMA	EL RENO	WAREHOUSES	SHED, STORAGE	SMALL STORAGE SHED 95	1981	500	$48,616	$0	$0	$0
621800B096	OKLAHOMA	EL RENO	SERVICE	FEED MILL, SERVICE	FEEDMILL 96	1982	3,400	$1,652,944	$219,999	$12,971	$232,970
621800B098	OKLAHOMA	EL RENO	WAREHOUSES	BARN, STORAGE	WOOL BARN 98	1985	1,800	$172,051	$687	$0	$687
621800B099	OKLAHOMA	EL RENO	ALL OTHER	BARN	POLE BARN 99	1989	1,800	$175,018	$0	$0	$0
621800B100	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHEEP BARN 100	1989	3,000	$449,904	$0	$0	$0
621800B103	OKLAHOMA	EL RENO	WAREHOUSES	CHEMICAL STORAGE	HAZARD WASTE BUILDING	2006	120	$30,949	$0	$0	$0
621800B96A	OKLAHOMA	EL RENO	ALL OTHER	UTILITY BUILDING	BOILER ROOM FM 96A	1982	651	$223,152	$11,919	$0	$11,919
621800B96B	OKLAHOMA	EL RENO	WAREHOUSES	BARN, STORAGE	HAY BARN FM 96B	1982	5,625	$537,660	$5,623	$0	$5,623
621800BA02	OKLAHOMA	EL RENO	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE - OLD STORAGE YD	1936	460	$173,221	$5,927	$28,325	$34,252
621800BA10	OKLAHOMA	EL RENO	WAREHOUSES	GARAGE	GARAGE BY BAKERY	1933	338	$32,307	$2,417	$8,945	$11,362
62180BEC01	OKLAHOMA	EL RENO	OFFICE	OFFICE	EC OFFICE BUILDING	1998	6,000	$1,359,600	$0	$0	$0
62180BEC02	OKLAHOMA	EL RENO	LABORATORIES	LABORATORY	EC WEST LAB	1998	2,400	$739,622	$0	$0	$0
62180BEC03	OKLAHOMA	EL RENO	LABORATORIES	LABORATORY	EC EAST LAB	1998	2,400	$739,622	$0	$0	$0
62180BEC04	OKLAHOMA	EL RENO	ALL OTHER	GREENHOUSE	EC HEADHOUSE/GREENHOUSE	2007	9,528	$1,727,236	$0	$0	$0
62180BEC10	OKLAHOMA	EL RENO	ALL OTHER	ALL OTHER	SAMPLE PREP BUILDING	1999	1,200	$274,886	$0	$0	$0
62180BEC16	OKLAHOMA	EL RENO	ALL OTHER	BARN	EC HEADGATE BARN	1999	14,400	$1,400,141	$0	$0	$0
62180BEC17	OKLAHOMA	EL RENO	ALL OTHER	BARN	EC WEIGHING BARN	1999	4,000	$388,928	$0	$0	$0
62180BEC18	OKLAHOMA	EL RENO	ALL OTHER	BARN	EC PEAPOINTER BARN	1999	14,400	$1,400,141	$0	$0	$0
62180BEC20	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	EC CATTLE BARN	1999	14,400	$2,159,539	$0	$0	$0
62180BEC21	OKLAHOMA	EL RENO	SERVICE	SCALE HOUSE, SERVICE	EC SCALE HOUSE	1997	2,400	$450,893	$0	$0	$0
62180BPC01	OKLAHOMA	EL RENO	ALL OTHER	ANIMAL FACILITY, ALL OTHER	PRIMATE FACILITY	2000	30,234	$4,534,133	$0	$0	$0
622200B001	OKLAHOMA	LANE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1986	5,760	$1,585,244	$169,207	$36,993	$206,200
622200B002	OKLAHOMA	LANE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 2	1986	3,360	$924,726	$98,704	$21,579	$120,283
622200B003	OKLAHOMA	LANE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 3	1993	10,360	$2,851,238	$5,815	$43,264	$49,079
622200B004	OKLAHOMA	LANE	ALL OTHER	HEADHOUSE	HEADHOUSE 4	1986	4,774	$774,954	$12,141	$55,581	$67,722
622200B005	OKLAHOMA	LANE	ALL OTHER	GREENHOUSE	GREENHOUSE 5	1986	5,050	$915,464	$67,968	$195,202	$263,168
622200B006	OKLAHOMA	LANE	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1986	5,050	$915,464	$67,966	$195,202	$263,168
622200B007	OKLAHOMA	LANE	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BUILDING 7	1989	512	$49,783	$44	$0	$44
622200B008	OKLAHOMA	LANE	LABORATORIES	LABORATORY	POST-HARVEST HANDLING FAC 8	1993	8,550	$2,634,805	$23,400	$34,819	$58,219
622200B010	OKLAHOMA	LANE	SERVICE	SHOP	SHOP BUILDING 10	1993	8,380	$1,118,629	$979	$0	$979
622200B011	OKLAHOMA	LANE	ALL OTHER	ALL OTHER	UTILITY SHED 11	1989	100	$22,907	$286	$53	$340
622200B012	OKLAHOMA	LANE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG 12	1993	160	$41,266	$0	$0	$0
622500B001	ARKANSAS	ALMYRA	LABORATORIES	RESEARCH OFFICE/LABORATORY	DBNRRC ADMIN & LABORATORY	1998	45,940	$13,195,806	$33,484	$0	$33,484
622500B003	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 3	2001	1,571	$297,233	$0	$0	$0
622500B004	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 4	2001	1,571	$297,233	$0	$0	$0
622500B005	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 5	2001	1,012	$191,470	$0	$0	$0
622500B006	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 6	2001	1,872	$354,182	$0	$0	$0
622500B007	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 7	2001	1,872	$354,182	$0	$0	$0
622500B008	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 8	2001	1,872	$354,182	$0	$0	$0
622500B009	ARKANSAS	ALMYRA	ALL OTHER	GREENHOUSE	GREENHOUSE 9	2001	1,872	$354,182	$0	$0	$0
622500B00B	ARKANSAS	ALMYRA	ALL OTHER	UTILITY BUILDING	GENERATOR HOUSE	2001	1,382	$494,424	$0	$30,042	$30,042
622500B00C	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	SOIL STORAGE	2002	1,060	$107,569	$0	$0	$0
622500B00D	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING D	2002	1,222	$124,009	$0	$0	$0
622500B00E	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING E	2002	1,222	$124,009	$0	$0	$0
622500B00F	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING F	2002	1,222	$124,009	$0	$0	$0
622500B00G	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING G	2002	1,222	$124,009	$0	$0	$0
622500B00H	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING H	2001	1,222	$124,009	$0	$0	$0
622500B00I	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING I	2002	1,222	$124,009	$0	$0	$0
622500B00J	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING J	2002	1,222	$124,009	$0	$0	$0
622500B00K	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING K	2002	1,222	$124,009	$0	$0	$0
622500B00L	ARKANSAS	ALMYRA	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED ATV'S	2002	1,060	$107,569	$0	$0	$0
622500B010	ARKANSAS	ALMYRA	WAREHOUSES	ALL OTHER	FIRE STATION	2001	373	$38,173	$0	$0	$0
622500B011	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	WATER STORAGE TANK	2001	556	$56,423	$0	$0	$0
622500B01A	ARKANSAS	ALMYRA	OFFICE	OFFICE	DBNRRC & LABORATORY	1998	9,036	$2,137,014	$12,527	$36,808	$49,335
622500B0EB	ARKANSAS	ALMYRA	WAREHOUSES	STORAGE BUILDING	GREENHOUSE HALLWAY EAST BANK	2001	1,025	$104,017	$0	$0	$0
622510B001	ARKANSAS	STUTTGART	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABORATORY/OFFICE 1	1992	17,941	$5,153,373	$9,917	$73,788	$83,706
622510B002	ARKANSAS	STUTTGART	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 2	1961	3,420	$982,361	$31,526	$16,318	$47,843
622510B003	ARKANSAS	STUTTGART	LABORATORIES	LABORATORY	WET LABORATORY 3	1961	2,112	$879,304	$15,064	$0	$15,064
622510B004	ARKANSAS	STUTTGART	WAREHOUSES	STORAGE BUILDING	ELECTRICAL/STORAGE	1962	230	$23,340	$7,626	$727	$8,352
622510B005	ARKANSAS	STUTTGART	ALL OTHER	ALL OTHER	FILTER HOUSE	1962	450	$107,585	$3,219	$776	$3,995
622510B006	ARKANSAS	STUTTGART	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG #6	1993	120	$32,302	$0	$0	$0
622510B007	ARKANSAS	STUTTGART	ALL OTHER	ALL OTHER	FIRE PUMP HOUSE BLDG 7	1992	100	$23,908	$23	$10,860	$10,882
622510B008	ARKANSAS	STUTTGART	ALL OTHER	UTILITY BUILDING	PUMP/GENERATOR HOUSE 8	1965	600	$214,658	$16,360	$5,621	$21,981
622510B009	ARKANSAS	STUTTGART	SERVICE	SHOP	MECHNICAL SHOP 9	1962	1,740	$242,417	$17,664	$2,559	$20,223

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
622510B010	ARKANSAS	STUTTGART	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE BLDG #10	1994	2,400	$243,552	$0	$0	$0
622510B011	ARKANSAS	STUTTGART	ALL OTHER	ALL OTHER	TANK FARM BLDG 11	1992	8,000	$1,912,840	$0	$0	$0
622510B012	ARKANSAS	STUTTGART	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE WEST #12	1962	120	$47,162	$3,342	$1,148	$4,491
622510B013	ARKANSAS	STUTTGART	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE EAST #13	1962	80	$31,442	$2,228	$765	$2,994
622510B014	ARKANSAS	STUTTGART	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 14	1974	3,000	$304,440	$194	$0	$194
622510B015	ARKANSAS	STUTTGART	WAREHOUSES	STORAGE BUILDING	POND EQUIPMENT STORAGE #15	1974	300	$30,444	$1,451	$2,763	$4,213
622510B01A	ARKANSAS	STUTTGART	LABORATORIES	LABORATORY	WET LABORATORY 1A	1964	3,740	$1,202,934	$1,434	$0	$1,434
622510B01B	ARKANSAS	STUTTGART	WAREHOUSES	GARAGE	VEHICLE STORAGE BLDG #1B	1992	2,000	$199,520	$28	$0	$28
622510B06A	ARKANSAS	STUTTGART	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG #6A	1993	120	$32,302	$0	$0	$0
622510B06B	ARKANSAS	STUTTGART	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG #6B	1993	120	$32,302	$0	$0	$0
622510B100	ARKANSAS	KELSO	OFFICE	OFFICE	LAB/OFFICE 1-KELSO	1965	3,200	$756,800	$36,362	$16,021	$52,383
622510B11A	ARKANSAS	STUTTGART	SERVICE	PUMPHOUSE, SERVICE	TANK FARM PUMP HOUSE	1981	1,800	$707,436	$50,135	$17,224	$67,359
622510B200	ARKANSAS	KELSO	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/OFFICE 2- KELSO	1965	3,200	$919,168	$61,110	$5,742	$66,851
622510B300	ARKANSAS	KELSO	SERVICE	PUMPHOUSE, SERVICE	PUMPHOUSE - KELSO	1965	256	$100,813	$7,130	$2,450	$9,580
622600B01C	ARKANSAS	FAYETTEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	COLONY HOUSE ONE	2001	750	$117,390	$0	$0	$0
622600B02C	ARKANSAS	FAYETTEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	COLONY HOUSE TWO	2001	704	$110,190	$0	$0	$0
622700B001	ARKANSAS	BOONEVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/OFFICE 1	1987	6,255	$1,711,030	$280,003	$95,747	$375,750
622700B002	ARKANSAS	BOONEVILLE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 2	1981	8,520	$1,444,421	$58,813	$4,865	$63,678
622700B003	ARKANSAS	BOONEVILLE	SERVICE	SHOP	SHOP 3	1981	2,400	$318,427	$8,838	$0	$8,838
622700B014	ARKANSAS	BOONEVILLE	WAREHOUSES	STORAGE BUILDING	HAY STORAGE BUILDING 14	1983	3,600	$347,911	$1,933	$0	$1,933
622700B015	ARKANSAS	BOONEVILLE	WAREHOUSES	STORAGE BUILDING	HAY STORAGE BUILDING 15	1983	4,800	$463,882	$2,577	$0	$2,577
622700B017	ARKANSAS	BOONEVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE BUILDING 17	1985	840	$215,331	$2,861	$0	$2,861
622700B018	ARKANSAS	BOONEVILLE	WAREHOUSES	CHEMICAL STORAGE	FERTILIZER STORAGE BUILDING 18	1983	1,008	$258,398	$1,083	$0	$1,083
622700B019	ARKANSAS	BOONEVILLE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE BLDG #2/19	1983	2,400	$231,941	$1,184	$27,614	$28,798
622700B021	ARKANSAS	BOONEVILLE	ALL OTHER	ALL OTHER	QUONSET HUT, BLD 21	1997	1,200	$273,218	$0	$0	$0
622700B023	ARKANSAS	BOONEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK BARN (EAST END)	1999	3,120	$465,061	$0	$0	$0
622700B024	ARKANSAS	BOONEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK BARN (WEST CENTRAL)	1999	4,368	$651,085	$0	$0	$0
622700B025	ARKANSAS	BOONEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	LIVESTOCK BARN	1999	4,368	$651,085	$0	$0	$0
622700B026	ARKANSAS	BOONEVILLE	SERVICE	ALL OTHER	SHOPWEST/EQUIPMENT BLDG 26	2000	1,500	$298,526	$4,412	$1,918	$6,330
622700BL4	ARKANSAS	BOONEVILLE	ALL OTHER	BARN	POLE BARN L4	1980	5,400	$521,867	$85,623	$0	$85,623
622700BL5	ARKANSAS	BOONEVILLE	WAREHOUSES	ALL OTHER	COOPER BARN L5	1980	2,500	$243,653	$2,686	$0	$2,686
622700BL7	ARKANSAS	BOONEVILLE	ALL OTHER	BARN	STALL BARN L7	1980	1,344	$129,887	$21,311	$0	$21,311
622700BL8	ARKANSAS	BOONEVILLE	ALL OTHER	BARN	MASONRY BARN L8	1980	2,500	$241,605	$39,640	$0	$39,640
622700BL9	ARKANSAS	BOONEVILLE	ALL OTHER	BARN	MASONRY STALL BARN L9	1980	1,344	$129,887	$21,311	$0	$21,311
622700BL11	ARKANSAS	BOONEVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	HORSE BARN L11	1980	4,032	$601,002	$7,088	$0	$7,088
623505B008	NEW MEXICO	MESILLA	WAREHOUSES	STORAGE BUILDING	MODULE STORAGE BLDG 8	1994	2,800	$278,527	$0	$0	$0
623505B048	NEW MEXICO	MESILLA	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 1	1949	14,904	$4,196,400	$220,506	$64,436	$284,942
623505B049	NEW MEXICO	MESILLA	LABORATORIES	LABORATORY	ROLLER GINNING FACILITY 2	1953	3,024	$953,413	$1,261	$0	$1,261
623505B050	NEW MEXICO	MESILLA	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 3	1957	4,180	$415,801	$19,832	$10,612	$30,443
623505B051	NEW MEXICO	MESILLA	SERVICE	SHOP	SHOP BLDG 4	1961	4,000	$546,264	$46,120	$4,588	$50,708
623505B052	NEW MEXICO	MESILLA	LABORATORIES	LABORATORY	SEED COTTON LAB 5	1966	3,500	$1,103,487	$62,876	$0	$62,876
623505B053	NEW MEXICO	MESILLA	LABORATORIES	LABORATORY	MICRO GINNING FACILITY 6	1966	2,520	$794,511	$45,271	$0	$45,271
623505B054	NEW MEXICO	MESILLA	WAREHOUSES	STORAGE BUILDING	WAGON STORAGE 7	1973	3,600	$358,106	$232	$0	$232
623515B001	NEW MEXICO	LAS CRUCES	LABORATORIES	RESEARCH OFFICE/LABORATORY	WOOTEN BUILDING	2002	29,000	$8,165,298	$0	$325	$325
623515B005	NEW MEXICO	LAS CRUCES	SERVICE	GARAGE, SERVICE	VEHICLE SHOP/OFFICE	1971	4,950	$696,866	$32,337	$29,254	$61,592
623515B008	NEW MEXICO	LAS CRUCES	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE	1991	207	$54,619	$0	$0	$0
623515B009	NEW MEXICO	LAS CRUCES	SERVICE	PUMPHOUSE, SERVICE	WATER PUMP HOUSE	1993	525	$202,257	$0	$8,681	$8,681
623515B010	NEW MEXICO	LAS CRUCES	FAMILY HOUSING	TRAILER, HOUSING	COYOTE QUARTERS 010	1973	1,680	$167,116	$4,782	$11,071	$15,853
623515B011	NEW MEXICO	LAS CRUCES	FAMILY HOUSING	TRAILER, HOUSING	ORYX QUARTERS 011	1976	980	$97,485	$2,790	$6,458	$9,248
623515B012	NEW MEXICO	LAS CRUCES	FAMILY HOUSING	TRAILER, HOUSING	ANTELOPE QUARTERS 012	1976	1,664	$165,525	$4,737	$10,966	$15,702
623515B013	NEW MEXICO	LAS CRUCES	WAREHOUSES	CHEMICAL STORAGE	FUEL STORAGE BUILDING	1991	144	$37,996	$62	$0	$62
623515B026	NEW MEXICO	LAS CRUCES	SERVICE	SHOP	MACHINE/TIRE SHOP	1938	4,400	$600,890	$47,165	$51,828	$98,993
623515B034	NEW MEXICO	LAS CRUCES	WAREHOUSES	STORAGE BUILDING	FEED/SADDLE BLDG	1974	600	$59,684	$2,893	$5,510	$8,403
623515B037	NEW MEXICO	LAS CRUCES	OFFICE	OFFICE	TURNEY HOUSE	1938	1,887	$437,454	$26,535	$13,730	$40,265
623515B038	NEW MEXICO	LAS CRUCES	SERVICE	SHOP	WOOD SHOP	1976	2,400	$327,758	$13,790	$56,722	$70,512
623515B059	NEW MEXICO	LAS CRUCES	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING T2	1968	320	$31,832	$1,671	$0	$1,671
623515B060	NEW MEXICO	LAS CRUCES	WAREHOUSES	STORAGE BUILDING	PLANT/SOIL BUILDING T3	1968	768	$76,396	$4,011	$0	$4,011
623515B061	NEW MEXICO	LAS CRUCES	WAREHOUSES	STORAGE BUILDING	TOOL STORAGE T4	1962	320	$31,832	$10,581	$1,008	$11,589
623515B065	NEW MEXICO	LAS CRUCES	ALL OTHER	ALL OTHER	PLANT GENETICS T9	1971	768	$179,984	$5,341	$14,081	$19,422
623515B069	NEW MEXICO	LAS CRUCES	LABORATORIES	LABORATORY	401 LAB STORAGET5	1979	3,600	$1,135,015	$18,309	$42,737	$61,046
625000B000	TEXAS	HOUSTON	LABORATORIES	RESEARCH OFFICE/LABORATORY	CHILDRENS NUTRITION RES CTR	1986	197,482	$58,373,704	$9,809,339	$3,354,319	$13,163,658
640200B001	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	MAIN LAB 1	1971	103,690	$28,891,145	$1,222,318	$677,520	$1,899,838
640200B002	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	MAINT/MECH SHOP 2	1971	9,204	$1,110,831	$1,560,931	$13,323	$1,574,253
640200B003	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	ENVIRONMENTAL CONTROL RES LAI	1971	1,200	$334,356	$0	$0	$0
640200B004	MISSISSIPPI	STONEVILLE	WAREHOUSES	CHEMICAL STORAGE	SOLVENT & PESTICIDE STORAGE 4	1971	960	$223,858	$15,688	$0	$15,688
640200B005	MISSISSIPPI	STONEVILLE	ALL OTHER	HEADHOUSE	ENTOMOLOGY HEADHOUSE 5	1971	2,468	$352,216	$47,814	$1,401	$49,214
640200B006	MISSISSIPPI	STONEVILLE	ALL OTHER	HEADHOUSE	COTTON PHYSIOLOGY HEADHOUSE	1971	9,248	$1,357,283	$94,882	$43,391	$138,273
640200B007	MISSISSIPPI	STONEVILLE	ALL OTHER	HEADHOUSE	WEED RESEARCH HEADHOUSE 7	1971	9,350	$1,372,253	$96,125	$44,792	$140,917
640200B008	MISSISSIPPI	STONEVILLE	ALL OTHER	QUARANTINE	INSECT QUARANTINE HEADHOUSE 8	1974	8,240	$1,522,422	$466,652	$4,141	$470,794
640200B010	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	ENTOMOLOGY STORAGE BLDG 10	1974	14,400	$1,265,904	$724	$0	$724
640200B011	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	SOYBEAN RES/LAB BLDG. 11	1974	1,800	$501,534	$171	$0	$171

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
640200B012	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	SOYBEAN LABORATORY/STORAGE 1	1974	1,200	$334,356	$1,959	$10,912	$12,871
640200B013	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	SOYBEAN SHOP & EQUIP STORAGE	1993	6,000	$527,460	$2,279	$0	$2,279
640200B014	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	APTRU ELECT/PHOTO LAB	1961	8,010	$704,159	$31	$26,387	$26,418
640200B015	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	APTRU EQUIP/PARTS STORG	1965	1,440	$126,590	$6,376	$1,954	$8,330
640200B016	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	APTRU MAIN SHOP BLDG	1960	5,161	$622,881	$47,145	$4,690	$51,836
640200B017	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	APTRU STORAGE BLDG	1966	864	$75,954	$3,515	$0	$3,515
640200B01A	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	EGRESS TOWER BUILDING 1A	1991	900	$186,399	$375	$4,525	$4,900
640200B021	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	COTTON GIN LAB 21	1966	25,584	$7,128,470	$35,489	$182,063	$217,571
640200B022	MISSISSIPPI	STONEVILLE	OFFICE	OFFICE	OFFICE 22	1934	10,545	$2,160,407	$44,082	$103,701	$147,783
640200B023	MISSISSIPPI	STONEVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE 23	1932	1,808	$272,066	$2,743	$22,453	$25,196
640200B024	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	COTTON SEED STORAGE BUILDING	1948	2,567	$225,665	$13,295	$0	$13,295
640200B025	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	STORAGE SHED 25	1964	2,880	$253,181	$12,334	$0	$12,334
640200B026	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	MICRO-GINNING LAB 26	1969	4,718	$977,145	$304,601	$0	$304,601
640200B027	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	MACHINE SHOP & GIN LAB 27	1931	12,203	$1,472,780	$53,363	$39,156	$92,519
640200B028	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	GINNING & STORAGE 28	1939	4,480	$927,853	$147,488	$17,370	$164,858
640200B029	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	BRICK GIN LABORATORY 29	1946	6,346	$1,314,320	$40,148	$28,873	$69,021
640200B030	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	QUONSET HUT 30	1962	1,200	$248,532	$7,617	$1,836	$9,452
640200B031	MISSISSIPPI	STONEVILLE	WAREHOUSES	TRAILER, STORAGE	TRAILER SHED 31	1987	9,974	$906,537	$0	$0	$0
640200B032	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE 32	1975	384	$33,757	$0	$0	$0
640200B034	MISSISSIPPI	STONEVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 34	1975	180	$41,973	$2,941	$0	$2,941
640200B035	MISSISSIPPI	STONEVILLE	ALL OTHER	WATER SYSTEM BUILDING	WELLHOUSE & PRESSURE PUMP BU	1980	250	$81,205	$6,049	$2,078	$8,127
640200B036	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	WALK-IN COOLER SWSL	1995	96	$19,883	$19	$9,251	$9,270
640200B037	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	EQUIP SHED SWSL	1994	1,250	$109,888	$0	$0	$0
640200B038	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG SWSL	1995	360	$31,648	$0	$0	$0
640200B040	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	SHOP/STORAGE WEED CONTROL 40	1979	7,980	$926,899	$2,148	$0	$2,148
640200B044	MISSISSIPPI	STONEVILLE	WAREHOUSES	CHEMICAL STORAGE	INSECTICIDE/EQUIP STOR SIML	1983	2,200	$513,007	$1,902	$0	$1,902
640200B045	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	SOYBEAN STRG/ENV CNTRL LAB 45	1984	1,967	$407,385	$5,119	$953	$6,072
640200B046	MISSISSIPPI	STONEVILLE	LABORATORIES	LABORATORY	CATFISH LABORATORY BLDG 46	1987	10,891	$3,034,559	$648,666	$10,378	$659,044
640200B047	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	CATFISH SHOP BLDG 47	1987	1,246	$150,380	$52,870	$14,760	$67,629
640200B048	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	CATFISH WORKSHOP	1987	1,200	$144,828	$4,798	$0	$4,798
640200B049	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	MAINTENANCE SHOP	1987	1,274	$153,759	$54,058	$15,091	$69,149
640200B050	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	ATRU BLDG 50	1992	5,220	$1,081,114	$2,175	$26,245	$28,421
640200B051	MISSISSIPPI	STONEVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE BLDG 51	1992	1,254	$292,414	$0	$0	$0
640200B052	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	OPEN STORAGE SHED SIML	1995	2,125	$186,809	$0	$0	$0
640200B053	MISSISSIPPI	STONEVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE BLDG SIML	1995	152	$35,444	$0	$0	$0
640200B054	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	CATFISH STORAGE BLDG.	1998	144	$12,659	$0	$0	$0
640200B055	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG. CGPRU	2001	288	$25,318	$0	$0	$0
640200B056	MISSISSIPPI	STONEVILLE	ALL OTHER	UTILITY BUILDING	UTILITY SHED CROP GENETICS	2002	216	$66,943	$0	$4,167	$4,167
640200B057	MISSISSIPPI	STONEVILLE	OFFICE	TRAILER, OFFICE	MODULAR OFFICE, BIOLAB PROJECT	2002	960	$87,254	$0	$0	$0
640200B058	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	PROCESSING BUILDING	1998	960	$198,826	$0	$0	$0
640200B059	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	RACEWAY TANK BLDG.	1998	2,744	$568,310	$0	$0	$0
640200B060	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	LOC. SUPPORT STORAGE BLDG.	1998	160	$14,066	$0	$0	$0
640200B061	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	LOC. SUPPORT STORAGE BLDG.	1998	80	$7,033	$0	$0	$0
640200B062	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	SWSRU STORAGE BLDG. GREY MET/	1992	840	$73,844	$1,021	$3,483	$4,504
640200B063	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	SWSRU FARM STORAGE BLDG.	1998	151	$13,274	$0	$0	$0
640200B064	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	APTRU FARM RESTROOM & STORAG	1998	200	$17,582	$0	$0	$0
640200B065	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	APTRU STORAGE BLDG.	2000	288	$25,318	$0	$0	$0
640200B066	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	QUARANTINE STORAGE BLDG.	2000	164	$14,417	$0	$0	$0
640200B067	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	QRTN STRGE BLDG. BTWN BG1&BG2	1999	216	$18,989	$0	$0	$0
640200B068	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	CGRU STORAGE BLDG.	2000	160	$14,066	$0	$0	$0
640200B069	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	SHED	2000	319	$28,043	$0	$0	$0
640200B06A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 6A	1975	1,972	$173,359	$1,849	$0	$1,849
640200B06B	MISSISSIPPI	ARCOLA	ALL OTHER	ALL OTHER	ACID DELINTING BLDG 6B	1992	3,296	$682,635	$1,374	$16,572	$17,945
640200B070	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE BAYS CG&P	2002	432	$70,805	$0	$0	$0
640200B071	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE BAY CG&P	2002	432	$70,805	$0	$0	$0
640200B072	MISSISSIPPI	STONEVILLE	ALL OTHER	ALL OTHER	APTRU MODULAR OFFICE/LAB	2004	1,798	$372,384	$0	$0	$0
640200B073	MISSISSIPPI	STONEVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	CG&P MODULAR & OFFICE LAB	2004	1,798	$447,396	$0	$0	$0
640200B074	MISSISSIPPI	STONEVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	APTRU MODULAR OFFICE/LAB	2004	1,440	$358,315	$0	$0	$0
640200B07A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 7A	1975	2,000	$175,820	$1,404	$0	$1,404
640200B07B	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 7B	1999	400	$35,164	$0	$0	$0
640200B080	MISSISSIPPI	LELAND	LABORATORIES	LABORATORY	NBCL LAB	2006	53,000	$14,767,390	$42,017	$0	$42,017
640200B08A	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG BY QUARTINE 8A	1981	160	$14,066	$20	$0	$20
640200B08B	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 8B	1974	1,023	$89,932	$1,404	$0	$1,404
640200B10A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 10A	1979	2,820	$247,906	$2,441	$0	$2,441
640200B10B	MISSISSIPPI	STONEVILLE	SERVICE	SHOP	LOCATION LANDSCAPE SHOP	1997	800	$96,552	$72	$0	$72
640200B12A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 12A	1982	160	$14,066	$0	$0	$0
640200B21B	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	ELEVATED TRASH HOUSE 21B	1966	200	$17,582	$814	$0	$814
640200B21C	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	SHED 21C	1966	640	$56,262	$3,279	$0	$3,279
640200B23A	MISSISSIPPI	STONEVILLE	WAREHOUSES	GARAGE	GARAGE 23A	1985	325	$28,087	$1,812	$183	$1,994
640200B24A	MISSISSIPPI	STONEVILLE	WAREHOUSES	STORAGE BUILDING	ELEVATED SEED HOUSE 24A	1948	200	$17,582	$1,458	$116	$1,574
640200B32A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	SHED 32A	1966	640	$56,262	$3,279	$0	$3,279

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
640200B40A	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 40A	1980	1,920	$168,787	$1,494	$0	$1,494
640200B40B	MISSISSIPPI	STONEVILLE	WAREHOUSES	SHED, STORAGE	COVERED SHED 40B	1982	1,512	$132,920	$1,494	$0	$1,494
640200B42A	MISSISSIPPI	STONEVILLE	OFFICE	TRAILER, OFFICE	LAB OFFICE (TRAILER) 42A	1993	840	$76,348	$1,162	$1,045	$2,206
640200B45A	MISSISSIPPI	STONEVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	FIRE ANT RESEARCH	2002	3,338	$830,595	$1,820	$0	$1,820
640200B47A	MISSISSIPPI	STONEVILLE	OFFICE	TRAILER, OFFICE	CATFISH OFFICE TRAILER	1994	480	$43,627	$664	$597	$1,261
640200B5G1	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 5-G1	1971	2,741	$449,250	$42	$459,624	$459,666
640200B5G2	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 5-G2	1971	2,741	$449,250	$42	$459,624	$459,666
640200B6G1	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 6-G1	1972	1,981	$324,686	$13,457	$335,142	$348,599
640200B6G2	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 6-G2	1974	1,981	$324,686	$13,457	$335,142	$348,599
640200B6G3	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 6-G3	1974	1,981	$324,686	$13,457	$335,142	$348,599
640200B6G4	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 6-G4	1977	1,981	$324,686	$13,457	$335,142	$348,599
640200B7G1	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 7-G1	1971	3,844	$630,032	$42	$497,925	$497,967
640200B7G2	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 7-G2	1971	3,844	$630,032	$42	$497,925	$497,967
640200B7G3	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 7-G3	1971	3,936	$645,110	$42	$497,925	$497,967
640200B8G1	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 8G1	1977	2,368	$388,115	$42	$430,897	$430,939
640200B8G2	MISSISSIPPI	STONEVILLE	ALL OTHER	GREENHOUSE	GREENHOUSE 8-G2	1978	525	$86,048	$42	$0	$42
640400B001	MISSISSIPPI	POPLARVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 1	1969	2,800	$734,132	$25,487	$4,618	$30,105
640400B002	MISSISSIPPI	POPLARVILLE	LABORATORIES	LABORATORY	LAB/SUPPORT 2	1970	1,215	$356,712	$48,269	$29,985	$78,255
640400B003	MISSISSIPPI	POPLARVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/CONFERENCE ROOM	1970	1,968	$515,990	$17,913	$3,246	$21,159
640400B004	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	GLASS GREENHOUSE 4	1960	800	$138,160	$112	$43,738	$43,850
640400B005	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	NW FIBERGLASS GREENHOUSE 5	1979	1,820	$314,314	$18,498	$116,738	$135,236
640400B006	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	NE FIBERGLASS GREENHOUSE 6	1978	1,800	$310,860	$13,160	$327,741	$340,901
640400B007	MISSISSIPPI	POPLARVILLE	WAREHOUSES	SHED, STORAGE	TRACTOR SHED 7	1978	2,280	$211,196	$2,319	$0	$2,319
640400B008	MISSISSIPPI	POPLARVILLE	OFFICE	OFFICE	STORAGE & OFFICES	1999	864	$186,516	$1,468	$1,320	$2,788
640400B009	MISSISSIPPI	POPLARVILLE	ALL OTHER	ALL OTHER	PROPAGATION SHED 9	1998	480	$104,750	$0	$0	$0
640400B010	MISSISSIPPI	POPLARVILLE	WAREHOUSES	CHEMICAL STORAGE	FERTILIZER SHED 10	1979	400	$98,282	$406	$0	$406
640400B011	MISSISSIPPI	POPLARVILLE	WAREHOUSES	STORAGE BUILDING	METAL QUONSET BLDG NORTH 11	1983	600	$55,578	$87	$0	$87
640400B012	MISSISSIPPI	POPLARVILLE	WAREHOUSES	STORAGE BUILDING	SOUTH METAL QUONSET BLDG 12	1983	600	$55,578	$87	$0	$87
640400B013	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	SW FIBERGLASS GREENHOUSE 13	1983	1,232	$212,766	$34,640	$0	$34,640
640400B014	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	SE FIBERGLASS GREENHOUSE 14	1983	1,232	$212,766	$34,640	$0	$34,640
640400B015	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	SHADE HOUSE 15	1984	1,200	$130,938	$15,002	$33,144	$48,146
640400B016	MISSISSIPPI	POPLARVILLE	SERVICE	PUMPHOUSE, SERVICE	IRRIGATION PUMP SHED 16	1985	168	$60,269	$0	$2,980	$2,980
640400B018	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	SHADE HOUSE NORTH 18	1986	1,200	$130,938	$15,002	$33,144	$48,146
640400B019	MISSISSIPPI	POPLARVILLE	SERVICE	SHOP	MAINTENANCE SHOP 19	1989	1,440	$183,125	$176	$0	$176
640400B020	MISSISSIPPI	POPLARVILLE	WAREHOUSES	SHED, STORAGE	TRACTOR SHED STONE COUNTY 20	1986	960	$88,925	$1,115	$0	$1,115
640400B021	MISSISSIPPI	POPLARVILLE	LABORATORIES	LABORATORY	POST HARVEST LAB BLDG 21	1993	1,440	$422,770	$3,643	$5,421	$9,064
640400B022	MISSISSIPPI	POPLARVILLE	LABORATORIES	LABORATORY	PATHOLOGY BLDG.	1996	1,080	$317,077	$2,732	$4,066	$6,798
640400B023	MISSISSIPPI	POPLARVILLE	LABORATORIES	LABORATORY	ENTOMOLOGY BLDG.	2000	1,800	$528,462	$0	$0	$0
640400B024	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	SCREENHOUSE #1	1997	2,880	$314,251	$0	$0	$0
640400B025	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	SCREENHOUSE #2	1997	2,880	$314,251	$0	$0	$0
640400B026	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	BEE KEEPING SCREENHOUSE	1997	4,768	$520,260	$0	$0	$0
640400B027	MISSISSIPPI	POPLARVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	MODULAR BLDG. #1	2001	1,440	$377,554	$985	$0	$985
640400B028	MISSISSIPPI	POPLARVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	MODULAR BLDG. #2	2001	1,440	$377,554	$985	$0	$985
640400B029	MISSISSIPPI	POPLARVILLE	LABORATORIES	RESEARCH OFFICE/LABORATORY	MODULAR BLDG. #3	2001	1,440	$377,554	$985	$0	$985
640400B030	MISSISSIPPI	POPLARVILLE	ALL OTHER	SCREENHOUSE	SCREENHOUSE #3	2000	1,440	$157,126	$0	$0	$0
640400B031	MISSISSIPPI	POPLARVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG. & RESTROOM	1999	512	$47,427	$0	$0	$0
640400B033	MISSISSIPPI	POPLARVILLE	WAREHOUSES	STORAGE BUILDING	RESTROOM & STORAGE	2001	288	$28,677	$0	$0	$0
640400B034	MISSISSIPPI	POPLARVILLE	ALL OTHER	ALL OTHER	PROPAGATION SHED STONE CO.	2002	480	$104,750	$0	$0	$0
640400B035	MISSISSIPPI	POPLARVILLE	WAREHOUSES	SHED, STORAGE	TRACTOR SHED, STONE CO.	2002	1,000	$92,830	$0	$0	$0
640400B036	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	ORNAMENTAL GREENHOUSE #1	2002	720	$124,344	$0	$0	$0
640400B037	MISSISSIPPI	POPLARVILLE	ALL OTHER	GREENHOUSE	ORNAMENTAL GREENHOUSE #2	2002	2,688	$464,218	$0	$0	$0
640600B001	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	RESEARCH OFFICE/LABORATORY	HARNED BLDG. LABS & OFFICES 1	1962	35,026	$8,715,520	$503,605	$187,688	$691,293
640600B002	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 2	1962	6,750	$1,040,951	$50,837	$296,840	$347,677
640600B003	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1962	2,112	$346,157	$275	$107,267	$107,563
640600B004	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	SHOP	SHOP 4	1962	6,601	$796,675	$51,851	$7,512	$59,363
640600B005	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	STORAGE BUILDING	STORAGE 5	1965	6,042	$531,152	$38,802	$32,588	$71,390
640600B006	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	SHOP	SHOP/STORAGE 6	1971	500	$60,345	$1,593	$3,948	$5,541
640600B007	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 7	1966	1,940	$170,545	$13,749	$0	$13,749
640600B009		Mississippi State	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GRNHSE/SCRNHSE 9	1966	9,726	$1,499,895	$132,592	$467,515	$600,106
640600B012	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABS 12	1966	7,150	$1,779,135	$102,132	$9,596	$111,728
640600B013	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ALL OTHER	CLIMATE CHAMBER 13	1966	6,750	$1,397,993	$86,411	$2,230	$88,641
640600B014	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ALL OTHER	ENVIRONMENTAL CHAMBER 14	1967	3,200	$662,752	$40,965	$1,057	$42,022
640600B015	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	SHOP	SHOP 15	1965	2,400	$289,656	$12,775	$2,328	$15,104
640600B016	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	ALL OTHER	FEED MIXING 16	1970	1,200	$217,242	$19,538	$6,872	$26,410
640600B017	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	SHOP	SERVICE BUILDING 17	1967	432	$52,138	$7,918	$4,520	$12,438
640600B018	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ALL OTHER	INCINERATOR SHED 18	1974	400	$82,844	$31	$0	$31
640600B019	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE A 19	1966	3,251	$440,803	$592	$4,186	$4,778
640600B020	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE B 20	1966	3,251	$440,803	$3,060	$485	$3,545
640600B021	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE C 21	1966	3,251	$440,803	$3,466	$5,655	$9,121
640600B022	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE D 22	1966	3,251	$440,803	$127	$485	$612
640600B023	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	EGG BUILDING 23	1974	180	$24,406	$22	$0	$22

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
640600B024	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	STORAGE BUILDING	STORAGE (NORTH FARM) 24	1963	600	$52,746	$11,066	$6,731	$17,797
640600B025	MISSISSIPPI	MISSISSIPPI STATE	SERVICE	SHOP	SHOP (NORTH FARM) 25	1965	1,500	$181,035	$7,985	$1,455	$9,440
640600B027	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	LABORATORY	SEED LAB 27	1977	1,200	$334,356	$8,168	$6,065	$14,233
640600B028	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE F 28	1979	2,880	$390,499	$12,654	$0	$12,654
640600B029	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 29	1980	7,697	$1,186,993	$49,404	$4,087	$53,490
640600B030	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 30	1980	2,250	$197,798	$1,751	$0	$1,751
640600B031	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY HOUSE G 31	1981	6,480	$878,623	$24,110	$0	$24,110
640600B032	MISSISSIPPI	MISSISSIPPI STATE	OFFICE	LABORATORY, OFFICE	OFFICE/LAB 32	1982	9,450	$2,217,679	$191,000	$41,757	$232,758
640600B033	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	LABORATORY	LAB/OFFICE 33	1984	3,300	$919,479	$3,481	$6,197	$9,678
640600B034	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	STORAGE BUILDING	STORAGE 34	1984	2,947	$259,071	$1,100	$0	$1,100
640600B035	MISSISSIPPI	MISSISSIPPI STATE	OFFICE	OFFICE	OFFICE/RECEIVING 35	1985	2,400	$481,700	$5,852	$1,306	$7,158
640600B036	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 36	1985	3,715	$572,909	$9,270	$7,360	$16,630
640600B038	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	LABORATORY	CORN LAB 38	1978	2,000	$557,260	$2,809	$0	$2,809
640600B039	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE (NORTH FARM) 39	1990	1,250	$204,875	$4,373	$0	$4,373
640600B040	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 40	1987	990	$230,853	$2,713	$0	$2,713
640600B041	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SHAVINGS BLDG.- POULTRY	2004	2,000	$271,180	$0	$0	$0
640600B042	MISSISSIPPI	MISSISSIPPI STATE	LABORATORIES	RESEARCH OFFICE/LABORATORY	POULTRY OFFICE/LAB	2004	2,200	$547,426	$0	$0	$0
640600B044	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	ALL OTHER	RECEIVING BUILDING	2004	400	$82,844	$0	$0	$0
640600B10A	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	INSECT FACILITY	INSECT REARING 10A	1983	1,225	$127,768	$5,599	$0	$5,599
640600B10B	MISSISSIPPI	MISSISSIPPI STATE	WAREHOUSES	STORAGE BUILDING	SEED STORAGE NO. 10B	1983	1,225	$107,600	$486	$11,338	$11,824
640600B29A	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	HEADHOUSE	HEADHOUSE ANNEX 29A	1983	2,400	$352,236	$5,549	$25,404	$30,953
640600B29B	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29B	1982	2,760	$452,364	$10,235	$670	$10,905
640600B29C	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29C	1984	140	$22,946	$6,733	$670	$7,402
640600B29D	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29D	1984	140	$22,946	$2,233	$670	$2,903
640600B29E	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29E	1984	140	$22,946	$6,733	$670	$7,402
640600B29F	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29F	1984	140	$22,946	$6,733	$670	$7,402
640600B29G	MISSISSIPPI	MISSISSIPPI STATE	ALL OTHER	GREENHOUSE	GREENHOUSE 29G	1984	140	$22,946	$6,733	$670	$7,402
640800B001	MISSISSIPPI	OXFORD	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORIES	1960	56,508	$16,325,726	$1,193,410	$444,770	$1,638,181
640800B002	MISSISSIPPI	OXFORD	SERVICE	SHOP	MODEL/INSTRUMENT FABRICATIONS	1960	2,970	$416,186	$38,250	$3,805	$42,056
640800B004	MISSISSIPPI	OXFORD	WAREHOUSES	CHEMICAL STORAGE	PAINT/OLD CHEMICAL STORAGE	1960	311	$84,202	$220	$19,995	$20,215
640800B005	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 1 STORAGE	1962	800	$81,656	$6,408	$1,186	$7,594
640800B006	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE BUILDING	SAND STORAGE	1963	800	$81,656	$21,196	$12,893	$34,089
640800B007	MISSISSIPPI	OXFORD	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE	1964	100	$27,075	$71	$6,429	$6,500
640800B009	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 2 STORAGE	1968	800	$81,656	$7,422	$683	$8,105
640800B011	MISSISSIPPI	OXFORD	ALL OTHER	UTILITY BUILDING	UTILITY BUILDING	1974	960	$345,446	$27,144	$9,325	$36,470
640800B013	MISSISSIPPI	OXFORD	ALL OTHER	ALL OTHER	RAINULATOR BLDG 13	1977	1,200	$288,554	$90,536	$0	$90,536
640800B014	MISSISSIPPI	OXFORD	WAREHOUSES	CHEMICAL STORAGE	ISOTOPE CHEMICAL STORAGE	1980	552	$149,451	$685	$0	$685
640800B015	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE BUILDING	STORAGE	1983	4,000	$408,280	$2,482	$0	$2,482
640800B016	MISSISSIPPI	OXFORD	ALL OTHER	GREENHOUSE	GREENHOUSE	1984	682	$129,785	$38,328	$3,812	$42,140
640800B018	MISSISSIPPI	OXFORD	ALL OTHER	ALL OTHER	WALK IN COOLER	2004	288	$69,255	$0	$0	$0
640800B019	MISSISSIPPI	OXFORD	ALL OTHER	ALL OTHER	CONTROL BLDG. FLUME	1960	112	$26,933	$45	$21,621	$21,666
640800B020	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE BUILDING	UEPRU STORAGE	2005	192	$19,597	$0	$0	$0
640800B021	MISSISSIPPI	OXFORD	WAREHOUSES	STORAGE BUILDING	WQ&ERU STORAGE	1993	192	$19,597	$335	$1,144	$1,479
640800B02A	MISSISSIPPI	OXFORD	WAREHOUSES	SHED, STORAGE	FABRICATIONS STORAGE SHED	2000	300	$30,621	$0	$0	$0
640800B1HS	MISSISSIPPI	OXFORD	OFFICE	OFFICE	OFFICE/SHOP 1-HS	1963	1,285	$305,869	$36,725	$3,291	$40,017
640800B2HS	MISSISSIPPI	OXFORD	SERVICE	SHOP	SHOP/UTILITY 2-HS	1974	800	$84,078	$3,495	$2,906	$6,400
641200B045		Shriever	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB (MODULAR)	2004	2,100	$607,412	$0	$0	$0
641320B001	LOUISIANA	BATON ROUGE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/OFFICE 1	1965	5,510	$1,593,734	$109,426	$10,282	$119,708
641320B002	LOUISIANA	BATON ROUGE	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1960	2,240	$426,765	$339	$132,006	$132,345
641320B005	LOUISIANA	BATON ROUGE	SERVICE	SHOP	SHOP/STORAGE 5	1978	5,400	$757,577	$8,236	$282	$8,518
641320B006	LOUISIANA	BATON ROUGE	OFFICE	TRAILER, OFFICE	MODLR OFFICE BLDG.-ST. GABRIEL	1999	312	$32,963	$0	$0	$0
641320B008	LOUISIANA	BATON ROUGE	WAREHOUSES	HAZMAT FACILITY	HAZARD STORAGE SOIL & WATER	1990	100	$24,421	$0	$0	$0
641320B018	LOUISIANA	BATON ROUGE	ALL OTHER	ALL OTHER	SOIL GRINDING BLDG 18	1966	360	$86,669	$1,166	$0	$1,166
641320B019	LOUISIANA	BATON ROUGE	WAREHOUSES	SHED, STORAGE	STORAGE SHED SOIL & WATER	1985	120	$12,263	$0	$0	$0
641320B023	LOUISIANA	BATON ROUGE	OFFICE	OFFICE	ADMN OFFICE 23	1993	1,000	$238,150	$1,969	$1,772	$3,741
641320B024	LOUISIANA	BATON ROUGE	WAREHOUSES	CHEMICAL STORAGE	OIL STORAGE BLDG 24	1993	512	$138,782	$0	$0	$0
641330B006	LOUISIANA	BATON ROUGE	ALL OTHER	INSECT FACILITY	BEE MANIPULATION BLDG.	2001	5,000	$606,200	$0	$0	$0
641330B009	LOUISIANA	BATON ROUGE	SERVICE	SHOP	WOODWORKING BLDG 9	1969	800	$112,234	$18,140	$3,031	$21,170
641330B010	LOUISIANA	BATON ROUGE	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 10	1956	240	$24,525	$353	$2,099	$2,453
641330B011	LOUISIANA	BATON ROUGE	LABORATORIES	RESEARCH OFFICE/LABORATORY	LAB/OFFICE 11	1969	6,285	$1,817,899	$105,287	$20,771	$126,058
641330B012	LOUISIANA	BATON ROUGE	ALL OTHER	INSECT FACILITY	HONEY BEE BREEDING STORAGE 12	1969	1,200	$145,488	$11,149	$3,787	$14,936
641330B013	LOUISIANA	BATON ROUGE	ALL OTHER	ALL OTHER	LAB/STORAGE BLDG 13	1974	4,000	$962,992	$299,588	$0	$299,588
641330B022	LOUISIANA	BATON ROUGE	LABORATORIES	LABORATORY	LAB/OFFICE BLDG 22	1978	2,145	$594,731	$4,188	$0	$4,188
642000B001	ALABAMA	AUBURN	OFFICE	OFFICE	OFFICE/SHOP 01	1934	7,106	$1,659,073	$32,134	$75,592	$107,726
642000B002	ALABAMA	AUBURN	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABS/STORAGE, 02	1941	3,109	$881,607	$40,195	$19,332	$59,528
642000B003	ALABAMA	AUBURN	LABORATORIES	RESEARCH OFFICE/LABORATORY	LABS/OFFICE 03	1963	9,746	$2,763,634	$147,723	$13,880	$161,603
642000B004	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	INDOOR SOIL BIN BLDG 04	1963	14,000	$1,402,548	$72,579	$154,359	$226,938
642000B005		Auburn	SERVICE	SHOP	EQUIPMENT SERVICE 05	1966	7,276	$1,000,728	$92,697	$30,406	$123,103
642000B006		Auburn	ALL OTHER	GREENHOUSE	GREENHOUSE 06	1968	558	$104,223	$31,162	$0	$31,162
642000B007	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	EQUIP/STORAGE/SAMPLE PREP	1999	2,800	$280,510	$0	$0	$0
642000B008	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	EQUIP./ STORAGE 08	2004	4,800	$480,874	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
642000B050	ALABAMA	AUBURN	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 50	1971	12,355	$3,503,458	$244,189	$43,026	$287,216
642000B051	ALABAMA	AUBURN	LABORATORIES	LABORATORY	NUTRITION LAB SPACE 51	1973	1,200	$381,031	$29,658	$5,047	$34,705
642000B052	ALABAMA	AUBURN	LABORATORIES	LABORATORY	OUTSIDE WET LAB	1938	195	$61,918	$1,731	$1,677	$3,408
642000B054	ALABAMA	AUBURN	OFFICE	TRAILER, OFFICE	OFFICE TRAILER	1999	1,116	$115,593	$0	$0	$0
642000B055		Auburn	ALL OTHER	ALL OTHER	WET LAB (FISH BLDG) 55	1940	278	$65,614	$40	$19,419	$19,459
642000B056		Auburn	ALL OTHER	ALL OTHER	FISH EXPERIMENT BLDG 56	1940	304	$71,751	$44	$21,235	$21,279
642000B057		Auburn	ALL OTHER	ALL OTHER	FISH EXPERIMENT BLDG 57	1940	304	$71,751	$44	$21,235	$21,279
642000B058		Auburn	ALL OTHER	ALL OTHER	NUTRITION EXPERIMENT 58	1940	400	$94,409	$58	$27,941	$27,999
642000B059		Auburn	ALL OTHER	ALL OTHER	NUTRITION EXPERIMENT (FISH BLDG	1940	400	$94,409	$58	$27,941	$27,999
642000B060		Auburn	ALL OTHER	ALL OTHER	FISH HOLDING BLDG 60	1941	640	$151,054	$93	$44,705	$44,798
642000B061		Auburn	ALL OTHER	ALL OTHER	FISH (STORAGE) BLDG 61	1938	304	$71,751	$44	$21,235	$21,279
642000B062		Auburn	ALL OTHER	ALL OTHER	FISH HOLDING/EXPERIMENT BLDG 6	1938	250	$59,006	$36	$17,463	$17,499
642000B063		Auburn	ALL OTHER	ALL OTHER	FISH HOLDING/EXPERIMENT 63	1938	304	$71,751	$44	$21,235	$21,279
642000B064		Auburn	ALL OTHER	ALL OTHER	FISH EXPERIMENT/ STORAGE BLDG	1938	304	$71,751	$44	$21,235	$21,279
642000B065	ALABAMA	AUBURN	WAREHOUSES	CHEMICAL STORAGE	SHOP	1973	576	$153,065	$552	$0	$552
642000B066		Auburn	ALL OTHER	ALL OTHER	FISH EXPERIMENT BLDG 66	1971	460	$108,570	$2,905	$7,659	$10,564
642000B067		Auburn	ALL OTHER	ALL OTHER	FISH HOLDING BLDG 67	1971	460	$108,570	$2,905	$7,659	$10,564
642000B068		Auburn	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CALF BARN 68	1978	2,000	$309,036	$9,024	$0	$9,024
642000B069		Auburn	ALL OTHER	ANIMAL FACILITY, ALL OTHER	GOAT HOLDING SHED/CORRAL 69	1983	240	$37,084	$1,417	$0	$1,417
642000B070	ALABAMA	AUBURN	ALL OTHER	BARN	HAY BARN (FISH HOLDING) 70	1990	1,200	$120,218	$18,168	$0	$18,168
642000B071	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	STORAGE/SHOP 71	1975	1,200	$120,219	$1,121	$8,439	$9,560
642000B072	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG 72	1975	460	$46,084	$0	$0	$0
642000B073	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	STORAGE 73	1981	1,200	$120,218	$528	$12,312	$12,840
642000B074		Auburn	OFFICE	TRAILER, OFFICE	MODULAR ADMIN. OFFICE BLDG.	2003	1,440	$149,152	$0	$0	$0
642000B65A	ALABAMA	AUBURN	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING	1999	256	$25,647	$0	$0	$0
642000B65B	ALABAMA	AUBURN	WAREHOUSES	CHEMICAL STORAGE	FLAMMABLE LIQUID STRG SHED 65	1981	70	$18,602	$26	$0	$26
643500B001	LOUISIANA	NEW ORLEANS	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE LABORATORY PILOT PLANT	1941	231,611	$56,992,092	$3,852,033	$2,082,466	$5,934,499
643500B002	LOUISIANA	NEW ORLEANS	ALL OTHER	UTILITY BUILDING	SERVICE BLDG/BOILER REFRG PLNT	1941	10,136	$3,651,555	$617,968	$21,081	$639,050
643500B005	LOUISIANA	NEW ORLEANS	WAREHOUSES	HAZMAT FACILITY	RADIOLOGY LAB/MATERIAL SOLVEN	1945	400	$97,685	$269	$24,414	$24,683
643500B013	LOUISIANA	NEW ORLEANS	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE COMPLE	1981	10,210	$1,830,265	$76,024	$6,289	$82,313
643500B014	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	COTTON STORAGE BLDG.	1985	7,200	$735,754	$54,741	$5,515	$60,257
643500B015	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	GREENHOUSE STORAGE	1983	200	$20,438	$34	$0	$34
643500B017	LOUISIANA	NEW ORLEANS	ALL OTHER	WASTE FACILITY	QUONSET HUT WASTE ACCUM. FACI	1988	1,250	$362,948	$3,608	$5,369	$8,977
643500B020	LOUISIANA	NEW ORLEANS	WAREHOUSES	CHEMICAL STORAGE	CYLINDER STORAGE	1988	170	$46,080	$635	$0	$635
643500B021	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG. FSTRU	2000	240	$24,525	$0	$0	$0
643500B022	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	STORAGE BLDG. FSTRU	2000	240	$24,525	$0	$0	$0
643500B023	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	PORTABLE STORAGE BLDG. (FSTRU	2000	120	$12,263	$0	$0	$0
643500B024	LOUISIANA	NEW ORLEANS	LABORATORIES	RESEARCH OFFICE/LABORATORY	TEXTILE BLDG. LABS/OFFICES	1979	30,420	$8,798,802	$915,246	$200,096	$1,115,342
643500B025	LOUISIANA	NEW ORLEANS	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING MORGAN	2002	600	$61,313	$0	$0	$0
644500B001	KENTUCKY	BOWLING GREEN	OFFICE	OFFICE	ADMIN BLDG.	2004	1,440	$360,360	$3,291	$2,961	$6,253
644500B002	KENTUCKY	BOWLING GREEN	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB	2004	2,100	$638,274	$0	$0	$0
644500B003	KENTUCKY	BOWLING GREEN	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB	2004	2,100	$638,274	$0	$0	$0
644500B004	KENTUCKY	BOWLING GREEN	LABORATORIES	LABORATORY	WATER & AIR QUALITY LAB	2005	1,960	$667,066	$0	$0	$0
660200B001	GEORGIA	TIFTON	LABORATORIES	LABORATORY	MAIN LAB/OFFICE 1	1962	19,517	$6,526,626	$1,598,362	$126,954	$1,725,316
660200B002	GEORGIA	TIFTON	SERVICE	SHOP	SHOP/SHED 2	1962	4,352	$630,291	$48,829	$7,074	$55,903
660200B003	GEORGIA	TIFTON	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 3	1962	10,857	$2,009,175	$174,399	$614,926	$789,325
660200B004	GEORGIA	TIFTON	ALL OTHER	INSECT FACILITY	INSECT REARING ANNEX 4	1965	864	$108,138	$48,578	$11,895	$60,473
660200B006	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	SEED/COLD STORAGE 6	2002	1,800	$189,886	$0	$0	$0
660200B007	GEORGIA	TIFTON	WAREHOUSES	CHEMICAL STORAGE	VOLATILE SOLVENT STORAGE SHED	1962	188	$47,010	$123	$11,182	$11,305
660200B008	GEORGIA	TIFTON	LABORATORIES	LABORATORY	INSECTARY/FIELD LAB 8	1965	1,282	$428,644	$26,550	$0	$26,550
660200B013	GEORGIA	TIFTON	ALL OTHER	INSECT FACILITY	INSECT STORAGE 13	1972	800	$100,128	$7,481	$773	$8,254
660200B015	GEORGIA	TIFTON	ALL OTHER	INSECT FACILITY	INSECT REARING 15	1974	4,000	$500,640	$18,088	$3,004	$21,091
660200B016	GEORGIA	TIFTON	OFFICE	OFFICE	SEWRL/TIFTON LAO ADMINISTRATIO	1960	13,040	$3,205,884	$190,601	$28,980	$219,580
660200B017	GEORGIA	TIFTON	LABORATORIES	LABORATORY	SEWRL HYDRAULICS LAB 17	1966	5,022	$1,679,136	$23,115	$29,757	$52,873
660200B018	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	SEWRL DRYING SHED 18	1976	3,200	$337,574	$3,340	$0	$3,340
660200B019	GEORGIA	TIFTON	ALL OTHER	HEADHOUSE/GREENHOUSE	CGBRU PEANUT GREENHOUSE/HEAI	1962	2,120	$392,323	$18,813	$109,852	$128,665
660200B020	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	CGBRU PEANUT GREENHOUSE 20	1968	124	$24,388	$7,946	$0	$7,946
660200B021	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	CGBRU QUONSET HUT 21	1962	960	$101,272	$26,331	$16,017	$42,349
660200B022	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	CGBRU VEHICLE STORAGE BUILDIN	1968	1,800	$189,886	$32,728	$0	$32,728
660200B023	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	CGBRU POTTING SOIL STORAGE 23	1962	216	$22,786	$8,272	$788	$9,061
660200B024	GEORGIA	TIFTON	LABORATORIES	LABORATORY	CGBRU PATHOLOGY LAB 24	1938	2,005	$570,384	$66,776	$26,834	$93,610
660200B025	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	WEED SCIENCE TRACTOR SHED 25	1967	2,160	$227,863	$22,767	$0	$22,767
660200B026	GEORGIA	TIFTON	SERVICE	SHOP	WEED SCIENCE SHOP 26	1963	960	$139,035	$14,599	$1,045	$15,644
660200B027	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	WEED SCIENCE GREENHOUSE 27	1964	2,520	$495,634	$387	$150,836	$151,224
660200B028	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	GREEHOUSE 28	1967	4,650	$914,562	$264,321	$325,430	$589,751
660200B030	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	GREENHOUSE 30	1968	1,872	$368,185	$135	$0	$135
660200B031	GEORGIA	TIFTON	LABORATORIES	LABORATORY	PEANUT RESIDUE LAB 31	1956	2,588	$868,749	$45,463	$4,185	$49,648
660200B032	GEORGIA	TIFTON	LABORATORIES	LABORATORY	BIOLOGICAL CONTROL LAB 32	1967	4,200	$1,404,295	$19,332	$24,887	$44,218
660200B033	GEORGIA	TIFTON	OFFICE	OFFICE	SEWRL OFFICE BLDG 33	1967	2,800	$688,380	$103,784	$16,316	$120,100
660200B034	GEORGIA	TIFTON	ALL OTHER	ALL OTHER	SEWRL RAINFALL SIMULATION BLDG	1968	1,200	$298,238	$3,948	$0	$3,948
660200B035	GEORGIA	TIFTON	OFFICE	OFFICE	SEWRL OFFICE BLDG 35	1967	2,400	$590,040	$88,957	$13,985	$102,943

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
660200B036	GEORGIA	TIFTON	LABORATORIES	LABORATORY	SEWRL SOIL PROCESSING LAB 36	1968	400	$133,742	$12,149	$0	$12,149
660200B037	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	SEWRL STORAGE SHED 37	1968	800	$84,394	$4,957	$2,473	$7,430
660200B039	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	NEMATOLOGY GREENHOUSE 39	1965	3,360	$660,845	$190,993	$235,149	$426,143
660200B040	GEORGIA	TIFTON	ALL OTHER	ALL OTHER	CGBRU SHELTER AT GIBBS FARM 40	1970	1,275	$316,878	$223	$0	$223
660200B041	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	CGBRU PEANUT GREENHOUSE 41	1965	2,697	$530,446	$153,306	$188,749	$342,056
660200B042	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	CGBRU PATHOLOGY GREENHOUSE -	1938	1,680	$330,422	$256	$100,558	$100,816
660200B043	GEORGIA	TIFTON	LABORATORIES	LABORATORY	SEWRL WATER QUALITY LAB 43	1981	3,000	$1,003,069	$4,773	$8,498	$13,271
660200B044	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	SEWRL EQUIPMENT STORAGE SHEC	1982	2,880	$303,817	$4,233	$0	$4,233
660200B049	GEORGIA	TIFTON	ALL OTHER	ALL OTHER	CPMRU SHELTER AT BELLFLOWER F	1982	1,132	$281,338	$6,712	$0	$6,712
660200B050	GEORGIA	TIFTON	SERVICE	SHOP	CPMRU SHOP/ SHED AT BELLFLOWE	1982	1,200	$173,794	$5,071	$0	$5,071
660200B053	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	STORAGE SHED 53	1982	720	$75,954	$0	$0	$0
660200B054	GEORGIA	TIFTON	LABORATORIES	LABORATORY	SEWRL PESTICIDE LAB 54	1988	2,750	$919,479	$8,363	$12,444	$20,807
660200B055	GEORGIA	TIFTON	LABORATORIES	LABORATORY	SEWRL PESTICIDE LAB 55	1988	2,040	$682,086	$6,204	$9,231	$15,435
660200B056	GEORGIA	TIFTON	ALL OTHER	ALL OTHER	CGBRU SHELTER AT HOC RED TOP E	1989	3,600	$894,715	$21,347	$0	$21,347
660200B057	GEORGIA	TIFTON	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE BUILDING CPM	1995	1,300	$363,769	$0	$0	$0
660200B059	GEORGIA	TIFTON	WAREHOUSES	HAZMAT FACILITY	HAZARDOUS WASTE STORAGE BLDC	2000	477	$120,256	$0	$0	$0
660200B060	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	CGBRU STORAGE/POTTING BLDG 60	2002	1,100	$116,041	$0	$0	$0
660200B061	GEORGIA	TIFTON	ALL OTHER	ALL OTHER	CGBRU COLD STORAGE 61	2002	900	$223,679	$0	$0	$0
660200B062	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	CGBRU FORAGE-TURF RESEARCH 6:	1989	2,400	$253,181	$19,898	$2,005	$21,903
660200B065	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHELTER 65	1994	7,500	$791,190	$0	$0	$0
660200B066	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED 66	2005	240	$25,318	$0	$0	$0
660200B067	GEORGIA	TIFTON	WAREHOUSES	SHED, STORAGE	EQUIPMENT SHED/SHELTER 67	2006	720	$75,954	$0	$0	$0
660200B068	GEORGIA	TIFTON	WAREHOUSES	STORAGE BUILDING	COLD STORAGE 68	2005	1,196	$126,168	$0	$0	$0
660400B001	GEORGIA	DAWSON	LABORATORIES	LABORATORY	NPRL MAIN BUILDING 1	1969	13,436	$4,266,279	$332,072	$56,505	$388,577
660400B002	GEORGIA	DAWSON	SERVICE	ALL OTHER	SHELLING PLANT 2	1970	11,136	$2,297,435	$168,526	$66,305	$254,831
660400B003	GEORGIA	DAWSON	SERVICE	SHOP	MACHINE SHOP 3	1969	2,560	$352,097	$42,110	$7,035	$49,145
660400B004	GEORGIA	DAWSON	LABORATORIES	LABORATORY	SEED LAB/SHOP 4	1973	4,700	$1,492,372	$116,161	$19,766	$135,927
660400B005	GEORGIA	DAWSON	LABORATORIES	LABORATORY	BIOASSAY LAB 5	1967	480	$152,412	$10,256	$0	$10,256
660400B007	GEORGIA	DAWSON	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED (STRUCTURE) 7	1996	2,400	$240,437	$0	$0	$0
660400B008	GEORGIA	DAWSON	WAREHOUSES	SHED, STORAGE	PLOT SHED 8	1979	1,200	$120,218	$1,152	$0	$1,152
660400B011	GEORGIA	DAWSON	OFFICE	OFFICE	TECHNICIANS OFFICES 11	1988	1,920	$448,272	$23,327	$3,508	$26,835
660400B012	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE STORAGE 12	1986	615	$91,712	$3,897	$394	$4,190
660400B021	GEORGIA	DAWSON	ALL OTHER	HAZMAT FACILITY	HAZARDOUS CHEMICAL WASTE 21	1995	184	$44,053	$3	$190	$193
660400B022	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE/VEHICLE STORAGE 22	2000	5,250	$525,956	$0	$0	$0
660400B025	GEORGIA	DAWSON	WAREHOUSES	SHED, STORAGE	MAINTENANCE SHED (STRUCTURE) :	1974	317	$31,758	$482	$0	$482
660400B026	GEORGIA	DAWSON	WAREHOUSES	STORAGE BUILDING	STORAGE/OFC/EQUIP	2003	2,000	$200,364	$0	$0	$0
660400B027	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	DOME WAREHOUSE 1	2004	96	$9,617	$0	$0	$0
660400B028	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	DOME WAREHOUSE 2	2004	96	$9,617	$0	$0	$0
660400B029	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	DOME WAREHOUSE 3	2004	96	$9,617	$0	$0	$0
660400B030	GEORGIA	DAWSON	WAREHOUSES	STORAGE WAREHOUSE	DOME WAREHOUSE 4	2004	96	$9,617	$0	$0	$0
660605B001	GEORGIA	BYRON	LABORATORIES	LABORATORY	MAIN LABORATORY	1965	30,038	$10,043,386	$2,459,988	$195,391	$2,655,379
660605B002	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	GREENHOUSE RANGE #1	1967	2,070	$407,128	$150	$0	$150
660605B003	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	GREENHOUSE RANGE #2	1967	2,075	$408,111	$150	$0	$150
660605B004	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	GREENHOUSE RANGE #3	1967	2,075	$408,111	$150	$0	$150
660605B005	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	GREENHOUSE RANGE #4	1969	2,075	$408,111	$150	$0	$150
660605B006	GEORGIA	BYRON	ALL OTHER	HEADHOUSE	NORTH HEADHOUSE	1972	3,200	$583,578	$73,048	$2,140	$75,188
660605B007	GEORGIA	BYRON	ALL OTHER	HEADHOUSE	WEST HEADHOUSE	1969	1,500	$284,177	$34,241	$1,003	$35,244
660605B008	GEORGIA	BYRON	ALL OTHER	INSECT FACILITY	INSECT REARING	1969	2,250	$291,610	$20,954	$0	$20,954
660605B009	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	ENTOMOLOGY GREENHOUSE #1 EAS	1967	168	$33,042	$8,779	$0	$8,779
660605B00A	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	PECAN UNIT STORAGE SHED/OAK GI	1975	90	$9,494	$184	$0	$184
660605B00B	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	PECAN UNIT STORAGE SHED/OAK TI	1975	90	$9,494	$184	$0	$184
660605B00C	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	FRUIT UNIT STORAGE SHED/NURSEI	1975	90	$9,494	$184	$0	$184
660605B00E	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	FRUIT UNIT STORAGE SHED/NURSEI	1975	135	$14,241	$275	$0	$275
660605B00F	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	FRUIT/NUT UNIT STORAGE SHED/OLI	1975	135	$14,241	$275	$0	$275
660605B010	GEORGIA	BYRON	ALL OTHER	GREENHOUSE	NEMATOLOGY GREENHOUSE #1/EAS	1967	168	$33,042	$8,779	$0	$8,779
660605B013	GEORGIA	BYRON	SERVICE	SHOP	PRIMARY SHOP	1971	4,000	$579,312	$18,200	$45,114	$63,315
660605B014	GEORGIA	BYRON	SERVICE	SHOP	SECONDARY SHOP	1973	4,000	$579,312	$23,604	$19,625	$43,229
660605B015	GEORGIA	BYRON	OFFICE	OFFICE	FARM CENTER OFFICE	1967	1,280	$309,771	$46,703	$7,342	$54,045
660605B016	GEORGIA	BYRON	SERVICE	SHOP	FARM CENTER SHOP	1966	2,276	$329,829	$39,833	$13,066	$52,899
660605B017	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	IMPLEMENT STORAGE SHED	1967	6,200	$654,050	$65,351	$0	$65,351
660605B018	GEORGIA	BYRON	WAREHOUSES	SHED, STORAGE	IMPLEMENT STORAGE SHED	1967	4,840	$510,581	$51,016	$0	$51,016
660605B019	GEORGIA	BYRON	WAREHOUSES	STORAGE BUILDING	MISC. STORAGE BUILDING	1972	960	$101,272	$10,454	$1,960	$12,414
660605B020	GEORGIA	BYRON	WAREHOUSES	CHEMICAL STORAGE	FERTILIZER STORAGE BUILDING	1961	960	$268,829	$705	$63,896	$64,600
660605B021	GEORGIA	BYRON	SERVICE	FILLING STATION, SERVICE	GASOLINE PUMP HOUSE	1971	144	$22,271	$655	$1,624	$2,279
660605B023	GEORGIA	BYRON	SERVICE	ALL OTHER	PECAN SHELLING PLANT	1974	2,400	$521,381	$55,815	$19,630	$75,445
660605B027	GEORGIA	BYRON	SERVICE	PUMPHOUSE, SERVICE	WELL PUMPHOUSE	1975	78	$31,868	$2,401	$825	$3,226
660605B24A	GEORGIA	BYRON	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE	1992	1,132	$316,759	$0	$0	$0
660700B001	GEORGIA	GRIFFIN	SERVICE	SHOP	SHOP/STORAGE 1	1972	1,920	$278,070	$18,628	$1,398	$20,026
660700B002	GEORGIA	GRIFFIN	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1977	500	$98,340	$47	$0	$47
660700B003	GEORGIA	GRIFFIN	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1977	500	$98,340	$47	$0	$47
660700B004	GEORGIA	GRIFFIN	OFFICE	OFFICE	SEED PROCESSING BUILDING 4	1979	2,400	$590,040	$9,390	$2,095	$11,485

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
660700B005	GEORGIA	GRIFFIN	ALL OTHER	GREENHOUSE	GREENHOUSE 5	1988	4,158	$817,795	$59,948	$172,176	$232,125
660700B006	GEORGIA	GRIFFIN	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1988	7,326	$1,440,878	$24,958	$0	$24,958
660700B007	GEORGIA	GRIFFIN	ALL OTHER	HEADHOUSE	HEADHOUSE 7	1990	4,725	$832,158	$12,872	$58,931	$71,803
660700B008	GEORGIA	GRIFFIN	ALL OTHER	SCREENHOUSE	SCREENHOUSE 8	1989	3,200	$397,651	$0	$0	$0
660700B009	GEORGIA	GRIFFIN	WAREHOUSES	STORAGE BUILDING	METAL BUILDING 9	1989	2,000	$210,984	$16,582	$1,671	$18,253
660700B010	GEORGIA	GRIFFIN	WAREHOUSES	STORAGE BUILDING	SEED STORAGE 10	1990	3,150	$332,300	$28,116	$2,631	$28,748
661200B001	GEORGIA	ATHENS	LABORATORIES	LABORATORY	LABORATORY 1	1969	302,306	$101,077,825	$5,579,943	$6,501,287	$12,081,230
661200B002	GEORGIA	ATHENS	SERVICE	SHOP	SERVICE BUILDING 2	1969	30,346	$4,384,950	$1,304,710	$54,169	$1,358,879
661200B003	GEORGIA	ATHENS	WAREHOUSES	CHEMICAL STORAGE	SOLVENT EXTRACTION BUILDING 3	1971	1,078	$301,648	$26,199	$0	$26,199
661200B004	GEORGIA	ATHENS	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE BUILDING 4	1971	795	$222,458	$19,321	$0	$19,321
661200B007	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	EGG BUILDING 7	1982	496	$52,324	$92	$0	$92
661200B008	GEORGIA	ATHENS	ALL OTHER	GREENHOUSE	GREENHOUSE 8	1983	1,800	$354,024	$55,409	$0	$55,409
661200B009	GEORGIA	ATHENS	ALL OTHER	GREENHOUSE	GREENHOUSE 9	1983	1,800	$354,024	$55,409	$0	$55,409
661200B010	GEORGIA	ATHENS	ALL OTHER	UTILITY BUILDING	BOILER HOUSE 10	1983	144	$53,554	$4,105	$1,410	$5,516
661200B011	GEORGIA	ATHENS	WAREHOUSES	SHED, STORAGE	STORAGE SHED 11	1984	500	$52,746	$0	$0	$0
661200B012	GEORGIA	ATHENS	ALL OTHER	ALL OTHER	SMOKING HOUSE 12	2002	128	$31,812	$0	$0	$0
661200B013	GEORGIA	ATHENS	ALL OTHER	ALL OTHER	GUARD HOUSE 13	2001	36	$8,947	$0	$0	$0
661200B014	GEORGIA	ATHENS	ALL OTHER	HAZMAT FACILITY	HAZARDOUS WASTE DISPOSAL 14	2001	500	$126,054	$9	$592	$600
661200B015	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	ANIMAL BUILDING 15	2002	4,000	$650,832	$0	$0	$0
661200B016	GEORGIA	ATHENS	ALL OTHER	WASTE FACILITY	WASTE TREATMENT 16	2002	480	$155,771	$1,407	$2,094	$3,501
661200B033	GEORGIA	WATKINSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY BUILDING 33	2000	8,000	$1,301,664	$0	$0	$0
661246B001	GEORGIA	ATHENS	LABORATORIES	CONTAINMENT FACILITY	ISOLATION LABORATORY 1	1963	1,024	$456,813	$100,854	$1,825	$102,679
661246B002	GEORGIA	ATHENS	LABORATORIES	LABORATORY	ANIMAL RESEARCH 2	1963	1,376	$460,074	$78,162	$1,166	$79,328
661246B003	GEORGIA	ATHENS	LABORATORIES	CONTAINMENT FACILITY	ISOLATION LABORATORY 3	1963	1,024	$456,813	$100,854	$1,825	$102,679
661246B004	GEORGIA	ATHENS	LABORATORIES	CONTAINMENT FACILITY	ISOLATION LABORATORY 4	1963	1,024	$456,813	$100,854	$1,825	$102,679
661246B005	GEORGIA	ATHENS	LABORATORIES	LABORATORY	ANIMAL RESEARCH 5	1963	1,376	$460,074	$46,332	$1,166	$47,498
661246B006	GEORGIA	ATHENS	LABORATORIES	LABORATORY	ANIMAL RESEARCH 6	1963	1,024	$342,381	$74,766	$1,166	$75,932
661246B007	GEORGIA	ATHENS	LABORATORIES	CONTAINMENT FACILITY	ISOLATION LABORATORY 7	1963	2,560	$1,142,031	$166,395	$1,166	$167,561
661246B008	GEORGIA	ATHENS	LABORATORIES	LABORATORY	ANIMAL RESEARCH 8	1963	2,560	$855,951	$1,108	$0	$1,108
661246B009	GEORGIA	ATHENS	OFFICE	OFFICE	OFFICE/CONFERENCE ROOM 9	1963	4,224	$1,038,470	$55,157	$24,301	$79,458
661246B010	GEORGIA	ATHENS	SERVICE	SHOP	STORAGE/SHOP 10	1965	3,315	$480,105	$58,017	$19,031	$77,047
661246B012	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	EQUIPMENT/SUPPLIES STORAGE H5	1963	2,592	$273,435	$18,027	$38,340	$56,367
661246B013	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY REARING 13	1963	2,592	$421,739	$7,114	$0	$7,114
661246B014	GEORGIA	ATHENS	SERVICE	SHOP	SHOP/EQUIPMENT STORAGE 14	1963	2,592	$375,394	$39,418	$2,821	$42,238
661246B015	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY REARING HOUSE 15	1963	2,592	$421,739	$556	$3,933	$4,489
661246B016	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY REARING HOUSE 16	1964	2,520	$410,024	$140,328	$34,693	$175,021
661246B017	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	POULTRY REARING HOUSE 17	1964	2,520	$410,024	$140,328	$34,693	$175,021
661246B019	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 19	1964	1,200	$126,590	$6,717	$13,197	$19,914
661246B020	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	RABBIT/MOUSE HOLDING HOUSE 20	1963	386	$62,805	$21,703	$5,314	$27,017
661246B021	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	CAGE STORAGE 21	1963	386	$40,720	$10,587	$6,440	$17,028
661246B022	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	RECORDS HOLDING 22	1963	196	$20,676	$7,506	$715	$8,222
661246B023	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	RECORDS HOLDING 23	1963	196	$20,676	$7,346	$715	$8,061
661246B024	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	RECORDS HOLDING 24	1963	196	$20,676	$7,506	$715	$8,222
661246B025	GEORGIA	ATHENS	ALL OTHER	HAZMAT FACILITY	HAZARDOUS WASTE HOLDING	1963	196	$49,413	$15,702	$308	$16,009
661246B029	GEORGIA	ATHENS	LABORATORIES	LABORATORY	SEQUENCING LAB 29	1967	1,551	$318,586	$32,121	$0	$32,121
661246B030	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	INCUBATOR/HATCHING BLGG 30	1964	936	$152,295	$52,626	$12,886	$65,512
661246B031	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BROODING BLDG 31	1964	936	$152,295	$52,122	$12,886	$65,008
661246B032	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BROODING BLDG. 32	1964	936	$152,295	$52,122	$12,886	$65,008
661246B033	GEORGIA	ATHENS	ALL OTHER	ANIMAL FACILITY, ALL OTHER	BROODING BLDG 33	1964	936	$152,295	$52,122	$12,886	$65,008
661246B034	GEORGIA	ATHENS	LABORATORIES	CONTAINMENT FACILITY	NEWCASTLE DISEASE RES BLDG 34	1975	4,674	$2,085,099	$94,795	$0	$94,795
661246B035	GEORGIA	ATHENS	LABORATORIES	LABORATORY	MAIN LAB-OFFICES 35	1963	13,815	$4,619,128	$1,131,391	$89,864	$1,221,255
661246B036	GEORGIA	ATHENS	WAREHOUSES	STORAGE BUILDING	FEED STORAGE 36	1978	120	$12,659	$345	$0	$345
661246B037	GEORGIA	ATHENS	ALL OTHER	WASTE FACILITY	SEWAGE DECONAMINATION BLDG 3	1999	2,800	$908,662	$8,209	$12,215	$20,425
661246B038	GEORGIA	ATHENS	LABORATORIES	TRAILER, LABORATORY	LAB TRAILER 38 (40)	1999	720	$182,805	$449	$3,341	$3,790
661246B040	GEORGIA	ATHENS	LABORATORIES	LABORATORY	MODULAR LABORATORY 40 (38)	2003	2,688	$896,749	$0	$0	$0
661246B041	GEORGIA	ATHENS	OFFICE	TRAILER, OFFICE	OFFICE TRAILER 41	2003	840	$91,617	$0	$0	$0
661305B001	GEORGIA	WATKINSVILLE	LABORATORIES	LABORATORY	LAB/OFC 1	1960	10,802	$3,611,714	$182,698	$16,816	$199,514
661305B002	GEORGIA	WATKINSVILLE	OFFICE	OFFICE	OFFICEC/HH/GH 2	1968	8,690	$2,136,437	$322,100	$50,639	$372,739
661305B003	GEORGIA	WATKINSVILLE	SERVICE	ALL OTHER	CROPS PROCESSING & DRYING 3	1960	2,400	$521,381	$55,815	$19,630	$75,445
661305B005	GEORGIA	WATKINSVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE 5	1940	3,948	$416,482	$5,034	$6,122	$11,156
661305B006	GEORGIA	WATKINSVILLE	SERVICE	SHOP	MACHINE SHED 6	1960	3,808	$551,505	$49,687	$4,943	$54,630
661305B008	GEORGIA	WATKINSVILLE	WAREHOUSES	STORAGE BUILDING	ANIMAL FEED STORAGE 8	1960	1,344	$141,781	$7,386	$3,952	$11,338
661305B010	GEORGIA	WATKINSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	STORAGE & CATTLE SHELTER 10	1960	2,400	$390,499	$27,519	$861	$28,380
661305B012	GEORGIA	WATKINSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	STORAGE & CATTLE SHELTER 12	1960	2,400	$390,499	$27,519	$861	$28,380
661305B013	GEORGIA	WATKINSVILLE	SERVICE	SHOP	SHOP 13	1966	4,000	$579,312	$70,005	$22,963	$92,968
661305B014	GEORGIA	WATKINSVILLE	LABORATORIES	LABORATORY	CONSERVATION TILLAGE LAB 14	1966	1,740	$581,779	$36,035	$0	$36,035
661305B015	GEORGIA	WATKINSVILLE	WAREHOUSES	SHED, STORAGE	MACHINE SHED 15	1960	2,304	$243,054	$40,714	$10,275	$50,989
661305B016	GEORGIA	WATKINSVILLE	LABORATORIES	LABORATORY	ENGINEERING LAB 16	1966	4,000	$1,337,424	$18,411	$23,702	$42,113
661305B018	GEORGIA	WATKINSVILLE	LABORATORIES	LABORATORY	HYDRAULIC LAB 18	1966	4,000	$1,337,424	$18,411	$23,702	$42,113
661305B019	GEORGIA	WATKINSVILLE	LABORATORIES	LABORATORY	DAIRY CROPS UNIT 19	1966	4,000	$1,337,424	$18,411	$23,702	$42,113
661305B027	GEORGIA	WATKINSVILLE	ALL OTHER	BARN	FESCUE POLE BARN 27	1983	300	$31,648	$5,212	$0	$5,212

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
661305B032	GEORGIA	WATKINSVILLE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE BUILDING 32	1988	380	$100,736	$1,467	$0	$1,467
661500B001	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	NORTH LABORATORY 1	1963	27,347	$8,233,361	$1,947,058	$154,660	$2,101,708
661500B002	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	STORAGE/CARPORT 2	1963	5,000	$474,960	$29,545	$62,837	$92,382
661500B003	FLORIDA	GAINESVILLE	ALL OTHER	INSECT FACILITY	FLY COLONY BUILDING 3	1963	1,800	$202,860	$93,533	$23,124	$116,657
661500B004	FLORIDA	GAINESVILLE	WAREHOUSES	HAZMAT FACILITY	COBALT BUILDING 4	1963	374	$84,902	$233	$21,149	$21,383
661500B005	FLORIDA	GAINESVILLE	ALL OTHER	HAZMAT FACILITY	HAZARDOUS WASTE BUILDING 5	1963	400	$90,804	$29,902	$586	$30,488
661500B006	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	QUARANTINE/GENETICS LAB 6	1964	2,992	$900,801	$1,126	$0	$1,126
661500B008	FLORIDA	GAINESVILLE	OFFICE	OFFICE	FIRE ANT OFFICE 8	1968	1,800	$398,475	$54,660	$8,593	$63,253
661500B009	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	FIRE ANT LABORATORY 9	1971	1,800	$541,926	$74,732	$46,424	$121,157
661500B010	FLORIDA	GAINESVILLE	ALL OTHER	INSECT FACILITY	MOSQUITO COLONY BUILDING 10	1971	1,800	$202,860	$15,642	$0	$15,642
661500B011	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	SOUTH LABORATORY 11	1969	50,471	$15,195,304	$1,541,570	$262,310	$1,803,880
661500B012	FLORIDA	GAINESVILLE	SERVICE	SHOP	MAINTENANCE SHOP 12	1969	5,717	$745,554	$124,555	$20,809	$145,364
661500B013	FLORIDA	GAINESVILLE	ALL OTHER	HEADHOUSE/GREENHOUSE	GREENHOUSE/HEADHOUSE 13	1969	4,661	$776,686	$69,865	$246,344	$316,209
661500B014	FLORIDA	GAINESVILLE	OFFICE	OFFICE	SAFETY OFFICE 14	1974	1,800	$398,475	$54,660	$8,593	$63,253
661500B017	FLORIDA	GAINESVILLE	ALL OTHER	INSECT FACILITY	INSECT COLONY STORAGE 17	1975	4,000	$450,800	$16,879	$2,803	$19,681
661500B019	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PORTATRONIC SHELTER 19	1976	80	$7,599	$196	$0	$196
661500B01F	FLORIDA	TALLAHASSEE	LABORATORIES	LABORATORY	LABORATORY	2000	1,440	$407,151	$0	$0	$0
661500B020	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PORTATRONIC SHELTER 20	1976	80	$7,599	$196	$0	$196
661500B021	FLORIDA	GAINESVILLE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE/WASTE 21	1977	334	$84,156	$6,897	$0	$6,897
661500B023	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PORTATRONIC SHELTER 23	1976	80	$7,599	$196	$0	$196
661500B025	FLORIDA	GAINESVILLE	OFFICE	OFFICE	OFFICE BUILDING 25	1978	1,685	$373,017	$5,401	$1,205	$6,606
661500B026	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	LABORATORY/OFFICE BUILDING 26	1978	2,048	$616,591	$3,772	$0	$3,772
661500B027	FLORIDA	GAINESVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	SMALL ANIMAL BUILDING 27	1982	512	$75,013	$3,237	$0	$3,237
661500B029	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	PATHOLOGY LABORATORY 29	1982	2,160	$650,311	$2,988	$5,319	$8,307
661500B02F	FLORIDA	TALLAHASSEE	LABORATORIES	LABORATORY	LABORATORY	2000	1,440	$407,151	$0	$0	$0
661500B030	FLORIDA	GAINESVILLE	OFFICE	OFFICE	ADMINISTRATIVE OFFICE 30	1982	3,569	$790,087	$11,440	$2,553	$13,993
661500B031	FLORIDA	GAINESVILLE	LABORATORIES	TRAILER, LABORATORY	MODULAR OFFICE/LAB 31	1984	1,536	$351,160	$43,589	$9,530	$53,119
661500B032	FLORIDA	GAINESVILLE	LABORATORIES	TRAILER, LABORATORY	MODULAR OFFICE/LAB 32	1984	1,536	$351,160	$43,589	$9,530	$53,119
661500B033	FLORIDA	GAINESVILLE	WAREHOUSES	TRAILER, STORAGE	STORAGE TRAILER (FEMA) 33	1998	720	$70,711	$0	$0	$0
661500B034	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	FIREANT LAB 34	1990	936	$281,802	$2,475	$3,682	$6,157
661500B035	FLORIDA	GAINESVILLE	ALL OTHER	INSECT FACILITY	COCKROACH CONTROL ROOM 35	1993	140	$15,778	$393	$0	$393
661500B036	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	FIREANT LAB 36	1993	1,040	$313,113	$2,750	$4,091	$6,841
661500B037	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	FIREANT LAB 37	1993	1,040	$313,113	$2,750	$4,091	$6,841
661500B038	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PREFAB METAL BUILDING 38	1996	360	$34,196	$0	$0	$0
661500B039	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PREFAB METAL BUILDING 39	1996	360	$34,196	$0	$0	$0
661500B03F	FLORIDA	TALLAHASSEE	LABORATORIES	LABORATORY	LABORATORY	2000	1,440	$407,151	$0	$0	$0
661500B040	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PREFAB METAL BUILDING 40	1996	360	$34,196	$0	$0	$0
661500B041	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	PORTATRONIC SHELTER 41	1976	80	$17,903	$7	$0	$7
661500B042	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	PORTATRONIC SHELTER 42	1976	80	$17,903	$7	$0	$7
661500B043	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	PORTATRONIC SHELTER 43	1976	80	$17,903	$7	$0	$7
661500B044	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	PORTATRONIC SHELTER 44	1976	80	$17,903	$7	$0	$7
661500B045	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	PORTATRONIC SHELTER 45	1976	80	$17,903	$7	$0	$7
661500B046	FLORIDA	GAINESVILLE	ALL OTHER	ALL OTHER	WALK-IN COLDROOM 46	1996	80	$17,903	$18	$8,476	$8,494
661500B047	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	METAL EXPERIMENT BUILDING 47	2000	240	$72,257	$0	$0	$0
661500B048	FLORIDA	GAINESVILLE	LABORATORIES	LABORATORY	METAL EXPERIMENT BUILDING 48	2000	240	$72,257	$0	$0	$0
661500B049	FLORIDA	GAINESVILLE	WAREHOUSES	STORAGE BUILDING	PREFAB METAL BUILDING 49	1996	240	$22,768	$0	$0	$0
661500B04F	FLORIDA	TALLAHASSEE	LABORATORIES	LABORATORY	LABORATORY	2000	1,440	$407,151	$0	$0	$0
661500B064	FLORIDA	TALLAHASSEE	ALL OTHER	GREENHOUSE	GREENHOUSE	2004	864	$143,700	$0	$0	$0
661500B065	FLORIDA	TALLAHASSEE	ALL OTHER	GREENHOUSE	GREENHOUSE	2004	864	$143,700	$0	$0	$0
661800B001	FLORIDA	FT PIERCE	LABORATORIES	LABORATORY	LAB/OFFICE BUILDING 1	1999	176,235	$57,211,521	$0	$0	$0
661800B002	FLORIDA	FT PIERCE	LABORATORIES	LABORATORY	INSECTARY/MECH PLANT BLDG 2	1999	10,301	$3,344,034	$0	$0	$0
661800B003	FLORIDA	FT PIERCE	ALL OTHER	GREENHOUSE	GREENHOUSES 3	1999	46,760	$8,933,109	$0	$0	$0
661800B004	FLORIDA	FT PIERCE	WAREHOUSES	HAZMAT FACILITY	HAZMATERIAL BUILDING 4	1999	1,344	$328,979	$0	$0	$0
661800B005	FLORIDA	FT PIERCE	SERVICE	SHOP	SHOP BUILDING 5	1999	3,600	$506,218	$444	$0	$444
661800B101	FLORIDA	FT PIERCE	SERVICE	SHOP	OFFICE/SHOP/STORAGE 1	1999	3,842	$540,247	$474	$0	$474
661800B102	FLORIDA	FT PIERCE	WAREHOUSES	STORAGE BUILDING	GENERATOR ROOM/STORAGE 2	1999	2,563	$262,513	$0	$0	$0
661800B103	FLORIDA	FT PIERCE	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE/FERTILIZER STORAGE 3	1999	1,766	$479,794	$0	$0	$0
661800B104	FLORIDA	FT PIERCE	ALL OTHER	GREENHOUSE	GREENHOUSE 4	1999	900	$171,864	$0	$0	$0
661800B105	FLORIDA	FT PIERCE	SERVICE	PUMPHOUSE, SERVICE	PUMP SHELTERS 5-13	1999	900	$357,008	$0	$0	$0
661800B201	FLORIDA	GROVELAND	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE/OFFICE BLDG. 1	1963	2,880	$290,223	$16,091	$34,222	$50,313
661800B202	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1962	812	$152,559	$39,531	$0	$39,531
661800B203	FLORIDA	GROVELAND	WAREHOUSES	STORAGE BUILDING	MACHINE STORAGE BUILDING	1962	1,000	$100,772	$22,034	$13,403	$35,438
661800B204	FLORIDA	GROVELAND	WAREHOUSES	CHEMICAL STORAGE	FERTILIZER HOUSE 4	1966	720	$192,457	$425	$38,497	$38,922
661800B205	FLORIDA	GROVELAND	WAREHOUSES	SHED, STORAGE	MACHINE STORAGE SHED 5	1966	1,200	$120,926	$10,161	$0	$10,161
661800B206	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 6	1967	612	$114,983	$29,368	$0	$29,368
661800B207	FLORIDA	GROVELAND	ALL OTHER	SCREENHOUSE	SCREENHOUSE 7	1967	1,800	$213,671	$344	$0	$344
661800B208	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 8	1971	708	$133,019	$12	$128,455	$128,467
661800B211	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 11	1979	2,160	$405,821	$22,071	$139,285	$161,356
661800B212	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 12	1979	2,160	$405,821	$22,071	$139,285	$161,356
661800B217	FLORIDA	GROVELAND	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING	1978	1,440	$145,112	$4,445	$0	$4,445
661800B218	FLORIDA	GROVELAND	ALL OTHER	GREENHOUSE	GREENHOUSE 18	2005	1,104	$207,420	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
661800B219	GEORGIA	TIFTON	ALL OTHER	GREENHOUSE	GREENHOUSE 19	2005	1,104	$217,135	$0	$0	$0
661900B001	FLORIDA	BROOKSVILLE	OFFICE	OFFICE	OLD OFFICE	1938	1,440	$343,332	$16,527	$8,551	$25,078
661900B003	FLORIDA	BROOKSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE 3	1932	1,274	$223,121	$2,279	$18,653	$20,933
661900B004	FLORIDA	BROOKSVILLE	FAMILY HOUSING	RESIDENCE	RESIDENCE 4	1973	1,418	$248,340	$3,439	$7,962	$11,402
661900B005	FLORIDA	BROOKSVILLE	ALL OTHER	ALL OTHER	GERMPLASM REPOSITORY 5	1932	575	$138,590	$90	$43,062	$43,152
661900B006	FLORIDA	BROOKSVILLE	WAREHOUSES	SHED, STORAGE	GARAGE AND SHED 6	1932	910	$93,098	$4,592	$9,152	$13,744
661900B007	FLORIDA	BROOKSVILLE	WAREHOUSES	GARAGE	GARAGE 7	1932	398	$39,827	$0	$9,577	$9,577
661900B008	FLORIDA	BROOKSVILLE	ALL OTHER	ALL OTHER	FEED MIXER BARN 8	1935	1,505	$362,744	$54,550	$6,425	$60,975
661900B009	FLORIDA	BROOKSVILLE	WAREHOUSES	BARN, STORAGE	MECHANIC SHOP 9	1938	1,302	$130,945	$0	$12,696	$12,696
661900B010	FLORIDA	BROOKSVILLE	WAREHOUSES	SHED, STORAGE	LUMBER SHED 10	1938	1,323	$135,351	$0	$12,901	$12,901
661900B012	FLORIDA	BROOKSVILLE	WAREHOUSES	SHED, STORAGE	FEED ROOM 12	1968	600	$61,384	$2,836	$1,415	$4,250
661900B013	FLORIDA	BROOKSVILLE	WAREHOUSES	SHED, STORAGE	HAY AND FERTILIZER SHED 13	1958	2,400	$245,534	$32,346	$8,163	$40,509
661900B014	FLORIDA	BROOKSVILLE	ALL OTHER	ANIMAL FACILITY, ALL OTHER	CATTLE BARN 14	1935	11,000	$1,735,734	$113,798	$119,734	$233,532
661900B017	FLORIDA	BROOKSVILLE	SERVICE	SHOP	CARPENTER SHOP 17	1938	1,200	$168,545	$12,125	$13,324	$25,449
661900B018	FLORIDA	BROOKSVILLE	WAREHOUSES	SHED, STORAGE	MACHINERY SHED 18	1935	3,216	$329,016	$0	$31,360	$31,360
661900B021	FLORIDA	BROOKSVILLE	ALL OTHER	ALL OTHER	ASSEMBLY HALL 21	1936	980	$236,205	$35,521	$4,183	$39,704
661900B025	FLORIDA	BROOKSVILLE	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE 25	1933	216	$85,583	$10,992	$2,394	$13,386
661900B027	FLORIDA	BROOKSVILLE	DORMITORIES/BARRACKS	DORMITORIES/BARRACKS	GUEST QUARTERS 27	1935	672	$119,438	$4,467	$9,379	$13,845
661900B028	FLORIDA	BROOKSVILLE	SERVICE	SHOP	SHOP/MACHINE/FEED SHED 28	1960	3,776	$330,354	$13,291	$0	$13,291
661900B029	FLORIDA	BROOKSVILLE	LABORATORIES	LABORATORY	LABORATORY 29	1986	2,830	$917,650	$3,445	$6,133	$9,577
661900B030	FLORIDA	BROOKSVILLE	OFFICE	OFFICE	OFFICE 30	1987	3,600	$858,330	$45,019	$6,771	$51,790
662105B001	FLORIDA	WINTER HAVEN	LABORATORIES	RESEARCH OFFICE/LABORATORY	MAIN OFFICE/LAB 1	1960	26,672	$7,723,624	$442,530	$164,926	$607,455
662105B002	FLORIDA	WINTER HAVEN	WAREHOUSES	GARAGE	GARAGE 2	1960	880	$88,503	$1,462	$3,452	$4,915
662105B003	FLORIDA	WINTER HAVEN	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE BUILDING 3	1960	289	$78,426	$162	$14,671	$14,832
662105B004	FLORIDA	WINTER HAVEN	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 4	1993	600	$81,845	$1,103	$3,763	$4,865
662500B001	FLORIDA	CANAL POINT	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB/HEADHOUSE 1	1968	7,238	$2,098,383	$140,364	$13,188	$153,552
662500B002	FLORIDA	CANAL POINT	OFFICE	OFFICE	ADMINISTRATION BUILDING 2	1930	2,200	$525,140	$8,852	$21,622	$30,474
662500B003	FLORIDA	CANAL POINT	ALL OTHER	GREENHOUSE	PATHOLOGY GREENHOUSE 3	1967	1,250	$240,610	$88	$0	$88
662500B004	FLORIDA	CANAL POINT	ALL OTHER	GREENHOUSE	PATHOLOGY GREENHOUSE 4	1968	1,400	$267,344	$98	$0	$98
662500B005	FLORIDA	CANAL POINT	ALL OTHER	GREENHOUSE	SEEDLING GREENHOUSE 5	1967	3,000	$572,880	$164,983	$203,126	$368,109
662500B007	FLORIDA	CANAL POINT	ALL OTHER	QUARANTINE	QUARANTINE HH/GREENHOUSE 7	1970	1,183	$254,657	$91,689	$1,796	$93,485
662500B008	FLORIDA	CANAL POINT	ALL OTHER	GREENHOUSE	GENETICS GREENHOUSE 8	1955	782	$149,331	$116	$45,285	$45,401
662500B013	FLORIDA	CANAL POINT	ALL OTHER	ANIMAL FACILITY, ALL OTHER	PHOTOPERIOD/BREEDING HSE 13	1981	3,000	$473,928	$12,724	$0	$12,724
662500B018	FLORIDA	CANAL POINT	ALL OTHER	ALL OTHER	NEW CROSSING HOUSE 18	1989	5,804	$1,400,528	$2,757	$33,266	$36,023
662500B019	FLORIDA	CANAL POINT	WAREHOUSES	STORAGE BUILDING	MATERIAL STORAGE 19	1988	200	$20,485	$17	$0	$17
662500B022	FLORIDA	CANAL POINT	ALL OTHER	WATER SYSTEM BUILDING	HEAT TREATMENT PLANT 22	1989	128	$48,441	$0	$2,815	$2,815
662500B026	FLORIDA	CANAL POINT	WAREHOUSES	CHEMICAL STORAGE	HERBICIDE AND PESTICIDE SHED 26	2001	224	$60,857	$0	$0	$0
662500B033	FLORIDA	CANAL POINT	SERVICE	SHOP	VEHICLE MAINTENANCE SHOP 33	2003	3,600	$506,218	$444	$0	$444
662500B034	FLORIDA	CANAL POINT	LABORATORIES	LABORATORY	PATHOLOGY & SOILS BUILDING 34	2006	2,000	$649,264	$0	$0	$0
662500B09A	FLORIDA	CANAL POINT	ALL OTHER	ALL OTHER	MILL HOUSE 9A	1998	1,081	$260,850	$0	$0	$0
662500B10A	FLORIDA	CANAL POINT	WAREHOUSES	SHED, STORAGE	VEHICLE STORAGE SHED 10A	2000	2,100	$215,090	$0	$0	$0
662500B11A	FLORIDA	CANAL POINT	WAREHOUSES	STORAGE BUILDING	IMPLEMENT STORAGE 11A	2004	1,800	$184,363	$0	$0	$0
662900B001	FLORIDA	FORT LAUDERDALE	LABORATORIES	LABORATORY	IPRL 1 TAME LAB/GREENHOUSE 1	1960	1,080	$348,583	$15,404	$10,414	$25,819
662900B002	FLORIDA	FORT LAUDERDALE	ALL OTHER	SCREENHOUSE	IPRL 2 FERN SCREENHOUSE 2	1968	600	$71,974	$122	$0	$122
662900B003	FLORIDA	FORT LAUDERDALE	LABORATORIES	LABORATORY	IPRL 3 INSECTARY & WET LAB 3	1968	3,500	$1,129,667	$67,495	$0	$67,495
662900B004	FLORIDA	FORT LAUDERDALE	SERVICE	PUMPHOUSE, SERVICE	IPRL 4 PUMP HOUSE 4	1972	224	$88,344	$6,786	$2,331	$9,117
662900B005	FLORIDA	FORT LAUDERDALE	WAREHOUSES	GARAGE	IPRL 5 GARAGE & SHOP 5	1972	2,450	$246,266	$1,701	$0	$1,701
662900B006	FLORIDA	FORT LAUDERDALE	ALL OTHER	GREENHOUSE	IPRL 6 ENTOMOLOGY GREENHOUSE	1974	540	$102,524	$50	$0	$50
662900B008	FLORIDA	FORT LAUDERDALE	ALL OTHER	ALL OTHER	IPRL 8 WEATHER SHELTER 8	1981	2,880	$690,952	$16,700	$0	$16,700
662900B009	FLORIDA	FORT LAUDERDALE	ALL OTHER	SCREENHOUSE	HORTICULTURE SCREENHOUSE 9	1996	1,250	$149,946	$0	$0	$0
662900B010	FLORIDA	FORT LAUDERDALE	ALL OTHER	SCREENHOUSE	ENTOMOLOGY SCREENHOUSE 10	1997	1,440	$172,738	$0	$0	$0
662900B011	FLORIDA	FORT LAUDERDALE	LABORATORIES	LABORATORY	INSECT ATTRACTANT LAB 11	1998	160	$51,642	$0	$0	$0
662900B012	FLORIDA	FORT LAUDERDALE	ALL OTHER	ALL OTHER	DRYING SHED 12	2002	40	$9,597	$0	$0	$0
662900B013	FLORIDA	FORT LAUDERDALE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE SHED 13	2002	160	$43,219	$0	$0	$0
662900B014	FLORIDA	FORT LAUDERDALE	FAMILY HOUSING	TRAILER, HOUSING	RESIDENCE TRAILER 14	1992	720	$73,320	$0	$0	$0
662900B015	FLORIDA	FORT LAUDERDALE	FAMILY HOUSING	TRAILER, HOUSING	RESIDENCE TRAILER 15	1992	720	$73,320	$0	$0	$0
662900B016	FLORIDA	FORT LAUDERDALE	FAMILY HOUSING	TRAILER, HOUSING	RESIDENCE TRAILER 16	1996	720	$73,320	$0	$0	$0
662900B018	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 1	2004	160	$16,293	$0	$0	$0
662900B019	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 2	2004	64	$6,517	$0	$0	$0
662900B020	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 3	2004	160	$16,293	$0	$0	$0
662900B021	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 4	2004	128	$13,035	$0	$0	$0
662900B022	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 5	2004	160	$16,293	$0	$0	$0
662900B023	FLORIDA	FORT LAUDERDALE	WAREHOUSES	SHED, STORAGE	HORTICULTURAL STORAGE SHED 6	2004	160	$16,293	$0	$0	$0
663100B001	FLORIDA	MIAMI	OFFICE	OFFICE	CURATORIAL STAFF BLDG I	1927	1,228	$293,124	$4,941	$12,069	$17,010
663100B002	FLORIDA	MIAMI	OFFICE	OFFICE	CURATOR OFFICE 2	1927	1,186	$283,098	$4,772	$11,656	$16,428
663100B003	FLORIDA	MIAMI	ALL OTHER	SCREENHOUSE	PLANT SCIENCE LATHHOUSE 3	1923	9,984	$1,204,590	$132,203	$292,087	$424,290
663100B008	FLORIDA	MIAMI	OFFICE	OFFICE	OFFICE 8	1932	2,008	$479,310	$8,079	$19,735	$27,814
663100B011	FLORIDA	MIAMI	SERVICE	SHOP	GARAGE & SHOP 11	1927	2,575	$362,086	$15,374	$11,281	$26,656
663100B012	FLORIDA	MIAMI	WAREHOUSES	STORAGE BUILDING	STORAGE 12	1930	675	$69,136	$35	$6,682	$6,716
663100B014	FLORIDA	MIAMI	FAMILY HOUSING	RESIDENCE	RESIDENCE 14	1934	1,896	$332,437	$8,120	$16,732	$24,852
663100B015	FLORIDA	MIAMI	FAMILY HOUSING	RESIDENCE	RESIDENCE 15	1934	1,896	$332,437	$8,120	$16,732	$24,852

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
663100B022	FLORIDA	MIAMI	OFFICE	OFFICE	ADMINISTRATIVE OFFICE 22	1932	2,578	$615,369	$10,373	$25,337	$35,709
663100B023	FLORIDA	MIAMI	WAREHOUSES	GARAGE	GARAGE 23	1927	434	$43,699	$3,099	$11,467	$14,566
663100B028	FLORIDA	MIAMI	ALL OTHER	ALL OTHER	CONFERENCE CENTER 28	1934	1,586	$382,708	$59,521	$7,010	$66,531
663100B029	FLORIDA	MIAMI	WAREHOUSES	CHEMICAL STORAGE	STORAGE FERTILIZER 29	1933	750	$203,763	$491	$44,561	$45,053
663100B031	FLORIDA	MIAMI	WAREHOUSES	STORAGE BUILDING	STORAGE 31	1948	500	$51,212	$4,841	$385	$5,226
663100B033	FLORIDA	MIAMI	OFFICE	OFFICE	OFFICE 33	1969	1,270	$303,149	$39,600	$6,226	$45,826
663100B034	FLORIDA	MIAMI	LABORATORIES	LABORATORY	AGROHYDROLOGY LAB/OFFICE 34	1973	656	$212,959	$20,743	$3,530	$24,273
663100B035	FLORIDA	MIAMI	LABORATORIES	LABORATORY	AGROHYDROLOGY LAB/OFFICE 35	1969	956	$310,348	$48,688	$1,373	$50,061
663100B036	FLORIDA	MIAMI	OFFICE	OFFICE	OFFICE 36	1980	1,093	$258,512	$3,564	$795	$4,360
663100B037	FLORIDA	MIAMI	SERVICE	ALL OTHER	SEED CLEANING 37	1929	995	$209,869	$4,090	$35,173	$39,263
663100B038	FLORIDA	MIAMI	WAREHOUSES	STORAGE BUILDING	STORAGE BUILDING 38	1931	320	$32,776	$3,106	$3,184	$6,290
663100B040	FLORIDA	MIAMI	SERVICE	PUMPHOUSE, SERVICE	MAIN PUMP HOUSE 40	1932	600	$238,006	$35,040	$7,631	$42,670
663100B041	FLORIDA	MIAMI	LABORATORIES	LABORATORY	ENTOMOLOGY LAB/OFFICE 41	1932	1,020	$331,125	$30,575	$12,286	$42,862
663100B044	FLORIDA	MIAMI	SERVICE	PUMPHOUSE, SERVICE	FIELD PUMP HOUSE 44	1982	100	$39,668	$0	$1,789	$1,789
663100B047	FLORIDA	MIAMI	ALL OTHER	UTILITY BUILDING	PSR BOILER HOUSE 47	1963	543	$196,071	$14,977	$5,145	$20,123
663100B053	FLORIDA	MIAMI	LABORATORIES	LABORATORY	RAINFALL SIMULATION BLDG. 53	1974	1,537	$498,959	$3,407	$18,974	$22,381
663100B055	FLORIDA	MEDLEY	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 55	1975	5,454	$979,953	$33,439	$2,766	$36,206
663100B056	FLORIDA	MIAMI	LABORATORIES	LABORATORY	ENTOMOLOGY LAB 56	1976	1,472	$477,858	$13,603	$10,101	$23,704
663100B057	FLORIDA	MIAMI	OFFICE	OFFICE	ENTOMOLOGY OFFICE 57	1976	1,941	$463,317	$60,522	$9,515	$70,037
663100B062	FLORIDA	MIAMI	LABORATORIES	LABORATORY	CHEMISTRY LAB/OFFICE 62	1981	3,200	$1,038,622	$4,582	$8,158	$12,741
663100B063	FLORIDA	MIAMI	LABORATORIES	LABORATORY	LABORATORY/OFFICE 63	1988	6,275	$2,037,066	$17,175	$25,557	$42,733
663100B080	FLORIDA	MIAMI	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE BUILDING 80	1989	500	$135,842	$1,819	$0	$1,819
663100B082	FLORIDA	MIAMI	SERVICE	SHOP	DESIGN & FABRICATION SHOP 82	1990	1,000	$140,616	$123	$0	$123
663100B086	FLORIDA	MIAMI	ALL OTHER	INSECT FACILITY	INSECTARY 86	1995	500	$60,760	$1,454	$0	$1,454
663100B087	FLORIDA	MIAMI	OFFICE	TRAILER, OFFICE	OFFICE TRAILER 87	1993	720	$76,245	$1,344	$1,209	$2,553
663100B088	FLORIDA	MIAMI	ALL OTHER	GREENHOUSE	GREENHOUSE 88 (REPLACED #64)	1993	3,397	$548,691	$4,375	$0	$4,375
663505B001	PUERTO RICO	MAYAGUEZ	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LABORATORY 1	1929	18,000	$5,218,416	$166,308	$191,858	$360,166
663505B002	PUERTO RICO	MAYAGUEZ	WAREHOUSES	CHEMICAL STORAGE	SOLVENT STORAGE 2	1965	1,303	$354,004	$854	$77,418	$78,271
663505B003	PUERTO RICO	MAYAGUEZ	WAREHOUSES	STORAGE WAREHOUSE	WAREHOUSE 3	1901	4,860	$497,781	$3,378	$105,050	$108,428
663505B005	PUERTO RICO	MAYAGUEZ	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE 5	1966	144	$57,121	$4,237	$1,456	$5,693
663505B006	PUERTO RICO	MAYAGUEZ	ALL OTHER	HEADHOUSE	HEADHOUSE 6	1947	1,042	$176,178	$23,013	$574	$23,587
663505B007	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 7	1931	1,250	$236,700	$186	$72,386	$72,572
663505B008	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	PLANT SHADE 8	1962	660	$79,630	$133	$0	$133
663505B009	PUERTO RICO	MAYAGUEZ	SERVICE	FILLING STATION, SERVICE	FILLING STATION 9	1970	108	$16,218	$470	$1,164	$1,634
663505B011	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	SCREENHOUSE 11	1942	756	$91,213	$10,011	$22,117	$32,128
663505B013	PUERTO RICO	MAYAGUEZ	ALL OTHER	ALL OTHER	COLD STORAGE 13	1942	512	$123,548	$63	$39,702	$39,784
663505B016	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 16	1965	1,396	$244,769	$4,051	$9,378	$13,430
663505B017	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 17	1924	1,600	$280,538	$10,134	$15,710	$25,845
663505B018	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 18	1948	1,378	$241,613	$3,999	$9,258	$13,256
663505B019	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 19	1948	1,376	$241,262	$3,993	$9,244	$13,237
663505B020	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 20	1948	1,378	$241,613	$3,999	$9,258	$13,256
663505B021	PUERTO RICO	MAYAGUEZ	SERVICE	ALL OTHER	STORAGE/SERVICE BUILDING 21	1918	1,200	$253,109	$4,933	$42,420	$47,352
663505B022	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	NRCS OFFICE 22	1965	1,762	$309,942	$5,113	$11,837	$16,950
663505B023	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	NRCS OFFICE 23	1964	1,898	$331,034	$5,479	$12,684	$18,163
663505B024	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 24	1948	1,378	$241,613	$3,999	$9,258	$13,256
663505B025	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 25	1948	1,378	$241,613	$3,999	$9,258	$13,256
663505B026	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 26	1948	1,601	$280,713	$4,646	$10,756	$15,402
663505B028	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 28	1948	4,152	$727,995	$12,049	$27,893	$39,942
663505B030	PUERTO RICO	MAYAGUEZ	WAREHOUSES	SHED, STORAGE	STORAGE W/ COVER SHED 30	1929	1,548	$158,552	$1,234	$24,188	$25,422
663505B031	PUERTO RICO	MAYAGUEZ	SERVICE	SHOP	SHOP/WAREHOUSE 31	1953	5,304	$745,827	$20,190	$24,218	$44,407
663505B032	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	SHADEHOUSE 32	1988	1,320	$159,261	$17,479	$38,617	$56,096
663505B033	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	SHADEHOUSE 33	1988	1,320	$159,261	$17,479	$38,617	$56,096
663505B034	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	SHADEHOUSE 34	1988	2,850	$343,858	$37,738	$83,378	$121,116
663505B035	PUERTO RICO	MAYAGUEZ	FAMILY HOUSING	RESIDENCE	RESIDENCE 35	1949	766	$134,307	$2,223	$5,146	$7,369
663505B036	PUERTO RICO	MAYAGUEZ	ALL OTHER	SCREENHOUSE	SHADE SCREEN 36	1968	2,576	$310,800	$519	$0	$519
663505B037	PUERTO RICO	MAYAGUEZ	SERVICE	PUMPHOUSE, SERVICE	PUMP HOUSE/IRRIG SYSTEM 37	1968	144	$57,121	$4,237	$1,456	$5,693
663505B040	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 40	1970	1,260	$240,610	$88	$0	$88
663505B041	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 41	1970	540	$103,118	$33,477	$0	$33,477
663505B042	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 42	1970	540	$103,118	$33,477	$0	$33,477
663505B043	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 43	1970	540	$103,118	$33,477	$0	$33,477
663505B044	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 44	1971	540	$103,118	$9	$103,224	$103,233
663505B045	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 45	1971	540	$103,118	$9	$103,224	$103,233
663505B046	PUERTO RICO	MAYAGUEZ	ALL OTHER	GREENHOUSE	GREENHOUSE 46	1971	540	$103,118	$9	$103,224	$103,233
663505B054	PUERTO RICO	ISABELA	LABORATORIES	LABORATORY	OFFICE LABORATORY NO. 2	1971	2,400	$779,117	$103,158	$64,082	$167,240
663505B055	PUERTO RICO	ISABELA	WAREHOUSES	SHED, STORAGE	IMPLEMENT COVER SHED 4	1973	2,400	$245,818	$4,372	$0	$4,372
663505B056	PUERTO RICO	ISABELA	FAMILY HOUSING	RESIDENCE	RESIDENCE NO. 5	1974	862	$151,140	$2,501	$5,791	$8,292
663505B057	PUERTO RICO	ISABELA	ALL OTHER	GREENHOUSE	GREENHOUSE NO. 6	1974	476	$90,897	$44	$0	$44
663505B058	PUERTO RICO	ISABELA	WAREHOUSES	CHEMICAL STORAGE	FERTILIZER STORAGE 3	1980	400	$108,674	$459	$0	$459
663505B059	PUERTO RICO	ISABELA	WAREHOUSES	TRAILER, STORAGE	TRAILER WAREHOUSE NO. 7	1982	320	$33,887	$53	$0	$53
663505B060	PUERTO RICO	ISABELA	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB BUILDING NO. 8	1984	3,500	$1,014,692	$102,828	$22,481	$125,309
663505B061	PUERTO RICO	ISABELA	WAREHOUSES	SHED, STORAGE	COVER SHED NO. 9	1985	2,400	$245,818	$3,149	$0	$3,149

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
663505B062	PUERTO RICO	ISABELA	WAREHOUSES	CHEMICAL STORAGE	PESTICIDES TRAILER NO. 10	1985	320	$86,939	$1,164	$0	$1,164
663505B063	PUERTO RICO	ISABELA	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB BUILDING NO. 11	1991	1,240	$359,491	$56,843	$20,121	$76,964
663900B001	VIRGIN ISLANDS	KINGSHILL	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 1	1956	4,500	$1,304,604	$44,664	$18,855	$63,519
663900B002	ST. CROIX	KINGSHILL	LABORATORIES	LABORATORY	LABORATORY/STORAGE 2	1959	1,600	$519,411	$22,058	$14,913	$36,971
663900B003	ST. CROIX	KINGSHILL	SERVICE	SHOP	VEHICLE/CARPENTER SHOP 3	1956	3,150	$442,940	$11,991	$14,383	$26,373
663900B004	ST. CROIX	KINGSHILL	WAREHOUSES	STORAGE BUILDING	STORAGE 4	1956	189	$19,358	$271	$1,609	$1,880
663900B005	ST. CROIX	KINGSHILL	FAMILY HOUSING	RESIDENCE	STAFF DWELLING 5	1956	1,867	$292,285	$4,838	$11,199	$16,037
663900B015	ST. CROIX	KINGSHILL	WAREHOUSES	STORAGE BUILDING	OUTGOING SEEDBUILDING 15	1994	1,765	$180,778	$0	$0	$0
663900B016	ST. CROIX	KINGSHILL	FAMILY HOUSING	RESIDENCE	HOUSING 16	1992	644	$112,916	$0	$41,332	$41,332
664500B001	NORTH CAROLINA	RALEIGH	ALL OTHER	GREENHOUSE	GREENHOUSE 1	1965	2,784	$469,372	$141,812	$174,597	$316,409
664500B002	NORTH CAROLINA	RALEIGH	ALL OTHER	GREENHOUSE	GREENHOUSE 2	1968	2,800	$492,184	$45	$495,756	$495,801
664500B003	NORTH CAROLINA	RALEIGH	ALL OTHER	GREENHOUSE	GREENHOUSE 3	1965	1,000	$175,780	$50,938	$62,715	$113,653
664500B004	NORTH CAROLINA	RALEIGH	ALL OTHER	GREENHOUSE	GREENHOUSE 4	1968	2,896	$509,059	$47	$512,753	$512,800
664500B007	NORTH CAROLINA	RALEIGH	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BUILDING 7	1977	4,000	$377,128	$5,671	$411	$6,082
664500B008	NORTH CAROLINA	RALEIGH	ALL OTHER	ALL OTHER	METAL BUILDING 8	1978	3,840	$852,948	$20,404	$0	$20,404
664500B009	NORTH CAROLINA	RALEIGH	ALL OTHER	ALL OTHER	METAL BUILDING 9	1978	5,000	$1,110,610	$26,568	$0	$26,568
664500B010	NORTH CAROLINA	RALEIGH	WAREHOUSES	STORAGE BUILDING	HAY BARN 10	1981	7,500	$707,115	$3,775	$0	$3,775
664500B011	NORTH CAROLINA	RALEIGH	LABORATORIES	LABORATORY	PLANT SCIENCE FACILITY 11	1981	14,100	$4,213,447	$302,240	$94,104	$396,343
664500B012	NORTH CAROLINA	RALEIGH	ALL OTHER	ALL OTHER	METAL BUILDING 12	1986	5,000	$1,110,610	$26,568	$0	$26,568
664500B013	NORTH CAROLINA	RALEIGH	ALL OTHER	ALL OTHER	METAL BUILDING 13	1986	4,000	$888,488	$21,255	$0	$21,255
664500B014	NORTH CAROLINA	RALEIGH	WAREHOUSES	STORAGE BUILDING	METAL STORAGE BUILDING 14	1987	4,000	$377,128	$3,640	$0	$3,640
664500B015	NORTH CAROLINA	RALEIGH	ALL OTHER	GREENHOUSE	GREENHOUSE 15	1988	1,800	$316,404	$58,505	$0	$58,505
664500B017	NORTH CAROLINA	RALEIGH	SERVICE	ALL OTHER	FORAGE METAL BLDG 17	1999	4,000	$776,628	$11,048	$4,804	$15,852
664500B018	NORTH CAROLINA	RALEIGH	WAREHOUSES	STORAGE BUILDING	METAL SHOP BUILDING 18	2001	898	$84,477	$0	$0	$0
664500B019	NORTH CAROLINA	RALEIGH	LABORATORIES	LABORATORY	AIR QUALITY LAB/OFC 19	1992	5,912	$1,766,659	$14,124	$21,017	$35,141
665500B001	SOUTH CAROLINA	CLEMSON	OFFICE	OFFICE	OFFICE 1	1955	4,320	$907,632	$40,615	$6,175	$46,790
665500B002	SOUTH CAROLINA	CLEMSON	LABORATORIES	LABORATORY	RESEARCH LAB/SHOP 2	1955	6,912	$1,975,007	$78,443	$7,220	$85,663
665500B003	SOUTH CAROLINA	CLEMSON	WAREHOUSES	STORAGE BUILDING	STORAGE 3	1957	2,160	$194,728	$11,387	$0	$11,387
665500B004	SOUTH CAROLINA	CLEMSON	WAREHOUSES	STORAGE WAREHOUSE	COTTON WAREHOUSE 4	1960	5,000	$450,760	$28,377	$5,252	$33,629
665500B005	SOUTH CAROLINA	CLEMSON	WAREHOUSES	STORAGE WAREHOUSE	COTTON WAREHOUSE 5	1969	5,000	$450,760	$32,869	$3,024	$35,893
665500B008	SOUTH CAROLINA	CLEMSON	OFFICE	TRAILER, OFFICE	MOD REMOTE RM 1 (TRAILER)	1981	720	$67,110	$1,812	$404	$2,216
665500B009	SOUTH CAROLINA	CLEMSON	WAREHOUSES	TRAILER, STORAGE	MOD REMOTE RM 2 (TRAILER)	1981	720	$67,110	$91	$0	$91
665500B010	SOUTH CAROLINA	CLEMSON	ALL OTHER	TRAILER	MOD REMOTE RM 3 (TRAILER)	1981	720	$64,909	$0	$4,966	$4,966
665700B001	SOUTH CAROLINA	FLORENCE	LABORATORIES	LABORATORY	LAB/OFFICE 1	1964	8,271	$2,363,322	$2,402	$0	$2,402
665700B002	SOUTH CAROLINA	FLORENCE	LABORATORIES	LABORATORY	LAB/OFFICE 2	1964	3,840	$1,097,226	$1,115	$0	$1,115
665700B003	SOUTH CAROLINA	FLORENCE	LABORATORIES	LABORATORY	LAB/HEADHOUSE/GREENHOUSE 3	1965	4,424	$1,264,096	$13,663	$17,589	$31,253
665700B004	SOUTH CAROLINA	FLORENCE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 4	1967	2,400	$216,365	$29,866	$0	$29,866
665700B005	SOUTH CAROLINA	FLORENCE	SERVICE	SHOP	SHOP 5	1967	4,800	$606,939	$78,593	$13,130	$91,723
665700B006	SOUTH CAROLINA	FLORENCE	WAREHOUSES	CHEMICAL STORAGE	CHEMICAL STORAGE 6	1969	216	$51,653	$109	$9,840	$9,948
665700B007	SOUTH CAROLINA	FLORENCE	WAREHOUSES	STORAGE BUILDING	EQUIPMENT STORAGE 7	1993	3,000	$270,456	$0	$0	$0
665700B008	SOUTH CAROLINA	FLORENCE	WAREHOUSES	STORAGE BUILDING	QUONSET HUT 8	1987	950	$85,644	$1,175	$4,010	$5,185
665700B009	SOUTH CAROLINA	FLORENCE	OFFICE	TRAILER, OFFICE	OFFICE TRAILER 9	1992	720	$67,110	$1,028	$924	$1,952
665700B010	SOUTH CAROLINA	FLORENCE	LABORATORIES	TRAILER, LABORATORY	LABORATORY TRAILER 10	1992	560	$121,507	$234	$1,744	$1,978
665700B011	SOUTH CAROLINA	FLORENCE	LABORATORIES	TRAILER, LABORATORY	LABORATORY TRAILER 11	1973	128	$27,773	$940	$170	$1,110
665700B018	SOUTH CAROLINA	FLORENCE	ALL OTHER	BARN	TOBACCO CURING 18	1981	300	$27,046	$4,430	$0	$4,430
665700B019	SOUTH CAROLINA	FLORENCE	OFFICE	TRAILER, OFFICE	OFFICE TRAILER 19	2002	980	$91,344	$0	$0	$0
665900B002	SOUTH CAROLINA	CHARLESTON	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSES 2	1936	14,650	$2,386,617	$109,968	$642,114	$752,082
665900B003	SOUTH CAROLINA	CHARLESTON	SERVICE	SHOP	FARM SHOP 3	1936	3,600	$458,978	$30,982	$34,045	$65,027
665900B004	SOUTH CAROLINA	CHARLESTON	ALL OTHER	ALL OTHER	GROWTH ROOMS/STORAGE 4	1939	3,769	$824,604	$123,669	$14,565	$138,234
665900B005	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	CHEMICAL STORAGE	PESTICIDE STORAGE 5	1936	720	$177,358	$356	$32,318	$32,675
665900B006	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 6	1950	1,932	$179,417	$3,294	$7,605	$10,899
665900B007	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	SHED, STORAGE	IMPLEMENT SHED 7	1950	3,060	$284,170	$5,217	$12,046	$17,262
665900B011	SOUTH CAROLINA	CHARLESTON	LABORATORIES	RESEARCH OFFICE/LABORATORY	OFFICE/LAB 11	1958	3,235	$850,346	$46,817	$4,399	$51,216
665900B012	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	CHEMICAL STORAGE	INSECTICIDE STORAGE 12	1958	182	$44,832	$90	$8,169	$8,259
665900B013	SOUTH CAROLINA	CHARLESTON	ALL OTHER	ALL OTHER	ENTOMOLOGY BUILDING 13	1971	384	$84,014	$2,354	$6,205	$8,559
665900B016	SOUTH CAROLINA	CHARLESTON	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 16	1967	4,656	$758,504	$63,263	$223,064	$286,327
665900B017	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	STORAGE BUILDING	SWEET POTATO GRADE/STORAGE 1	1974	1,920	$178,303	$7,232	$13,773	$21,005
665900B018	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	STORAGE BUILDING	STORAGE 18	1967	288	$26,745	$1,176	$2,882	$4,058
665900B019	SOUTH CAROLINA	CHARLESTON	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE 19	1973	3,450	$562,036	$18,494	$1,530	$20,024
665900B021	SOUTH CAROLINA	CHARLESTON	ALL OTHER	SCREENHOUSE	SCREENCAGE 21	1973	8,640	$945,156	$100,026	$220,997	$321,023
665900B024	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	SHED, STORAGE	TRACTOR SHED 24	1957	2,000	$185,732	$13,166	$5,906	$19,072
665900B030	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	STORAGE BUILDING	QUONSET STORAGE 30	1957	2,880	$267,454	$10,674	$5,711	$16,385
665900B031	SOUTH CAROLINA	CHARLESTON	SERVICE	SHOP	MAINTENANCE SHOP 31	1957	1,251	$159,495	$11,580	$1,152	$12,733
665900B034	SOUTH CAROLINA	CHARLESTON	ALL OTHER	ALL OTHER	THRESHING ROOM 34	1936	432	$94,516	$3,296	$2,193	$5,489
665900B035	SOUTH CAROLINA	CHARLESTON	ALL OTHER	ALL OTHER	ELUTRIATOR BUILDING 35	1997	350	$76,575	$0	$0	$0
665900B037	SOUTH CAROLINA	CHARLESTON	ALL OTHER	INSECT FACILITY	LABINSECT REARING FACILITY 37	1980	2,500	$275,450	$11,388	$0	$11,388
665900B038	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	SHED, STORAGE	STORAGE SHACK 38	1964	100	$9,287	$430	$0	$430
665900B039	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	STORAGE BUILDING	SEED STORAGE 39	1983	5,000	$464,330	$2,166	$0	$2,166
665900B040	SOUTH CAROLINA	CHARLESTON	WAREHOUSES	STORAGE BUILDING	STORAGE	1983	288	$26,745	$36	$0	$36
665900B041	SOUTH CAROLINA	CHARLESTON	ALL OTHER	ALL OTHER	WEED LAB/SUPPLY 41	1982	2,000	$437,572	$27,104	$7,469	$34,573
665900B044	SOUTH CAROLINA	CHARLESTON	LABORATORIES	LABORATORY	US VEGETABLE LABORATORY 44	2003	67,119	$19,755,672	$0	$0	$0

Building ID	State Name	City Name	Predominant_Usage	Subcategory_Usage	Name	Year Constructed	Gross SqFt	2007 Total Adj PRV	Deferred Maintenance		
									DM Critical	DM Non-Critical	Total DM
665900B046	SOUTH CAROLINA	CHARLESTON	ALL OTHER	HEADHOUSE/GREENHOUSE	HEADHOUSE/GREENHOUSE	1977	3,489	$568,390	$22,320	$1,846	$24,166
							13,547,555	**$3,477,716,439**	**$199,154,210**	**$116,821,583**	**$315,975,793**

BUILDINGS AND FACILITIES

Ms. DeLauro: Please update your response in last year's hearing record on the agency's Building and Facilities Schedules, which indicate growing unexpended balances. Identify the major projects that account for this growth, and explain any changes in the unexpended balances from last year's response.

Response: The total of unexpended balances in the Building & Facilities Account at the end of FY 2007 is approximately 70% lower than at the end of FY 2006. This decrease is primarily a result of the obligation of funds and the nearing completion of the Centers for Animal Health at Ames, IA; U. S. Vegetable Laboratory at Charleston, SC; Center for Cool and Cold Water Aquaculture Research at Leetown, WV; and Nutrient Management Research Laboratory at Marshfield, WI. The amounts of unexpended balances by location and construction project are as follows:

Arizona, Maricopa - US Water Conservation Research And Western Cotton Research Lab	$ 537,402
California, Albany - Western Regional Research Center (R&D Facility)	1,202,040
California, Davis - Western Human Nutrition Research Center	1,975,628
California, Davis - Grape Genomics Research Center	9,000,295
California, Parlier - San Joaquin Valley Agricultural Science Center	788,193
California, Riverside - U. S. Salinity Lab	14,369
California, Salinas - Agricultural Research Station	7,241,836
District of Columbia - US National Arboretum	4,292,308
Florida, Ft. Pierce - Subtropical Horticultural Res. Center	121
Florida, Miami - Design, Review and Construction for Consolidation Project	1,526,496
Georgia, Athens - Southeast Poultry Research Laboratory	625,498
Hawaii, Hilo - US Pacific Basin Agricultural Research Center	6,349,248
Idaho, Aberdeen - Advanced Genetics Lab	223
Idaho, Hagerman - Billingsley Creek Aquaculture Facility	1,689,734
Illinois, Peoria - National Center for Agricultural Utilization	901,961
Illinois, Urbana - Plant Physiology and Genetic Research Lab	
Iowa, Ames - National Centers for Animal Health	22,490,070
Kansas, Manhattan - Grain Marketing & Production Research Center	2,154,769
Kentucky, Bowling Green - Animal Waste Management Research Lab	4,826,613
Kentucky, Lexington - Forage Animal Research Lab	6,425,879
Louisiana, Houma - Sugarcane Research Lab	6,566,537
Louisiana, New Orleans - Supplemental Funding for Hurricane Damage	20,000,000
Louisiana, New Orleans - Supplemental Funding for Hurricane Damage	1,011,443
Maine, Orono - Franklin National Cold Water Marine Aquaculture Center	2,063,232
Maryland, Beltsville - BARC Design and Construction	3,654,763
National Agricultural Library	115,175
Michigan, East Lansing - Avian Disease & Oncology Lab	63,193
Minnesota, Morris - Soil & Water Lab	2,604
Minnesota, St. Paul - Cereal Disease Lab	71,508
Mississippi, Lorman - Alcorn State University	1,980,000

Mississippi, Oxford - Plant Propagation Greenhouse	155,752
Mississippi, Poplarville - Horticultural Lab for the Gulf Coast	9,178
Mississippi, Poplarville - Supplemental Funding for Hurricane Damage	1,098
Mississippi, Starkville - South Central Poultry Research Lab	5,825,443
Mississippi, Stoneville - Jamie Whitten Delta States Research Center	4,794,617
Mississippi, Stoneville - National Biological Control Lab	105,309
Missouri, Columbia - National Plant and Genetics Security Center	8,371,775
Montana, Bozeman - Animal Bio Science Facility	5,005,060
Montana, Miles City - Ft Keogh Livestock and Range Research Lab	70,855
Montana, Sidney - Northern Plains Agricultural Research Lab	137,285
New Mexico, Las Cruces - Jornada Experimental Range	28,256
New York, Geneva - Center for Grape Genetics	7,091,051
New York, Ithaca - Center for Crop Based health Genomics	7,369,062
North Dakota, Grand Forks - Human Nutrition Research Center	263,041
Ohio, Toledo - University of Toledo	1,709,927
Oklahoma, El Reno - Grazinglands Research Laboratory	4,038
Oklahoma, Woodward - Southern Plains Range Research Station	152,556
Pennsylvania, Wyndmoor - Eastern Regional Research Center	680,793
South Carolina, Charleston - US Vegetable Lab	275,635
South Dakota, Brookings - Northern Grain Insects Research Lab	174
Texas, Lubbock - Plant Stress Laboratory	882
Texas, Weslaco - Kika de la Garza Subtropical Agricultural Research Laboratory	18,503
Utah, Logan - Poisonous Plant Lab	35,169
Washington, Pullman - ARS Research Lab	8,137,268
West Virginia, Kearneysville - Appalachian Fruit Research	97,387
West Virginia, Leetown - National Center for Cool & Cold Water Aquaculture	4,717
West Virginia, Middleway - Brood Fish Facility	60,779
Wisconsin, Madison - Cereal Crops Research Lab	13,029
Wisconsin, Marshfield - Animal Facility and Nutrient Management Research Lab	2,037,865
ARS Laboratories (Upgrade Security)	4,267,594
Total Unexpended Balance	$164,295,236

CENTERS FOR ANIMAL HEALTH

Ms. DeLauro: Please update your description in last year's hearing record of the major components to be modernized at the Centers for Animal Health located at Ames, IA, and the design and construction costs of each component. How is ARS addressing the need for the $2.5 million for information technology infrastructure that was requested in the 2008 budget? When was the need for this funding first identified?

Response: There are five major components to the modernization of the Centers for Animal Health at Ames, Iowa. The accelerated Master Plan anticipated receipt of all design funding in fiscal year 2002 and all construction funding in fiscal year 2004. Since all construction funding was not appropriated in fiscal year 2004, the schedule for construction of the various components was adjusted to meet funding availability.

The Bio-Safety Level (BSL)-3 Large Animal Facility is a high containment large animal facility designed to safely hold and contain large species of animals. The design cost was $7.64 million; the construction cost was $73.0 million.

Phase 1 of the Consolidated Laboratory incorporated several Animal and Plant Health Inspection Service (APHIS) units from leased space within the city of Ames, Iowa. The design cost was $1.8 million; the construction cost was $24.3 million.

Phase 2 of the Consolidated Laboratory includes laboratory facilities for ARS and APHIS; laboratory support space; caged animal facilities; and administrative and site support space. The design cost is $22.54 million; the construction cost is $217.6 million.

The Low Containment Large Animal Facility and associated Miscellaneous Structures Phase include constructing a new large animal space that does not require high containment, as well as several barns and support facilities. Included in this phase are upgrades to existing buildings in support of the Ames research program. The design cost was $7.2 million; the construction cost is $34.65 million.

The Infrastructure Phase includes additions to the Central Utility Plant, New Steam and Chilled Water Generation Equipment, New Utility Distribution Systems, and a new Wastewater Pretreatment Plant. The design cost was $9.9 million; the construction cost is $63.13 million.

The $2.5 million for information technology was for equipment which cannot be purchased with Buildings and Facilities appropriations. These items will be obtained using annual agency funds. The need for these items was first identified in FY 2005.

Ms. DeLauro: Please update your response in last year's hearing record to reflect any revisions to the anticipated completion dates for the major components of the Centers.

Response: The completion dates for the five major components of the Centers for Animal Health, Ames, Iowa, are:

BSL-3 Large Animal Facility - Completed February 2007.

Phase 1 of the Consolidated Laboratory - Completed September 2004.

Phase 2 of the Consolidated Laboratory - September 2008.

Low Containment Large Animal Facility and associated Miscellaneous Structures - November 2008.

Final Infrastructure Phase - September 2008.

In addition to the five major components, there will be miscellaneous construction activity related to commissioning, demolition, and miscellaneous site work that will continue through fiscal year 2009.

NAL BUILDING AND REPAIR AND MAINTENANCE

Ms. DeLauro: Please update your response in the last year's hearing record about the status of the decaying brick veneer at NAL. Has Phase 2 begun? Was any work completed and were any funds expended in 2008? What are the total estimated costs for repair? Is there a schedule for completion?

Response: Phase 2 has not begun. No work was completed in fiscal year 2008 and none is anticipated in fiscal year 2009. No funds were spent in fiscal year 2008 on the repairs and no funds are anticipated to be spent in fiscal year 2009. The estimated cost of the repairs in fiscal year 2009 is $1.7 million. A schedule for completion will be developed once funds have been identified.

Ms. DeLauro: Please provide a list of all repair and maintenance activities funded in fiscal years 2007 and 2008, as well as anticipated work in fiscal year 2009.

Response: The list of funded repair and maintenance activities at NAL for fiscal year 2007 and 2008 and anticipated work in fiscal year 2009 is provided for the recorded.

2007 R&M Projects	Amount
Salaries - General	$148,834
Contract Maintenance Staff	103,899
Repairs to Wing Bldg - Construction	580,558
Repairs to Wing Bldg - Contract Admin	39,178
Booklift	16,815
Total	$889,284

2008 R&M Project Projections	Amount
O&M Contract (Salary)	$100,000
Repair Wing Air Handling Units (AHUs), Second Phase	150,000
Design and construction exterior sidewalk and wall repairs	450,000
Study and design of roof repairs	100,000
Miscellaneous Repairs	59,459
Total	$859,459

2009 R&M Project Projections	
Second phase of exterior sidewalk and wall repairs	$140,000
Roof Repair	290,000
Life safety upgrades	160,000
O&M contracts (Salaries)	150,000
Miscellaneous repairs	119,459
Total	$859,459

Ms. DeLauro: Please update the table in last year's hearing record, listing the specific items in need of repair and maintenance and associated cost of each.

Response: The information is submitted for the record.

PROJECT	REMAINING PROJECT COST
Veneer Masonry/Package (A)	$ 1,700,000
Tower Windows (B)	3,000,000
Ground Floor & Balance of 1st Floor (C)	9,074,160
Bathroom Retrofit(C)	1,840,000
Lift-Safety Projects(C)	1,826,000
Exterior Repairs (D)	500,000
Floor Cluster 6 Through 9 (D)	3,423,600
Floor Cluster 10 Through 13 (D)	3,697,920
Floor Cluster 2 Through 4 (D)	7,845,120
Fourteenth Floor (D)	3,099,600
Book Lift (D)	384,480
Miscellaneous Projects (D)	2,160,000
TOTAL	38,550,880

(A) Cost shown is needed in fiscal year 2009. Total project cost is $3,885,000. Total project cost reduced from $5,998,250 due to brick study performed in fiscal year 2003. Brick veneer Phase-2 project has not begun due to the lack of B&F funding. The completion schedule is pending availability of funds. The remaining cost for the project is $1,700,000.

(B) Cost increased because a window mock-up was accomplished and indicated additional work was needed to achieve adequate moisture protection and to address asbestos removal.

(C) Project switched to later years due to funding received in fiscal year 2004 and fiscal year 2005 being lower than requested. Bathroom Renovation cost is the total cost plus inflation. Previous bathroom cost included $200,000 from earlier appropriations that will now be used for other projects (14th Floor Window Replacement).

(D) Future requests are based on Administration priorities and are subject to available funding.

NATIONAL ARBORETUM

Ms. DeLauro: Please update your response to the Committee in last year's hearing record on the current status of architectural and engineering efforts related to construction of the new entrance to the National Arboretum, as well as plans for fiscal year 2008.

Response: Design is complete. The project is not funded in FY 2008 and is not included in the FY 2009 budget. The cost for the construction of the new entrance to the National Arboretum is estimated to be $9.8 million.

NEW RESEARCH FACILITIES

Ms. DeLauro: Please describe any laboratory space you have acquired during the past 12 months and the cost of each.

Response: ARS acquired two laboratory facilities during the past 12 months as follows:

Construction was completed on the Poultry Facility project, Beltsville, Maryland. The project replaced seven outdated poultry facilities with 28,100 gross square feet (GSF) of grow out and breeder space for turkeys and chickens, a hatchery, laboratory, necropsy room, feed mixing, offices and storage facilities. The new facility supports the mission of the Animal & Natural Resources Institute which conducts research to increase production efficiency and profitability, and to improve the value and quality of livestock and poultry, including those that infect humans. The new facility supports two labs. (1) Germplasm and Gamete Physiology Laboratory which develops the knowledge and means to improve the genetic, reproductive and productive efficiency of livestock and poultry. (2) Growth Biology Laboratory which examines pre- and post-translation genetic determinates that influence nutrient use for lean tissue deposition by livestock and examines practical approaches to implement near market technologies affecting fat protein ratio into livestock production agriculture. The cost of construction was $5,441,890.

Construction was completed on the National Cold Water Marine Aquaculture Center, Franklin, Maine. The project constructed 40,000 GSF main tank/aquaria/laboratory office building. The main building contains a 4,000 GSF laboratory/office area with the remaining space devoted to the breeding program tank/aquaria rooms and their associated water treatment. The 2,000 GSF effluent treatment building houses state-of-the-art equipment for processing "fish wastewater" prior to discharge into Taunton Bay. The new facility supports the mission of the National Cold Water Marine Aquaculture Center which conducts research to: 1) obtain and compare performance of selected North American Atlantic salmon stocks for utilization in an applied selective breeding program; 2) estimate genotypic and phenotypic parameters for commercially important traits and develop a selection index; and 3) evaluate specific breeding aids such as polyploidy (triploid) and sex-reversal (all-female stocks) for benefits to Atlantic salmon aquaculture. Research accomplished during this project will result in the development of genetically improved North American Atlantic salmon stocks for release to U.S. producers and consumers, and provide information and solve problems limiting the profitability and sustainability of coldwater marine aquaculture in the U.S. The cost of construction was $13,375,000.

POULTRY FACILITIES

Ms. DeLauro: Please update your response from last year's hearing record on the status of the Southeast Poultry Research Laboratory (SEPRL) in Athens, Georgia. What is the projected timeline for the completion of the consolidated facility? Please specify the components of the total project cost and the estimated cost per fiscal year from inception to completion.

Response: USDA has completed an in-depth planning effort. The revised overall estimated project cost is $215 million. In FY 2008, $2.78 million was received for planning and design. The additional $13.2 million proposed in fiscal year 2009 will design a facility located in Athens, Georgia. Design of the facility will take approximately 24 months once all design funding is available. Construction of the new facilities, estimated at $199 million will take approximately 36 months once design is complete and all

construction funding is available. The estimated cost for each major component (in FY 2010 dollars) is:

Main Laboratory Facility	$154,000,000
Poultry Production Facilities	$ 19,000,000
Ancillary Facilities	$ 13,000,000
Site and Utility System Development	$ 13,000,000

Ms. DeLauro: Please distinguish between the diseases studied at SEPRL and RRC in Athens, GA, and ADOL in East Lansing, MI, and update your response in last year's hearing record on staffing and funding resources at each location. Please respond as to how staffing levels and diseases studied at each facility would change as a result of the consolidated facility.

Response: The diseases studied at SEPRL in Athens, Georgia, and at ADOL in East Lansing, Michigan, are primarily viral diseases of poultry and other birds, but with very different symptoms. The laboratory in Athens, Georgia, works primarily with Avian Influenza including the devastating H5N1 high pathogenicity avian influenza from Asia and Africa, Newcastle disease, Avian metapneumovirus and Poultry Enteritis Morbidity and Mortality Syndrome. Athens, Georgia, recently began a small effort on Marek's disease that complements research conducted at East Lansing, Michigan. Research at RRC in Athens is focused primarily on bacterial pathogens, especially salmonella. The research center in Athens, Georgia, has 11 full time scientists with a research budget of $5,616,000. The diseases studied at East Lansing, Michigan, are tumor causing viral diseases, such as Marek's disease, avian leucosis, and avian retroviruses. They have 7 full time scientists with a research budget of $3,426,000.

REPAIR AND MAINTENANCE

Ms. DeLauro: Please provide your budget for repair and maintenance of facilities in fiscal years 2007, 2008 and 2009. What was the specific source of these funds in each year?

Response: The fiscal year 2007 repair and maintenance budget was $17.69 million which included $13.78 million in Agency funds, $874,261 for the Abraham Lincoln National Agricultural Library, $718,479 for the U.S. National Arboretum, and $2.31 million in BARC Renaissance 93 funds. For fiscal year 2008, the repair and maintenance budget was $17.69 million which included $13.78 million in Agency funds, $874,261 for the Abraham Lincoln National Agricultural Library, $718,479 for the U.S. National Arboretum, and $2.31 million in BARC Renaissance 93 funds.

Funding was provided through annual appropriations designed for that purpose. In fiscal year 2009, the Agency anticipates the same funding level to be authorized.

Ms. DeLauro: How were these funds used in fiscal years 2007 and 2008?

Response: Some of the types of repair and maintenance projects funded in fiscal years 2007 and 2008 included: replacement of security and fire protection systems, roof repairs, HVAC system and component repairs, plumbing repairs, asbestos and lead abatement, upgrade to sewage lines and utility distribution systems, electrical system repairs, fencing replacement,

painting, pavement repairs, accessibility projects, energy retrofits and audits, demolition of facilities, and facility assessment surveys.

OTHER

Ms. DeLauro: Has ARS suffered any impoundment of buildings and facilities funds in fiscal year 2008?

Response: None of the funds appropriated in fiscal year 2008 for ARS' buildings and facilities projects were impounded.

Ms. DeLauro: Please provide for the record a table that will show all buildings and facilities projects that were incomplete as of the end of fiscal year 2007. Were any of these incomplete projects funded in fiscal year 2008 from any available balances? Please identify the funding provided to date, the funding needed to complete the current or next phase of construction, the required funding to complete them and the estimated completion date.

Response: A table showing all building and facilities projects, including the status, that were incomplete as of the end of fiscal year 2007 is provided for the record.

LOCATION	FUNDING TO DATE ($000)	ADDITIONAL FUNDING NEEDS ($000)	STATUS
Albany, CA	11,289	23,000	Design complete. Phase 3a funded. Construction completion estimated 3rd Qtr, FY 2008. $4.6 million needed for next phase. Construction will take approximately 2 years.
Davis, CA	11,119	33,800	Planning is complete. Design not started. Design and construction will take approximately 3 years.
Salinas, CA	12,908	59,900	Design complete. Need $13.3 million to construct Phase 1 of 3. Phase 1 construction will take approximately 2 years.
Washington, DC (USNA) Bladensburg Road Entrance	1,795	9,800	Design complete. Construction will take approximately 2 years.
Hagerman, ID	2,677	12,200	Project conceptual design is complete. Construction will take approximately 2 years.

Peoria, IL	19,419	31,700	$9.6 million needed for construction of Phase 3b of 4. Construction will take approximately 3 years.
Bowling Green, KY	6,642	27,000	Design of GH/HH to be completed 4th qtr, FY 2008. Construction of GH/HH will start 2nd qtr, FY 2009. Construction will take approximately 1 year.
Lexington, KY	9,021	35,000	Design to be completed 4th qtr, FY 2008. Need $24.9 million to construct Phase 1 lab/office building. Construction will take approximately 2 years.
Houma, LA	9,777	21,400	Design complete. Project was repackaged to initiate construction of Phase 1a. Ph 1a construction will begin 4th qtr, FY 2008. Need $3.2 million for Phase 1b construction. Construction will take approximately 1 year.
Orono, ME	1,995	10,000	$1.995 million transferred from Franklin, ME. Planning to be completed 3rd qtr, FY 2009. Construction will take approximately 3 years.
Beltsville, MD (BARC) Beltsville Human Nutrition Research Center, Building 307	5,489	34,400	Design complete. Construction will take approximately 3 years.
Beltsville, MD (NAL) Window Replacement	140	3,100	Design complete. Need $3.1 million for remaining window replacement. If funded in FY 2009, construction will take approximately 1 year.
Beltsville, MD (NAL) Bathroom Renovations	101	1,900	Design complete. Construction will take approximately 1 year.
Beltsville, MD (NAL) Brick Veneer Repair	2,385	1,700	Need $1.7 million to complete construction of Phase 2. Construction will take approximately 1 year.

Columbia, MO	13,149	32,300	Design is complete. Construction will take approximately 2 years.
Lorman, MS	3,370	19,800	Planning phase (POR) complete. Construction will take approximately 3 years.
Starkville, MS	9,316	31,600	Design complete. Construction will take approximately 2 years.
Stoneville, MS (JWDRC)	13,997	52,900	Need $7.5 million for Phase 2 of 7. Construction will take approximately 2 years.
Bozeman, MT	7,814	17,800	Conceptual Design to be completed 4th qtr, FY 2008. Construction will take approximately 3 years.
Geneva, NY	10,850	22,100	Design complete. Need $15.7 million for Phase 1. Construction will take approximately 2 years.
Ithaca, NY	10,412	49,000	Design complete. Construction will take approximately 3 years.
Toledo, OH	5,438	21,500	Design estimated completion in 4th qtr, FY 2008. Construction will take 3 years.
Wyndmoor, PA	21,700	18,200	Need $2.4 million to complete Phase 8 of 9. Construction will take approximately 2 years.
Charleston, SC	13,978	8,500	Phase 2 GH construction to be completed 3rd qtr, FY 2008. Need $8.5 million to complete design and construction of additional GH's. Construction will take approximately 1 year.
Pullman, WA	12,371	40,400	Conceptual Design complete. Construction will take approximately 3 years.
Kearneysville, WV	1,529	24,500	Conceptual Design to begin 4th qtr, FY 2008. Need $24.5 million. Construction will take approximately 3 years.

Ms. DeLauro: The budget proposes to rescind over $67,000,000 previously appropriated for various ARS buildings and facilities. Please provide for the record a list of projects affected, amount taken from each project, the project's current stage, and the impact of the rescission on the projects' completion dates.

Response: The following is submitted for the record:

PROJECT	AMOUNT	STATUS	IMPACT
Center for Advanced Viticulture and Tree Crop Research Davis, CA	$7,024,300	Planning is complete. Design has not started.	Project requires an additional $33.8M to start any construction.
San Joaquin Valley Agriculture Science Center Parlier, CA	788,200	Construction complete	Funding was to purchase additional land.
U.S. Salinity Laboratory Riverside, CA	14,400	Construction complete	None
U.S. Agriculture Research Center Salinas, CA	6,564,700	Design effort was completed in July 2007.	Total additional funding need is $59.9M. An additional $13.3M is needed to initiate the first of 3 phases of construction.
Subtropical Horticulture Research Center Ft. Pierce, FL	100	Construction complete	None
U.S. Pacific Basin Agriculture Research Center Hilo, HI	1,054,600	Construction of final phase of reduced scope to begin 3rd Qtr FY 2009.	None
Advanced Genetics Laboratory Aberdeen, ID	200	Construction complete	None
Aquaculture Facility Hagerman, ID	990,000	Conceptual Design is complete.	An additional $12.2M is needed to start any construction.
Animal Waste Management Research Laboratory Bowling Green, KY	2,970,000	Design initiated September 2007 to be complete 4th Qtr FY 2008	Project needs an additional $27M.

Forage Animal Production Laboratory Lexington, KY	3,960,000	Design initiated August 2007 to be complete 4th Qtr FY 2008	Project needs an additional $35M.
ARS Sugarcane Research Laboratory Houma, LA	1,238,600	Design complete Phase 1 Construction scheduled to begin 4th quarter FY 2008	Project needs an additional $21.4M for remaining phases
Aquaculture Research Facility Orono, ME	1,995,000	Planning to be completed 3rd Qtr FY 2009	Project needs an additional $10M.
Avian Disease and Oncology Laboratory East Lansing, MI	63,200	Project deferred	None
Soil and Water Laboratory Morris, MN	2,600	Construction complete	None
Cereal Disease Laboratory St. Paul, MN	71,500	Construction complete	None
National Plant and Genetics Security Center Columbia, MO	8,371,900	Design effort is complete	Project needs an additional $32.3M to start any construction.
Biotechnology Laboratory Lorman, MS	1,571,500	Planning is complete	Project needs an additional $19.8M.
South Center Poultry Research Laboratory Starkville, MS	4,950,000	Design is complete	Project needs an additional $31.6M to start any construction.
Animal Bioscience Facility Bozeman, MT	3,960,000	Conceptual Design to be complete 4th Qtr FY 2008	Project needs an additional $17.8M to start any construction.
Jornada Experimental Range Research Laboratory Las Cruces, NM	28,300	Construction complete	None
Grape Genetics Research Center Geneva, NY	6,564,700	Design is complete	Project needs an additional $22.1M for construction.

Center for Health Based Crop Genomics Ithaca, NY	6,564,700	Design is complete	Project needs an additional $49M for construction.
Human Nutrition Research Center Grand Forks, ND	263,000	Construction complete	None
Greenhouse Production Research Toledo, OH	1,584,000	Design to be complete 4th Qtr FY 2008	Project needs an additional $21.5M to start any construction.
Plant Stress Laboratory Lubbock, TX	900	Construction complete	None
Sub-Tropical Agriculture Research Laboratory Weslaco, TX	18,500	Construction complete	None
ARS Research Laboratory Pullman, WA	6,564,700	Conceptual Design is complete	Project needs an additional $40.4M to start any construction.

Ms. DeLauro: Please list all ARS Buildings and Facilities projects that are executable during fiscal year 2009, but were not included as part of the Administration's final budget request and the funding needed for such execution.

Response: A listing of all ARS Buildings and Facilities projects not included as part of the Administration's final budget request that are executable during fiscal year 2009 are provided for the record.

PROJECT LOCATION	ADD'L FUNDS TO EXECUTE	PROJECT PHASE
California: Western Regional Research Center, Albany	$4,600,000	Construction of Phase 3 of 6.
California: Agricultural Research Technology Center, Salinas	59,900,000	Phase 1 lab/office, $13.3M needed. Phase 2 lab/office $26.4M. Phase 3 HH/GH $20.2M.
District of Columbia: U.S. National Arboretum, Bladensburg Road Entrance	9,800,000	Construction.

Florida: ARS Laboratory, Canal Point	1,400,000	Conceptual Design.
Idaho: Aquaculture Facility Hagerman	12,200,000	Design and Construction.
Illinois: National Center for Agricultural Utilization Research, Peoria	9,600,000	Construction Phase 3b of 4.
Kentucky: Forage Animal Research Lab, Lexington	35,000,000	Construction of Phase 1, Lab/Office $24.9M and Phase 2 HH/GH $10.1M.
Louisiana: Sugar Cane Research Lab, Houma	21,400,000	Construction of Phase 1b HH/GH $3.2M needed. Phase 2 HH/GH $7.8M, and Phase 3 lab/office $10.4M.
Maryland: Beltsville Human Nutrition Research Center, Bldg 307 Beltsville	34,400,000	Construction.
Maryland: National Agricultural Library Renovations Beltsville	6,700,000	Construction- Window Replacement $3.1M, Bathroom Renovations $1.9M, Brick Veneer Repair $1.7M.
Mississippi: South Central Poultry Research Laboratory Starkville	31,600,000	Construction.
Mississippi: Jamie Whitten Delta Center, Stoneville	7,500,000	Construction of Phase 2 of 7.
Missouri: National Plant and Genetics Center Columbia	32,300,000	Construction.
Montana: Animal Bioscience Facility Bozeman	17,800,000	Construction.

New York: Grape Genetics Research Center, Geneva	22,100,000	Construction. Phase 1 lab/office $15.7M, Phase 2 HH/GH $6.4M.
New York: Grape Genomics Lab, Ithaca	49,000,000	Construction.
Ohio: Greenhouse Production Research, Toledo	21,500,000	Construction.
Pennsylvania: Eastern Regional Research Center Wyndmoor	18,200,000	Construction of Phase 8 $2.4M and Phase 9 of 9 $15.8M.
South Carolina: U.S. Vegetable Lab Charleston	8,500,000	Design & Construction of final greenhouse section.
Utah: Agricultural Research Center Logan	21,400,000	Design & Construction of HH/GH phase.
Washington: Agricultural Research Lab Pullman	40,400,000	Construction.

QUESTIONS SUBMITTED BY CONGRESSMAN KINGSTON

FOOD SAFETY

Mr. Kingston: I have claimed that the data from CDC indicates that the food processing and distribution system in the US is the safest in the world, at least 99.98% safe. The Chairwoman has referenced the USDA's Inspector General and others who have stated that the data being used to make such claims is not necessarily representative of what is going on in food safety, is flawed or both.

Can both of you tell us what it would take in the way of resources and data gathering to establish a credible and representative picture of the level of food safety in the US and the costs and economic impacts of food borne illness? We really need to get beyond the rhetoric on this issue.

Response: The Centers for Disease Control and Prevention estimates that 76 million U.S. consumers contract foodborne illnesses, resulting in 325,000 hospitalizations, 5,000 deaths, and an unknown number of chronic complications each year. Most foodborne illness cannot be linked to a specific pathogen or food source; only an average of 5,800 cases of illness each year can be linked to a specific food source.

The cost of foodborne illness depends on the particular pathogen and the types of outcomes, particularly the incidence of premature death and chronic complications such as kidney failure and arthritis. ERS has recently estimated the costs of foodborne illness for two common foodborne pathogens: Salmonella and Shiga toxin-producing *E.coli* O157. ERS estimates the annual cost of foodborne Salmonella at $2.3 billion and annual cost of STEC O157 at $350 million (in 2006 dollars, not including chronic complications). Since these two pathogens account for less than 2 million of the 76 million cases per year, the total cost of foodborne illness is many times higher than the sum of the costs of these two pathogens. ERS has work underway to produce an estimate of the cost of foodborne illness due to unidentified pathogens.

ERS does not have expertise in epidemiology, and thus cannot assess the feasibility or cost of obtaining data to make a more definitive assessment of the level of food safety in the U.S.

NORTH AMERICAN FREE TRADE AGREEMENT (NAFTA)

Mr. Kingston: There has been a rush lately, as widely reported in the press, to abandon or radically alter the North American Free Trade Agreement (NAFTA). Can you tell us what the economic benefits of NAFTA have been in agriculture and what the costs would be to the United States of not sustaining NAFTA in its present form?

Response: Since NAFTA's implementation in 1994, agricultural trade among Canada, Mexico, and the United States has grown from $16 billion in 1993 to $53 billion in 2007. Not all of this increase is directly attributable to NAFTA, of course, since population and income growth, comparative advantage, transport costs, and other economic factors also come into play. Nevertheless, the dismantling of tariff and quota barriers across the NAFTA countries has broadened the potential market for agricultural producers in each member country. Increased trade, greater off-season availability of fresh fruits and vegetables, more secure opportunities for

cross-border investment, and increased employment are among the benefits that NAFTA provides in the agricultural sector.

Imports from the NAFTA partners benefit U.S. consumers and the U.S. food industry. Beer, vegetables, and fruit account for roughly three-fourths of U.S. agricultural imports from Mexico. Fruit and vegetable imports from Mexico are closely tied to Mexico's favorable climate and growing season that largely complements the U.S. growing season. Intra-industry trade (trade within the same industry) accounts for a large portion of agricultural trade between Canada and the United States, as food manufacturers, wholesalers, and retailers have restructured their business operations to supply regional markets that include consumers on both sides of the U.S.-Canada border.

NAFTA has had a small, positive impact on U.S. agricultural employment. U.S. agricultural exports to Canada and Mexico have risen by over 160 percent under NAFTA, increasing by $18 billion since 1993. These exports support about 268,000 jobs throughout the U.S. economy, according to ERS analysis of 2005 data. This number is quite small, however, when compared with the size of the U.S. workforce (about 140 million) and the number of U.S. farm operators (3.2 million).

NAFTA's provisions for the non-discriminatory treatment of foreign investors have stimulated cross-border investment among the member countries. The United States is the origin of most of foreign direct investment in the North American processed food sector. Between 1999 and 2007, U.S. companies invested an estimated $8 billion in Mexico's agricultural, food, and beverage industries. Sales by Canadian and Mexican affiliates of U.S. multinational food companies were estimated at $14.1 billion in 2005.

The economic impact of not sustaining NAFTA in its current form would depend on the nature of the changes. Any country that withdraws from NAFTA would lose its duty-free access to the markets of the other member countries and face the trade barriers that those countries apply to other members of the World Trade Organization on a Most Favored Nation basis. Such a trade policy change would force an abrupt economic adjustment for the country that withdraws from the agreement. Losing duty-free access to the Mexican market, for instance, could be particularly disruptive for U.S. grain and oilseed producers. ERS analysis suggests that a loss of U.S. preferential access to the Mexican market under NAFTA, for example, would reduce U.S. exports to Mexico of corn, wheat, oilseeds, and rice.

ETHANOL PRODUCTION, FOOD PRICES, AND THE RURAL ECONOMY

Mr. Kingston: What is your estimate of the impact of ethanol production on food prices and can you tell us if you are studying the economic and social impacts of higher food prices due to ethanol mandates on low income families? If not, what would it take in additional resources to conduct that analysis?

Response: The most direct impact of ethanol production on food prices is through higher food commodity costs. Since the majority of ethanol in the U.S. is produced from corn, corn prices have experienced the biggest change in response to increased ethanol production. In addition, soybean prices have risen due to decreased supplies in 2007 as farmers shifted some acres from soybeans to corn. However, other factors, such as higher energy prices, strong global demand for food commodities, increased U.S. agricultural

exports resulting from this stronger demand and a weaker dollar, and weather-related production problems in some areas of the world have also contributed to the increase in food commodity prices. These many factors are affecting a new and unique market situation. Current market adjustments in response to the increasing demand for biofuels are unlikely to be surmised from historical patterns. While ERS is attempting to sort out the relative influences of the factors influencing food prices in this unique market, data will not be available for some time to definitively state the contribution of each factor to rising food prices.

ERS has been conducting research to estimate the effect of higher corn prices (partially due to increased ethanol production) on retail food prices. This research shows that higher corn prices increase animal feed and ingredient costs for farmers and food manufacturers, but pass through to retail prices at a rate less than 10 percent of the corn price change. Given that foods using corn or corn syrup as an ingredient make up less than a third of retail food spending, overall retail food prices would rise less than 1 percent per year above the normal rate of food price inflation when corn prices increase by 50 percent. However, even this increase may be partially tempered by substitutes in food production, as with sugar for high fructose corn syrup.

Higher food prices are more difficult to deal with for low income families who spend a greater share of their income on food and other necessities. Even a small price increase has a larger impact on low income families than on families who pay a smaller share of their income on food. USDA's Food Stamp Program does provide inflation-adjusted benefits to help supplement low income family food budgets, but, in a situation of both rising food prices and a weakening economy, this assistance may not cover as much of the costs as in the past.

LAND PRICES AND THE RURAL ECONOMY

Mr. Kingston: Based largely on ethanol, I assume, there have been a number of studies and reports about skyrocketing land prices throughout the country for agricultural lands. [It has been reported that land in North Dakota recently sold for $1000 per acre.] Also I note that the University of Illinois has recently released a new study of the rural economy.

What additional light are these studies shedding on the relative economic conditions of rural economies compared to their urban counter part?

Response: Recent studies have shown that rural (non-metropolitan) economic trends in this decade have closely paralleled urban trends. Urban jobs have grown at a somewhat faster rate, but overall unemployment levels are about the same in rural and urban areas. Poverty rates remain slightly higher in non-metropolitan areas, with the rural-urban gap largely unchanged since 2000. Heavily agricultural areas have gained jobs in the past few years, but the Census population estimates in 2006 still showed widespread population loss in these areas.

There have been substantial gains in the market value of farm real estate in recent years, and ERS has forecast that 2008 will be the fifth consecutive year of double digit increases. However, there is variation in values across States and regions depending on the inherent quality of the land for agricultural production, and on competing demands for other uses, such as development. Much of the growth in land values during the early part of this

decade can be attributed to factors other than returns from farming such as recreation and urbanization potential, wide use of 1031 exchanges (sales of farm property and replacement with similar property elsewhere to avoid capital gains taxes), and investors looking for opportunities to diversify their portfolio. In contrast, the more recent increase in farm real estate can be attributed to the earning expectations of agricultural production, particularly for the most land intensive crops—corn, soybeans, and wheat. The market for agricultural commodities is influenced by the increased production of corn-based ethanol. ERS is undertaking more in-depth research to examine the specific influence of new ethanol and biodiesel plant construction and resulting commodity price strength on land values. Future research will also investigate the growing demand for farm land by investors in the context of current national economic conditions including changes within the housing market.

Mr. Kingston: Has the rural economy been impacted by the subprime market failure in the same way as the rest of the economy and if not why not?

Response: Recent ERS analysis shows that agriculture's balance sheet is at a historically sound position, with asset values growing much faster than debt. Over 60 percent of all U.S. farms reported owing no debt to lending institutions, individuals, or other creditors at year-end 2006. Overall, farm liabilities were only 11 percent of farm assets. Along with the conservative nature of farm borrowing, farm lending has much higher equity requirements than residential lending. Typically, no more than 65 percent of a farm land purchase is financed, and in equipment no more than 75 percent of the valuation of the equipment can be financed. Farms, unlike their non-farm counterparts, are unlikely to separate their dwelling from the farm business; therefore these operations are not as susceptible to short term volatility in credit markets or housing prices as their urban or rural non-farm counterparts.

The problems in the sub-prime mortgage market are a recent phenomenon. Housing data from rural markets are not yet available are available to assess whether the impacts on the rural economy are different from those for the economy as a whole, but there is nothing to suggest dissimilarity at this time.

Mr. Kingston: What has ERS done since our discussion last year to analyze issues like low education levels, that you indicated were major factors defining the rural economy?

Response: Talent and education are key determinants of economic well-being for rural people and their communities. Education continues to be a focus of rural development research at ERS due both to its economic importance and to the stark differences in education levels across rural areas. Since our 2007 discussion, ERS has conducted research on how differences in education levels and in monetary returns to education affected the gap in average wages between urban and rural workers. The research findings show that a small portion of the gap is explained by the fact that rural workers have less education on average than urban workers. Although part of the urban-rural wage-gap can be explained by higher urban education levels, higher urban pay-off for a college degree actually plays a larger role. This is particularly true for college graduates. ERS also analyzed the increase in rural educational attainment levels over the past decade, finding that the growth in the college-educated population has been similar in rural and urban areas.

Mr. Kingston: What impacts is the new energy legislation requiring corn ethanol having or going to have on the rural economy based on your research? Are you concerned that the ethanol bubble will burst due to environmental concerns, new technology or new substitutes? What would happen to rural economies?

Response: Ongoing research at ERS is designed to provide empirical estimates of the impact of the ethanol industry on rural economies. Both direct employment at ethanol plants and associated jobs within the local economy will be assessed, including possible offsetting effects of reductions in other industries that also use corn as a primary input (e.g., livestock production). The economic contribution of ethanol plants to a local economy will depend on whether the non-feedstock inputs are acquired from other areas. Currently, 70 percent of ethanol plants are located in rural counties experiencing population loss, which suggests that these jobs are being created in places that otherwise have limited employment opportunities. When cellulosic-based ethanol technologies become economically viable, new opportunities may open up for some rural communities.

BROADBAND SERVICES

Mr. Kingston: In 2008 ERS received $250,000 to conduct a study of the broadband services industry.

Can you report on the progress of the study? In particular could or will you be able to develop a rational methodology for determining under what circumstances and to what degree the Federal Government should intervene to assure widespread service to rural economies?

Response: The ERS study of the broadband services industry has begun. ERS has developed a number of measures for broadband availability in rural areas that will be used to compare the impact of broadband access to various rural economic entities. Comparing counties that are similar in all ways except for access to broadband will enable us to distinguish how access affects investment and development. ERS will hold a workshop on September 29-30, 2008 to present new research from land-grant institutions and other research institutions that address the economic effect of broadband services to the rural, food, and agriculture economic sectors. The workshop is designed to obtain input to complement the ERS research. A preliminary summary drawing on the combined efforts of ERS and its cooperators is anticipated in February 2009.

STUDY OF COMMERCIALIZATION OF PRODUCTS FROM CLONED ANIMALS

Mr. Kingston: The 2008 appropriations bill directed FDA to work with ERS in conducting a study of the market and trade implications of the commercialization of meat and milk from cloned animals and their offspring. Has the study been initiated and what is the scope of the study?

Response: ERS has initiated its study on market impacts of commercialization of meat and milk from cloned animals and their offspring. The analysis will consider five major factors influencing the extent and cost of market differentiation:

- The development of standards of identity for "non-cloned" milk and meat products: Which products are identified as "cloned" will determine the extent and costliness of market differentiation. In particular, whether products from the offspring of cloned animals are also identified as "cloned" will have a large impact on market evolution. ERS will document the evolution of standards of identity domestically and internationally to develop a number of scenarios for the differentiation cost estimates.

- Domestic consumer attitudes towards products from cloned animals and their offspring: Domestic consumers are the primary market for US beef, pork, and milk. Their attitudes about cloned-animal products will determine the relative size of the cloned and non-cloned markets. ERS will work with new survey evidence on consumer attitudes after the FDA announcement to construct a number of market scenarios.

- International markets' acceptance of products from cloned animals and their offspring: International markets' acceptance of meat and milk from cloned animals and their offspring will also influence the relative size of the cloned and non-cloned markets, or they could chose to produce certified non-cloned products for export markets. ERS will use two of its trade models to examine the economic impact of a number of trade scenarios.

- Industrial organization: The structure of the major industries affected by the decision to introduce cloned animal products into the food supply will influence the characteristics of differentiated markets. ERS will examine number of firms, market share, vertical and horizontal integration, and market breadth and depth of the industries affect by cloning to report on the dynamics of market development.

- Segregation/certification/marketing: Marketing of non-cloned products will depend on the development of systems/technologies to credibly distinguish non-cloned from cloned products. To build these markets, producers may need to invest in testing, traceability, certification, labeling, and marketing services and technologies. ERS will investigate the viability of these technologies/services and the types of costs they entail.

Mr. Kingston: Over the long run do you believe that cloning could have a major positive impact on the ability of underdeveloped countries to improve their standard of living?

Response: Current costs of cloning technologies suggest that cloning will not have a significant impact on the ability of underdeveloped countries to improve their standard of living in the near to medium term. Long-run advances in cloning technologies and subsequent economic effects are difficult to predict.

FOREST SERVICE RESEARCH

Mr. Kingston: The Forest Service receives roughly $250 million annually through the Department of Interior budget to conduct research related to public and private forest lands. The laboratories where this research is conducted are largely located at land grant institutions, which also receive funds for forestry research through CSREES.

What are the Department's reasons for keeping Forest Service research separate in its 2007 farm bill proposal?

Response: Research has been part of the Forest Service mission since the agency's inception in 1905. Today, some 500-plus Forest Service researchers work in a range of biological, physical, and social science fields to promote sustainable management of Nation's diverse forests and rangelands with programs in all 50 states, U.S. territories, and commonwealths. The work has a steady focus on informing policy and land management decisions addressing issues such as invasive insects, degraded river ecosystems, or sustainable ways to harvest forest products. While Forest Service researchers sometimes partner with academia for short-term projects, they often work independently or with a range of partners, including other agencies, nonprofit groups, and industry.

The Forest and Rangeland Research appropriation is organized in seven strategic program areas that align to the goals and objectives of the Forest Service 2007-2012 Strategic Plan as well as the Chief's Climate Change, Kids in the Woods, and Water initiatives. The two largest program areas are Wildland Fire and Fuels R&D ($23.3 million requested in FY 2009) and Invasive Species R&D ($29.8 requested in FY 2009). The Wildland Fire and Fuels program supports decision-making related to Appropriate Management Response to wildland fires, hazardous fuel reduction, maintenance and enhancement of the health and productivity of fire-affected ecosystems, and post-fire emergency response and recovery. The Invasive Species program supports essential on-going research to develop new knowledge and tools for priority invasive species such as the Sirex wood wasp, emerald ash borer, hemlock woolly adelgid, etc.

The Administration's Farm Bill proposals did include a number of proposals related to forest health or forest products research. The proposed Forest Wood-to-Energy program would accelerate development and use of new technologies to more productively utilize woody biomass resources offsetting the demand for fossil fuels and improving forest health. The Landscape Scale Forestry Competitive Grant Program would develop innovative solutions to address local forest management issues and developed local nontraditional forest product markets.

ARS/CSREES FUNDING

Mr. Kingston: The Administration proposes the consolidation of ARS and CSREES into a single agency to be called the Research, Education, and Extension Service (REES).

ARS receives direct funding through the annual USDA appropriations acts. The states receive federal funds, administered by CSREES, through a variety of block grants (or formula funds) and competitive grants. For the past several years, the Administration has proposed in its annual budget request to cut formula funds to states, while the proposed ARS appropriation remains the same or increases.

Under the proposed merger of ARS and CSREES, how would these different funding mechanisms be treated?

Response: Under the Administration's Farm Bill proposal to consolidate the funding mechanisms for ARS and CSREES would remain the same.

Mr. Kingston: What changes, if any, is the Administration considering to the decades-old formula funding mechanism?

Response: The Administration's Farm Bill proposal for consolidating ARS and CSREES assumes the formula funding mechanism now administered by CSREES would not change.

Mr. Kingston: Is the intent of the Administration's proposal to increase the amount of research funding that would be distributed through competitive grants, and decrease the amount distributed through the formula programs? If so, why?

Response: The Administration's Farm Bill proposal is silent on the distribution of funding. However, the President's FY 2009 Budget for CSREES does propose increases for competitive programs and decreases for formula fund programs, reflecting the Administration's policy of supporting competitive research programs. The President believes that merit-based, competitive research programs represent the most effective mechanism for attracting the Nation's finest scientists to address the Nation's most pressing research challenges. Consistent with this policy, the NRI, the agency's flagship competitive research grant program, continues to be a very effective program for supporting cutting-edge research focusing on high priority problems.

AGRICULTURAL BIOENERGY AND BIOBASED PRODUCTS RESEARCH INITIATIVE

Mr. Kingston: The Administration proposes to create an Agricultural Bioenergy and Biobased Products Research Initiative with mandatory annual funding of $50 million for 10 years. The initiative would use existing Agricultural Research Service and facilities and scientists and provide competitive grants to universities. These USDA-funded activities would be coordinated with Department of Energy activities. The objectives would be to make agricultural biomass a viable alternative to petroleum and to develop industrial products from the byproducts of bioenergy production.

Will current and pending ARS work be displaced when facilities and scientists shift to the high priority bioenergy topics?

Response: No displacement of current or pending ARS work would be anticipated under the initiative proposal that would be supported with new mandatory funding.

Mr. Kingston: Will the Department of Energy have management control over any of this research funding?

Response: The Department of Energy (DOE) would be consulted, but not have management control over any funds, except those that were competitively awarded to DOE.

Mr. Kingston: Does the proposal envision any collaboration between public and private research in this area?

Response: The proposal was designed to include a competitive grant program with broad eligibility to encourage research collaboration across public and private research institutions.

SPECIALTY CROP RESEARCH INITIATIVE

Mr. Kingston: In its Farm Bill proposal, the Administration proposes to create a new Specialty Crops Research Initiative with annual mandatory funding of $100 million. The initiative is said to include both intramural (ARS) and extramural (CSREES) programs.

How would the Administration propose to divide the funding between these two categories? With regard to intramural research, how many new scientists might be added to ARS, or would the current staff shift priorities to specialty crops and away from current activities?

Response: The administration proposal included both intramural and extramural programs but it did not establish an allocation of funding between the two functions which were to be combined into a single agency created by the merger of ARS and CSREES. The Specialty Crop Research Initiative that we proposed is intended to be funded through increased funding rather than through reallocation of existing funds. As such we would seek the additional staff needed to appropriately manage the growth in both intramural and extramural functions.

FOREIGN ANIMAL DISEASE RESEARCH

Mr. Kingston: The premier U.S. facility for research on foreign animal diseases is the Plum Island Animal Disease Center. Many experts agree that the 50-year old Plum Island facility, built in the 1950s, is nearing the end of its useful life and unable to provide the necessary capacity for current biosecurity research.

The Department of Homeland Security is proceeding with plans to replace the aging Plum Island Animal Disease Center with a new "National Bio and Agro-Defense Facility" (NBAF) for research on high consequence foreign animal diseases. Congress has already appropriated $46 million over FY2006-FY2007 for planning and site selection, and the estimated design and construction cost is $451 million.

Plum Island is the only facility in the United States that is currently approved to study high-consequence foreign livestock diseases, such as foot-and-mouth disease (FMD). The Administration proposes to change the law to allow research and diagnostics for highly infectious foreign animal diseases on mainland locations in the United States.

Mr. Kingston: Plans to build this new laboratory on the mainland seem to be already underway. If Congress does not change the law and DHS builds the facility on the mainland, will the Secretary of Agriculture use his regulatory authority to allow such research so that the presumed new facility can be used? Which action should come first, statutory authority or building the facility?

Response: ARS believes that it is beneficial for the Secretary to have clear authority to authorize or prohibit the presence of live virus on the mainland. Anyone wishing to build a facility to conduct research on the

virus would need to consult with the Secretary to have a clear path for facilities development.

Mr. Kingston: Was USDA consulted about the DHS decision to build a new lab? Does USDA have a preference for location, relative to Plum Island and the USDA personnel who work there?

Response: ARS was consulted by DHS. ARS scientists participated in the development of a program of requirements for a new facility.

USDA is supportive of the DHS decision to investigate alternative sites for the location of a new facility. USDA believes that the process will result in sound decisions about the placement of the facility.

Mr. Kingston: Does USDA have a seat on the DHS site selection committee?

Response: DHS will be the sole decision maker regarding the selection of a site for the NBAF. USDA scientists were participants in the evaluation process and served as technical experts.

Mr. Kingston: Critics are concerned that locating the facility in regions where cattle or other livestock are raised may pose an unnecessary risk if security features are breached by terrorism, which is an unpredictable risk compared to accidental or unintentional risks. GAO found security concerns at Plum Island a few years ago. What is the advantage of building such a facility in Kansas, for example, where the consequences of a biosecurity breach could be much more devastating to domestic cattle production than if the facility remained at a coastal site such as Plum Island? How do these risk factors enter the cost-benefit analysis of site selection?

Response: The amount of emphasis given to potential exposure of livestock to an accidental release of virus will be made by DHS as a part of its site evaluation. While there appear to be benefits to operation on an island, several nations, including Canada, operate containment facilities for the highly contagious FMD virus in locations that would be susceptible to accidental release. Both the physical facility and the training of the people using the facility are critical factors in maintaining containment. Both are emphasized in USDA facilities.

Mr. Kingston: How do the risks compare between animal and human diseases, regarding operating the Centers for Disease Control (CDC) BSL-4 lab in Athens, Georgia, a mainland location, compared to the Plum Island location for agriculture?

Response: A comparison of the relative risks of operating CDC-BL-4 in Georgia and a BL-3 lab on Plum Island is difficult. While we cannot make a direct assessment, we can identify that several factors are important: environmental stability of the pathogen, virulence of the pathogen, vectors for pathogens, and the availability of vaccines.

NATIONAL VETERINARY MEDICAL SERVICES ACT

Mr. Kingston: As I mentioned recently during a meeting of the House Agriculture Committee on this topic, I am concerned about the pace of the implementation of the National Veterinary Medical Services Act. CSREES transferred $750,000 to FSIS for an existing Federal Loan Repayment program.

How has that money been used? Was it used in a manner consistent with the National Veterinary Medical Services Act?

Response: CSREES entered into a reimbursable agreement with the Food Safety and Inspection Services (FSIS) for the purpose of using the funds as hiring incentives, to pay the educational loans of new hires. The agreement with FSIS met a critical objective of the National Veterinary Medical Services Act, which is to address areas of severe veterinary need in the Federal government, most notably in food safety and in remote, rural locations. The FSIS oriented implementation strategy represents an approach that enables the initiation of a loan repayment program to benefit eligible veterinaries in the shortest possible time frame.

Mr. Kingston: When does CSREES intend to publish regulations for the loan repayment program?

Response: New staff will be hired to administer NVMSA. Similarly, new processes and procedures will need to be developed and put in place, since the agency will be dealing with individual veterinarians instead of the universities that comprise its normal customer base. Simultaneously, CSREES will develop and publish the rule(s) necessary implement this program.

It is very hard to judge how much time will be required. However, an estimate, we believe CSREES may be able to accept applications as early as the second quarter of FY 2009 with the repaying of educational loans by the end of FY 2009.

OBESITY PREVENTION RESEARCH

Mr. Kingston: I'm a supporter of school-based physical education programs, such as PE4Life. Such programs are getting positive measurable outcomes in student fitness. You've testified that the ARS budget would allocate over $12 million for obesity prevention research. Don't we already understand the effectiveness of healthful eating and physical activity and how can we prevent obesity in children?

While we all understand the dangers of obesity and the need to eat a nutritious diet and exercise regularly, do we need to spend $12 million in federal funds to study a condition brought on predominantly by voluntary behavior?

Response: We agree that food choice and physical activity behavior modifications are key factors to resolving the obesity epidemic in the United States. But how to effectively change behavior towards healthful choices that can be achieved by the American public is poorly understood. The American population is struggling with increasing time pressures, a changing food supply, declining food preparation related skills, and an increasingly sedentary lifestyle making the need for practical yet science-based guidance on diet and physical activity ever more important. Economic factors such as

trade-offs between money and time also need to be factored in for realistic solutions, particularly for high-risk populations. Thus, understanding why significant numbers of Americans do not follow the healthful nutrition and physical activity recommendations in the *Dietary Guidelines for Americans* is an important first step to developing effective strategies for behavioral change. This research was a top priority recommendation of the 2005 Dietary Guidelines Advisory Committee; a committee comprised of leading U.S. nutrition and physical activity experts.

Mr. Kingston: Don't we already understand the effectiveness of healthful eating and physical activity and how we can prevent obesity in children?

Response: One of the limitations of the *Dietary Guidelines for Americans* is that they are for the most part based upon research conducted with adults. In children, we understand that caloric intake must be balanced by adequate physical activity to prevent obesity but the most effective dietary patterns, the quantity and intensity of physical activity, and how to shift eating and physical activity behaviors for obesity prevention are poorly understood.

Mr. Kingston: Doesn't the solution, at least to the issue of preventing obesity among children, lie in how parents raise their children and provide for their wellbeing? Is there really a chance that government research will find a way to effectuate a turn-around in obesity rates that has a greater probability of success than efforts by individuals themselves?

Response: The role of parents in preventing obesity in their children through healthful food and physical activity choices is critical. Government research on nutrition and health can play a complementary role by providing science-based information and strategies to assist parents in making wise choices for their children.

QUESTIONS SUBMITTED BY CONGRESSMAN FARR

SPECIALTY CROP RESEARCH

Mr. Farr: In 2004, the Specialty Crop Competitiveness Act was passed by Congress. As part of that bill a permanent specialty crops committee was established, under the National Agricultural Research, Extension, Education and Economics Advisory Board. The law also requires the committee to study the scope and effectiveness of research, extension and economics programs affecting the specialty crop industry and report its finding to the Advisory Board. In turn, it requires the Secretary to consider the annual report of the committee when developing the Department of Agriculture's annual budget recommendations.

To your knowledge, has the Secretary factored in this committees report related to research priorities of the Administration and is that incorporated into the FY2009 Budget?

Response: The National Agricultural Research, Extension, Education, and Economics Board's specialty crops committee issued reports in 2006 and 2007. The recommendations in these reports have been important input in the formulation of the President's FY 2009 Budget and in the planning and management of research programs supported by base funds. For example, the FY 2009 budget proposes increases in food safety, crop protection and plant genomics that are consistent with the committee recommendations. The recommendations have also influenced decisions regarding national program plans related to specialty crops, and the research focus of ARS post-docs.

CLASSICAL PLANT AND ANIMAL BREEDING

Mr. Farr: In recent decades, public resources for classical plant and animal breeding have dwindled, while resources have shifted toward genomics and biotechnology, with a focus on a limited set of major crops and breeds. Unfortunately, this shift has significantly curtailed the public access to plant and animal germplasm, and limited the diversity of seed variety and animal breed development. This problem has been particularly acute for organic and sustainable farmers, who seek access to germplasm well suited to their unique cropping systems and their local environment. Without renewed funding in this arena, the public capacity for plant and animal breeding will disappear.

Yet the concern goes far beyond the needs of sustainable and organic farmers, and raises nationwide food security concerns. If we lose the capacity for classical plant and animal breeding, we also lose our ability to maintain a diverse set of plant and animal germplasm that is well adapted to changing environmental and climatic conditions. By relying on an ever-narrowing pool of seeds and animal breeds our food supply is placed in a precarious position, as it exposes us to greater harm in the event of large-scale shift in climate or pest populations.

As the nation's preeminent agricultural competitive grants program, the National Research Initiative (NRI), should be funding classical plant and animal breeding activities to a much greater extent. Both the House and Senate versions of the pending Farm Bill include language to make classical

plant and animal breeding a priority within CSREES competitive grant programs.

What is your agency doing to step up its efforts on classical plant and animal breeding?

Response: CSREES supports classical plant breeding through research and education programs. Competitive programs in the NRI have increased efforts to support classical plant breeding, particularly in the areas of developing and deploying new tools for plant breeding and in plant breeding education.

The Plant Genome and Plant Biology programs of the NRI solicit and support two types of proposals relevant to classical plant breeding: research proposals, and proposals for projects that integrate research, education, and extension activities. The NRI Plant Biology program contains a program element focused on plant breeding education and research integrated projects and encourages applications utilizing specialty crops. The goal is to support projects that integrate research and education to enhance germplasm and advance training in plant breeding in agriculturally and economically important plant and forestry species. The ten-year goals for this program element are to increase the number of young scientists ready for careers in plant breeding; and to improve transfer of science-based knowledge to producers and consumers through breeding or breeding combined with biotechnology. Three projects were funded in the Plant Biology-Plant Breeding and Education program element in the previous two years and three more projects are recommended for funding this current year. The Environmental Stress element of the Plant Biology program also encourages basic research proposals utilizing plant breeding as part of the approach to understand how plants respond to abiotic stress.

An increased emphasis on plant breeding in the NRI Plant Genome program is indicated by the addition of the term "breeding" to the program name to read Plant Genome, Genetics and Breeding, proposed for future requests for applications and intended to highlight the importance of breeding in plant genome projects. Effective integration of classical breeding practice and molecular breeding technologies for crop improvement is one of the long-term goals for the Plant Genome program. A component of this program is the Coordinated Agricultural Projects (CAPs) for Applied Plant Genomics. These multi-million dollar research, education and extension projects are intended to enhance classical plant breeding and to provide U.S. agriculture with a competitive advantage. The coordinated efforts aim to improve breeding efficiency and provide geneticists and breeders with resources and tools. These awards have been an innovative and highly influential experiment in delivering upstream molecular genetics and genomics research to plant breeding, as well as providing some funding for plant breeding per se. Awards made through the Plant Genome: CAPS for Applied Plant Genomics program are the Conifer Translational Genomics Network, the Barley CAP, the Wheat CAP, and the Rice CAP. The Plant Genome CAPs for Applied Plant Genomics program encourages projects on any U.S. crops including specialty crops.

The Integrated Organic Program also supports plant breeding projects. The purpose of this program is to solve critical organic agriculture issues, priorities, or problems through the integration of research, education, and extension activities. Projects in plant breeding funded through this program are Cornell University, The Organic Seed Partnership; Washington State University, Developing Wheat Varieties for Organic Agricultural Systems;

University of Nebraska, Developing Small Grains Cultivars and Systems Optimally Suited for Organic Production; and University of Nebraska, Improving Organic Farming Systems Across Nebraska Agroecoregions. The first three are plant breeding projects; the last includes a significant variety evaluation component. It is anticipated that any new funding as a result of the Specialty Crops Research Initiative will result in significant investment in this area, as well as collaboration with the NRI Plant Genome and Plant Biology programs.

The CSREES Graduate Fellowship Grants program has supported Master's and Doctoral level student training that integrate conventional and molecular techniques for plant breeding. The training support is for seven students at the M.S. level and six students at the Ph.D. level, with two doctoral fellows supported for International Research and Thesis Travel to India and Thailand. Students who graduate from these funded projects will function competently in conventional plant breeding as well as in genomics and bioinformatics. The Hispanic-Serving Institutions Education Grants program also supports plant breeding and has funded a project involving University of Puerto Rico, Mayaguez and North Dakota State University that aims to strengthen education and research in plant breeding and genetics.

CSREES led the formation of the multi-state Plant Breeding Coordinating Committee as a forum in which plant breeders from all sectors are working together to communicate about how plant breeding helps achieve important goals that are already very much on the national agenda:

- Enhancing harmony between agriculture and the environment
- Keeping our food supply safe and secure into the future
- Providing healthful food for healthy people
- Keeping U.S. agriculture competitive
- Supporting continued excellence in U.S. science and technology
- Helping to provide for the world's need for food, fiber, and fuel, in the face of new challenges

This will help plant breeders establish a new rapport with the urban public about the value of their work to all Americans, as well as help CSREES better report the relevance of plant breeding to USDA strategic goals and other contemporary needs.

CSREES supports classical animal breeding research programs. The Animal Genome program of the NRI competitive grants program is providing increased support for classical animal breeding through development of resources, tools, and methodologies to accelerate traditional animal breeding. One of the long term goals of the NRI Animal Genome program is the identification of genes for economically important traits that can be quickly tracked and used to improve animal health, product quality, and production efficiency and to make these technologies available to producers and breeders. The research projects and integrated research, education, extension projects supported through the Animal Genome program are delivering information and technologies to genetically improve animals of agricultural importance, integrating molecular tools with classical breeding approaches for improved breeding efficiency. Projects supported by the Animal Genome program are also building on the increasing availability of genetic sequences for agricultural animals such as chicken, cattle, and swine. General examples of funded projects include studies of genetic regulation of energy balance at the molecular and quantitative level in dairy cows with the long term aim of developing novel genetic selection strategies to improve lifetime productivity, efficiency, and welfare; identification of genes important for reproductive efficiency in

swine for future modification of breeding schemes; mapping studies in poultry to improve breeding strategies for meat quality; and identification of molecular markers to enhance selection strategies for improved fertility in beef cattle.

The Translational Animal Genomics program element of the NRI Animal Genome program supports projects which will develop and provide tools to accelerate animal breeding, applying knowledge of the animal genomes for more efficient breeding practices and animal production, superior product quality, and disease preventions. Research supported through this program element includes the development of tools for marker assisted selection which will aid genotyping and selection of individuals for breeding. Complex traits, such as animal fertility and growth, can be difficult to improve using classical breeding approaches only, and the development of molecular and genomic tools will assist in breeding selection techniques. The Animal Genome Bioinformatics program element has recently added calls for the development of tools to integrate the use of genomic data into large scale genetic evaluation programs and the use of genomic information to design precision mating systems. An example of a project recently awarded to scientists at Iowa State University will develop and evaluate statistical and computational techniques to identify and select genes in purebred nucleus animals that are beneficial to crossbreds at the farm level. The Whole Genome Enabled Animal Selection program element of the NRI Animal Genome program has focused on integrating genomic discoveries and technologies with breeding practice and accelerating identification of traits of interest directly useful to animal breeders. Projects funded in this program element are large-scale team efforts with expertise in animal breeding and quantitative genetics, genomics, bioinformatics, animal molecular biology and involving principal stakeholders and end-user groups such as breed associations, breeding organizations, and livestock producers. The integration of molecular and genomic tools and resources with traditional selection approaches will enable U.S. animal production to respond more efficiently to the needs for affordable and sustainable food production.

ORGANIC LIVESTOCK

Mr. Farr: Livestock health is one of ARS main priorities. Yet, two important ARS initiatives for organic livestock systems are slated for cancellation. (1) Research efforts on organic pasture management at University Park, PA would be lost with the closure of that station. (2) Integrated systems research on organic dairy management, soil improvement, and horticultural pest management at Orono, Maine is slated for closure. The loss of these projects would be a major setback to the organic livestock sector, and place ARS even further away from an appropriate share of resources directed to organic systems.

Question: Why can't the organic livestock sector be part of ARS priorities?

Response: The President's fiscal year 2009 budget proposed to terminate all research at University Park, Pennsylvania, and Orono, Maine, both conventional and organic. Future costs, particularly at University Park, are prohibitive to maintaining program viability and sustainability. Twenty percent of the University Park and one hundred percent of the Orono budgets support organic agriculture, but none of this research is for animal health. ARS plans to continue organic livestock health research at Booneville,

Arkansas. Moreover, ARS will continue its extensive research on animal health and protection with $120.6 million in estimated FY 2009 funding, which benefits the livestock industry nationally. Thus, the organic livestock sector continues to benefit from ARS research.

NATIONAL AGRICULTURAL LIBRARY

Mr. Farr: Does the proposed increase for the National Agricultural Library support the Alternative Farming Systems Information Center (AFSIC), a unique resource for the organic sector within the NAL?

Response: The proposed increase for the National Agricultural Library would not support the Alternative Farming Systems Information Center (AFSIC).

ORGANIC RESEARCH AT ARS

Mr. Farr: Do the ARS initiatives on plant genetic resources include objectives to produce varieties that are optimized for organic systems? How many? Which crops?

Response: Yes, ARS initiatives on plant genetic resources include objectives to produce varieties that are optimized for organic systems. ARS scientists and their academic and industry cooperators breed or genetically-enhance more than 50 field and specialty crops. ARS' initiatives in this area include a total of 120+ plant genetic resource, genomics, genetics, and breeding projects that vary substantially in their specific concentration on such objectives. Specifically, the ARS National Plant Germplasm System comprises more than 20 genebanks throughout the United States which conserve, evaluate, and distribute to researchers and breeders more than 500,000 genetically-distinct samples of more than 12,400 plant species, encompassing all of the major U. S. field and specialty crops. Some of these genetic resources, especially heirloom varieties of vegetables and fruits, may be incorporated directly into organic production systems.

In other cases, ARS researchers and their academic and industry cooperators incorporate genes from these genetic resources into breeding lines by traditional cross-pollination and/or selection, generating an enormous variety of "non-transgenic" sources for host-plant resistance to diseases, pests, and environmental extremes, plus genes for higher yield and for key quality traits. Varieties derived from these breeding stocks perform well in conventional production, and are eligible for certification as "organic" when cultivated in the appropriate organic production systems. For example, ARS rice breeders at Stuttgart, Arkansas, and Beaumont, Texas, have developed lines and varieties which perform well in conventional production systems and are grown extensively by many, if not most, organic rice producers in Texas and in South Carolina.

Some of ARS plant genetic resource and breeding initiatives concentrate more intensively than others on developing plant genetic resources and crop varieties tailored specifically for organic production. At Beltsville, Maryland, ARS researchers and cooperators from academia and the Rodale Institute have bred, evaluated, and released new genetic resources and cultivars of winter-hardy, hairy vetch, a superior cover crop, and grain-type soybeans with enhanced crop residue production, which will be incorporated into organic and/or sustainable production systems.

The ARS plant genebank at Geneva, New York, constitutes a key component in the "Organic Seed Partnership," a national network of ARS, university, and private-sector projects focused on developing and delivering improved vegetable varieties selected for superior performance in organic systems. To date, the preceding network has bred bell pepper, squash, tomato, melon, potato, and cucumber genetic resources and varieties selected for superior performance in organic production systems. It has also trained organic farmers and small-scale organic seed companies in processing seed for either their own use or for commercial sales.

ARS researchers at Ames, Iowa, and their university collaborators cooperate closely with farmers and with the Michael Fields Agricultural Institute, East Troy, Wisconsin, to breed corn genetic resources and varieties tailored to low input, sustainable, and/or organic production systems. These improved genetic resources incorporate traits that might optimize adaptation to the preceding production systems, while increasing producer profitability through enhanced corn market value. Seeds of improved genetic resources have been distributed to organic farmers for on-farm testing. Through the Practical Farmers of Iowa, the farming community is enlisted in breeding and outreach initiatives for selecting and producing open-pollinated, hybrid, and synthetic corn varieties suitable for sustainable and/or organic agriculture. This research also addresses the significant challenge of ensuring that seeds for organic corn production possess excellent quality (vigor, germination, cold tolerance, etc.). Breeding corn high in methionine content to feed organically-produced poultry is also a specific emphasis.

NATIONAL PROGRAM LEADER

Mr. Farr: What is the status of recommendations by CSREES staff for a National Program Leader for Organic Agriculture?

Response: A vacancy announcement for a National Program Leader for Horticulture was published on May 8, 2008. Providing leadership for the agency's organic agriculture programs and activities will be one of the major responsibilities of this position.

SECTION 406 INTEGRATED ACTIVITIES

Mr. Farr: Dr. Hefferan's testimony indicates that organic transitions research and extension grants (ORG) currently funded under the Section 406 Integrated Programs would move to the NRI.

Would this still be integrated with the Organic Agricultural Research and Extension Initiative (OREI) under the Integrated Organic Program?

Response: The proposal to move the Section 406 Integrated Programs into the National Research Initiative is a means to streamline the CSREES budget portfolio and ultimately grow the program. If funds are available for both the Organic Transition Program and the Organic Agricultural Research and Extension Initiative, it is anticipated that in FY 2009, both programs will be administered under the Integrated Organic Program to insure coordination of projects and eliminate duplications of effort. This joint administration

was recommended by the National Agricultural Research, Extension, Education, and Economics Advisory Board.

HIGHER EDUCATION ORGANIC RESEARCH

Mr. Farr: Recently a number of undergraduate and graduate programs focused on organic agriculture have emerged.

What programs and initiatives within USDA-REE are supporting these trends in higher education?

Response: The Higher Education Challenge Grants program provides funding, through a competitive, peer-review process, supporting innovative teaching practices to improve the quality of higher education in all the agricultural sciences disciplines.

In 2007, the Higher Education Challenge Grants program awarded $459,849, in a joint venture between the University of Wisconsin-River Falls and a regional community college, to establish a sustainable agriculture major to deliver instruction in the principles and practices of sustainable, organic agriculture for up to 100 students by the year 2015. In collaboration with the Midwest Organic and Sustainable Education Service, the project also will include a range of workshops, short courses, seminars, and demonstration events for the residents of Wisconsin designed to give individuals who are not interested in pursuing a college or university degree information about organic food production and sustainable practices in agriculture.

In 2006, the Challenge grants program awarded $145,781 to the University of Georgia to develop a 15 credit-hour interdisciplinary minor in organic agriculture. Graduates of this curriculum will receive the Certificate in Organic Agriculture designation, as well as actual experience working with a local community to promote the benefits of sustainable farming. The institution projects up to 75 students will be enrolled in the curriculum by 2010.

In 2005, the Challenge grants program awarded $141,274 to the University of Kentucky to create a multidisciplinary undergraduate curriculum for sustainable agriculture production that includes organic agriculture principles and procedures. Also that year, one additional award for $100,000 provided Michigan State University with funds to develop a research project for undergraduates to study intensive, year-round, organic food production and local marketing practices in a Northern community farm setting.

The CSREES Organic Research and Extension Initiative, Integrated Organic Program, in 2005, awarded $754,442 to Michigan State University and one objective was the development of an organic curriculum at the university. A new Organic Farming certificate program was developed in the Department of Horticulture. The approved curriculum was initiated with seven full-time students in 2007 and fifteen enrolled for 2008. Further, in 2008, Integrated Organic Program is awarding $434,925 to Northeast Wisconsin Technical College to develop a Two-year Certificate Program for students, extension educators and other professionals. This eight credit Organic Farming Certificate Program will be available on campus and via the internet at Northeast Wisconsin Technical College.

U.S. NATIONAL ARBORETUM

Mr. Farr: In reviewing the Administration's budget for the U.S. National Arboretum, I see that you have proposed to cut $2 million from the Gardens Unit and the Education and Visitor Services Unit. Please explain why these cuts have been proposed.

Response: The reductions have been proposed to address higher research priorities of the Administration, such as bioenergy, food safety, and obesity prevention.

Mr. Farr: Did the specificity of these cuts, i.e., that they must come from Gardens and Education and Visitor Services at the National Arboretum, originate from an OMB mandate to the USDA, from the senior administration of the Department or from within the ARS itself?

Response: ARS programs were reviewed for relevance, quality, impact, and cost effectiveness in the overall context of competing program priorities in the Department and the Administration's goal to balance the Federal budget by 2012.

Mr. Farr: How do you intend to execute these cuts and maintain compliance with your legal obligation to provide education at the US National Arboretum, a mandate which Congress spelled out in the legislation which established the National Arboretum?

Response: ARS would continue to provide education at the U.S. National Arboretum at a reduced scope.

Mr. Farr: If these cuts are implemented, what will be the impact on the USNA?

- Will there be a curtailment of days or hours of operation?
- Will you be able to maintain all of the current Garden Displays and Plant Collections currently at the Arboretum?
- Will there be a reduction in the number of staff positions currently approved for the Arboretum and if so, how many and where?

Response: The Arboretum would emphasize research activities and reduce funding for its non-research activities. The Gardens Unit and Education and Visitor Services Unit would be merged. Resources to maintain the gardens and plants collections would be reduced and educational activities and use of the arboretum by outside organizations would be limited.

Public access time would most likely be reduced.

The Arboretum would most likely have to reduce in size several of the existing collections and no longer actively maintain other collections.

There would be a reduction in staff. The Gardens Unit would be reduced from the current level of 26.6 FTE to 13.5 and the Education and Visitor Services Unit would be reduced from 11.7 to 3.7 FTE positions.

Mr. Farr: Do you think the ARS is still the appropriate administrative home for the National Arboretum in light of the Department's desire to focus on research and the fact that the Arboretum has become an increasingly popular destination for the general public to visit?

Response: USDA and ARS view the Arboretum as a national asset and have taken pride in its public displays. ARS is committed to research supporting the floral and horticultural industries.

eXtension INITIATIVE - ATTRA INVOLVEMENT

Mr. Farr: The eXtension initiative is a web-based Cooperative Extension resource funded jointly by land grant universities. The content for eXtension is developed by a Community of Practice (COP) to deliver this information to a Community of Interest with the content being provided by faculty members, professional and para-professional staff, county educators, government agency folks and industry experts. Although Land-Grant University and Cooperative Extension faculty are expected to contribute there are no funds available to compensate them for their work at this time. The eXtension group has asked Appropriate Technology Transfer for Rural Areas (ATTRA) and others including Organic Farming Research Foundation and Land-Grant members from a number of Universities to develop an eOrganic section to this web site so we have partnered with them to do this since they don't have the expertise or monies to get it done. The eXtension folks describe this new eOrganics web site as complementary to ATTRA but not duplicative.

I note that the Extension Service has launched an eXtension web based information program. I am also glad to note that you have partnered with the ATTRA sustainable agriculture and market development program operated by the National Center for Appropriate Technology through the Rural Business Cooperative Service to prepare information on organic agriculture. I think this kind of partnering is essential in order to avoid duplication of effort and to maximize the use of scant financial resources. Can you assure me that this kind of cooperation and partnering with ATTRA and other programs will continue as you move forward with eXtension? How many Extension agents are currently located at the state and county levels?

Response: eXtension will continue to cooperate and partner with other non-land-grant organizations in the development of eXtension. ATTRA and other non-land grant partners were part of the original eOrganic proposal to form an eXtension COP that CSREES competitively awarded to Oregon State University in 2007. Other examples of such participation in eXtension COP include: HorseQuest with the American Youth Horse Council, Cotton with the National Cotton Council, Financial Security for All with the Financial Industry Regulatory Authority, and Entrepreneurs and Their Communities with the National Association of Counties. The eXtension directors and staff are completing the strategic implementation plan for the next three years which addresses the involvement of the other non-land-grant organizations in eXtension.

ARS WESLACO, TX PROPOSED CLOSURE

Mr. Farr: I understand that due to proposed cuts to the Agricultural Research Service in the President's budget, The Kika de la Garza Subtropical Agricultural Research Center in Weslaco, Texas, is in danger of being shut down. This facility has been conducting very important research on Pierce's Disease and its most dangerous vector, the Glassy-Winged Sharpshooter. Pierce's disease poses a huge threat to vineyards in California, Texas and other states. We are in desperate need of the type of research being done in

Weslaco. If the closure of the Weslaco station closes what happens with the research being conducted currently and where will the research go to after the closure.

Response: Research on Pierce's Disease and the Glassy-Winged Sharpshooter will continue in ARS at the Crop Diseases, Pests and Genetics Research Unit at Parlier, California. This unit currently leads this research for ARS. As a national institution, ARS research will be delivered to California, Texas, and all other areas where it is needed. Research currently conducted at the Weslaco Beneficial Insects Research Unit will be discontinued, but related research to meet the threat of Pierce's Disease will be conducted at Parlier as indicated above.

ALLOCATION OF EFNEP FUNDS

Mr. Farr: Please explain the details of the formula for the distribution of EFNEP funds to the states and territories. Include amendments and changes, and the rationale behind the decisions, up to and including fiscal year 2008.

Response: Extension programs funded under section 3d of the Smith-Lever Act and allocated through a formula method based on census data include the Expanded Food and Nutrition Education Program, also known as EFNEP. Section 883 of the Federal Agriculture Improvement and Reform Act of 1996 amended section 3d of the Smith-Lever Act to allow 1890 Land-Grant Institutions, including Tuskegee University and West Virginia State University, to apply for and receive funding directly for programs authorized under section 3d when the funding level exceeds the highest amount made available for the program in fiscal year 1995 or any other previous fiscal year. This change affected the fiscal year 2006 EFNEP distribution and distributions thereafter. Further, pursuant to Section 20124 of House Joint Resolution 20, payments pursuant to section 1425c of the National Agricultural Research, Extension, and Teaching Policy Act of 1977, all institutions eligible under section 3d2 of the Smith-Lever Act which would otherwise have received a payment of less than $100,000 have been adjusted so that no institution receives a payment of less than $100,000. This latter change affected the fiscal year 2007 EFNEP distribution. The final fiscal year 2008 EFNEP distribution is still under review.

ORGANIC RESEARCH FUNDING ARS

Mr. Farr: During the March 11, 2008 Hearing of the Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies, Agricultural Research Service Administrator, Mr. Edward Knipling said that ARS spends 5% of its budget on organic research through direct and related research. Please provide a summary of direct vs. indirect funding for organic research objectives and a detailed breakdown of the direct organic research projects. Also, please provide an analysis of how the direct organic research would be affected by the Administration's FY 09 budget proposal.

Response: In fiscal year 2008, ARS invested $16,827,000 in research that directly addresses organic agriculture problems. The ARS investment in research that does not have specific organic agriculture research objectives but which indirectly benefits the organic industry is $41,930,300. The direct organic amount in the FY 2009 budget is $11,228,100.

USDA-ARS Direct Organic Agriculture Projects:

Location	Project Title	FY 2008	FY 2009
BELTSVILLE, MD	MANAGEMENT OF COVER CROPS FOR ENHANCEMENT OF HIGH VALUE CROPPING SYSTEMS	$428,600	$428,600
BELTSVILLE, MD	LONG-TERM FIELD EXPERIMENT TO EVALUATE SUSTAINABILITY OF ORGANIC AND CONVENTIONAL CROPPING SYSTEMS	1,091,700	1,091,700
BELTSVILLE, MD	DEVELOPMENT OF BIOLOGICALLY BASED CONTROL METHODOLOGIES FOR WEEDS IN AGRICULTURAL AND NATURAL AREAS	256,100	256,100
BELTSVILLE, MD	MICROBIAL ECOLOGY AND SAFETY OF FRESH ON-FARM ORGANICALLY GROWN PRODUCE	1,775,700	1,775,700
BELTSVILLE, MD	BIORATIONAL TECHNOLOGIES FOR MANAGEMENT OF CHRYSOMELID BEETLE PESTS OF AGRICULTURAL CROPS	437,800	437,800
BELTSVILLE, MD	MICROBIAL AND BIOTECHNOLOGY APPLICATIONS FOR INSECT PEST MANAGEMENT	1,064,000	1,064,000
BELTSVILLE, MD	MICROBIAL FOOD SAFETY OF FRESH AND FRESH-CUT PRODUCE	104,500	104,500
ITHACA, NY	IPM-BASED STRATEGIES FOR BIOLOGICAL CONTROL OF GREENHOUSE AND VEGETABLE CROP PESTS	80,700	80,700
GENEVA, NY	CONSERVATION AND UTILIZATION OF GERMPLASM OF SELECTED VEGETABLE CROPS	100,800	100,800
ORONO, ME	NUTRIENT CYCLING AND UTILIZATION ON ORGANIC DAIRY FARMS	650,600	--
ORONO, ME	SUSTAINABLE CROPPING SYSTEMS FOR THE NORTHEAST	1,046,500	--
KEARNEYSVILLE, WV	INTEGRATED ORCHARD MANAGEMENT AND AUTOMATION FOR DECIDUOUS TREE FRUIT CROPS	286,400	286,400
WYNDMOOR, PA	DEVELOPMENT OF EFFICIENT AND PRACTICAL METHODS FOR PRODUCING ARBUSCULAR MYCORRHIZAL FUNGI	252,100	238,700
WYNDMOOR, PA	PROCESSING METHODS FOR HISPANIC-STYLE CHEESES WITH UNIQUE FUNCTIONAL PROPERTIES	267,900	267,900
URBANA, IL	BIOLOGICALLY AND ECOLOGICALLY BASED KNOWLEDGE FOR INTEGRATED WEED MANAGEMENT SYSTEMS	89,900	--
COLUMBIA, MO	DEVELOPMENT OF ALTERNATIVE PRACTICES FOR IMPROVED WATERSHED MANAGEMENT	160,400	160,400
AMES, IA	ECOLOGICALLY-BASED SOIL MANAGEMENT FOR SUSTAINABLE AGRICULTURE AND RESOURCE CONSERVATION	287,200	287,200
AMES, IA	ENHANCING AGRONOMIC AND VALUE-ADDED TRAITS OF CORN GERMPLASM	57,700	57,700
AMES, IA	BREEDING HIGH-QUALITY CORN FOR SUSTAINABLE, LOW-INPUT FARMING SYSTEMS	498,300	498,300
MORRIS, MN	BIOLOGICAL AND MANAGEMENT STRATEGIES TO INCREASE CROPPING EFFICIENCY IN SHORT-SEASON AND HIGH-STRESS ENVIRONMENTS	183,900	--
MORRIS, MN	CROPPING SYSTEMS MANAGEMENT TO PROMOTE ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY	324,500	--
PARLIER, CA	ALTERNATIVES TO CHEMICAL CONTROL FOR STORED PRODUCT AND QUARANTINE PESTS OF FRESH/DRIED FRUITS AND NUTS	336,700	336,700
PARLIER, CA	EMERGING TECHNOLOGIES TO MAINTAIN POSTHARVEST QUALITY AND CONTROL DECAY OF FRESH COMMODITIES	144,300	144,300
SHAFTER, CA	INTEGRATED MANAGEMENT OF PESTS AFFECTING COTTON: PLANT GENETICS, BIOCONTROL, AND	158,300	158,300

	NOVEL METHODS OF PEST ESTIMATION		
SALINAS, CA	COVER CROPPING PRACTICES TO IMPROVE WEED AND FERTILITY MANAGEMENT IN ORGANIC PRODUCTION SYSTEMS	387,100	387,100
SALINAS, CA	CONTROL OF PATHOGENS IN STRAWBERRY AND VEGETABLE PRODUCTION SYSTEMS	106,100	106,100
WENATCHEE, WA	BIOLOGICALLY-BASED SYSTEMS FOR SOILBORNE DISEASE CONTROL IN TREE FRUIT AGRO-ECOSYSTEMS	103,300	103,300
PROSSER, WA	SUSTAINABLE POTATO CROPPING SYSTEMS FOR IRRIGATED AGRICULTURE IN THE PACIFIC NORTHWEST	110,700	110,700
CORVALLIS, OR	PRODUCTION SYSTEMS TO PROMOTE YIELD AND QUALITY OF GRAPES IN THE PACIFIC NORTHWEST	120,000	120,000
BROOKINGS, SD	PEST BIOLOGY, ECOLOGY, AND INTEGRATED PEST MANAGEMENT FOR SUSTAINABLE AGRICULTURE	524,500	524,500
BEAUMONT, TX	APPLICATION OF RICE GENOMICS TO DEVELOP SUSTAINABLE CROPPING SYSTEMS FOR THE GULF COAST	155,200	155,200
WESLACO, TX	SUSTAINABLE AND ORGANIC MANAGEMENT OF SELECTED FRUITS AND VEGETABLES	2,209,200	--
LANE, OK	YIELD AND QUALITY OF VEGETABLE CROPS IN CONVENTIONAL AND ORGANIC PRODUCTION SYSTEMS	277,000	--
LANE, OK	PHYSIOLOGICAL AND GENETIC BASIS OF POSTHARVEST QUALITY AND PHYTONUTRIENT CONTENT OF FRUITS AND VEGETABLES	178,900	--
LANE, OK	INTEGRATED PEST MANAGEMENT SYSTEMS FOR CONVENTIONAL AND ORGANICALLY PRODUCED VEGETABLE CROPS	253,000	--
BOONEVILLE, AR	AGROFORESTRY PRACTICES AND SYSTEMS FOR FAMILY FARMS (see note)	315,900	--
STONEVILLE, MS	AUGMENTATIVE BIOLOGICAL CONTROL AND MASS REARING FOR BENEFICIAL AND PEST INSECTS	1,108,400	1,108,400
TIFTON, GA	GENETIC ENHANCEMENT AND MANAGEMENT OF WARM-SEASON GRASS SPECIES FOR FORAGE AND ALTERNATIVE USES	177,800	177,800
TIFTON, GA	SUSTAINABLE SYSTEMS FOR INTEGRATED PEST MANAGEMENT AND CONSERVATION AND ENHANCEMENT OF NATURAL ENEMIES	182,300	182,300
TIFTON, GA	INTEGRATED MANAGEMENT AND ECOLOGY OF WEED POPULATIONS IN THE SOUTHEASTERN COASTAL PLAIN	212,800	212,800
DAWSON, GA	DEVELOP AND TRANSFER IRRIGATED AND NON-IRRIGATED PEANUT MANAGEMENT SYSTEMS AND TECHNOLOGY	216,900	176,800
DAWSON, GA	IRRIGATION, CROP ROTATION AND TILLAGE TECHNOLOGIES AND DECISION SUPPORT SYSTEMS FOR PEANUT PRODUCTION	103,300	87,300
TOTAL		16,827,000	11,228,100

QUESTIONS SUBMITTED BY CONGRESSWOMAN KAPTUR

EXTENSION ACTIVITIES

Ms. Kaptur: In mid February, I met with the extension officers for my district and found that while many of these agents are interested in the right type of activities, they are not coordinating their work with the local community. In my community, it has been my experience that extension often conducts their work in a bubble. The individual extension agents have the right idea but they need a serious push from above to vigorously pursue the types of outreach that local producers need. I am not sure the type of structures that other states have, but over the years, it has been a gargantuan struggle to get extension to pay attention to areas of the state outside of Columbus. Could you share with me strategies that the agency is pursuing to make extension responsive to needs on the ground in local communities?

Response: USDA-CSREES is the Federal funding partner along with States and counties in providing the extension of research and teaching of the land-grant universities to the citizen clientele of the State. Extension program priorities are set within each State based on the definition of agriculture in the Farm Bill and guidance included in appropriation language. States submit a "Plan of Work" to USDA built on a strategic plan and local stakeholder input. Thus not all States deliver the same set of programs.

We would encourage your constituents to address your questions directly to the Director of Extension in Ohio, and the State Extension Advisory Board.

Ms. Kaptur: Do you have recommendations that Ohio can pursue to focus extension's work toward priority areas such as alternative energy, connecting small agriculture to locally available markets or helping producers deal with newly emerging pests?

Response: CSREES has a number of processes and programs that encourage Extension to support work in emerging priorities such as alternative energy, local marketing, and pest management. CSREES National Program Leaders share information on trends and resources and engage in strategic planning with Extension and other partners on critical and emerging topics. An example is the recently-developed Strategic Energy Science Plan for Research, Education and Extension, which includes developing training for Extension on bioenergy/bioeconomy issues and developing and enhancing tools to inform decisions at the local as well as regional and national levels. CSREES participates in programs to educate local Extension personnel on emerging issues and priorities, and resources available to address them, at annual programs of the Joint Council of Extension Professionals, the National Association of County Agricultural Agents, and other Extension professional societies. We encourage Extension faculty in the States and counties to work with producers and communities and to use new science for research-based guidance that helps solve both ongoing and emerging problems.

Ms. Kaptur: With a huge footprint across this nation, Extension has the capability to help transform the dependence of our markets from foreign producers to locally grown production. In my area, we have been working with the Food and Nutrition Service to develop a model for small producers to access markets directly. Please elaborate on specific activities that your office has taken to direct this type of development. Does the administration

have a strategy or model in place to empower local extension to tap into these markets?

Response: CSREES uses integrated research and extension to develop the capacity of small producers to directly access markets. In addition to encouraging participation in traditional direct marketing outlets, funded work is helping farmers gain access to established commercial markets. The Department of Agricultural, Environmental and Development Economics, at The Ohio State University supports extension marketing work. Three current National Research Initiative grants are evaluating the evolving market for Ohio organic foods, considering aspects of consumer demand, market intelligence, and marketing strategies; studying the impacts on small farms and rural communities of widespread adoption of a full-season system of berry production with sales to high-value markets; and enhancing agricultural contracts for growers, who, in many cases, hold little bargaining power.

The Sustainable Agriculture Research and Education program funds local marketing. Recent projects in Ohio include five Farmer-Rancher grants to explore innovative marketing of honey, local produce, wool, forest medicinals, and culinary herbs; two Research and Education grants to assist limited-resource producers in direct marketing of produce and forest medicinals. The competitively delivered North Central Region Risk Management Education program funded projects in Ohio also.

VIRAL HEMORRHAGIC SEPTICEMIA

Ms. Kaptur: In last years Agriculture Appropriations bill, the Committee provided for an increase of $5,600,000 over 2007 for aquaculture for activities related to Viral Hemorrhagic Septicemia. In my district, the VHS fish kill disease has already caused massive die offs and has the potential to decimate both the Lake Erie fish stocks and the farmed fish in my region. For the record, could you please elaborate on the Agencies activities with this money? If the Agency has allocated the dollars, please provide a breakdown where the dollars have been allocated.

Response: The Animal and Plant Health Inspection Service (APHIS) recognizes that the Viral Hemorrhagic Septicemia (VHS) virus is a serious pathogen that has had a deleterious affect on wild fish in the Great Lakes region. Once a virus such as VHS has entered an open water system, eradication is not possible. Therefore, APHIS is focusing its efforts on preventing the movement of the VHS virus into aquaculture establishments and areas outside of the Great Lakes region. APHIS received $5.6 million in appropriated funds for VHS in FY 2008. The funds will be used for continued surveillance to determine the prevalence of the disease through cooperative agreements with States, a continued education campaign, and needed improvements at National Veterinary Services Laboratories (NVSL) to produce positive control samples and reagents needed for VHS testing.

In order to meet the objectives of the VHS surveillance plan (to determine disease prevalence in the United States and to establish a scientifically sound regulatory scope for VHS), initially 39 States and three tribal groups have been offered cooperative agreement funding for FY 2008. These States/Tribes were chosen based on epidemiologic "connectivity" to the Great Lakes - i.e., they are at higher risk for spread of VHS. Approximately $1.8 million has been set aside for the agreements, or up to $44,985 for each participating group. An equal amount of maximum funding is being offered

based on the number of samples needed from each State/Tribe to statistically support evidence of absence or presence of VHS. Currently, the following States/Tribes have submitted work plans to receive VHS funds:

Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Jersey, North Carolina, Ohio, Oklahoma, Pennsylvania, Texas, West Virginia, Wisconsin, Wyoming, the Great Lakes Indian Fish and Wildlife Commission, and the White Earth Tribe (located in New York).

The only States that requested more than the maximum amount of $44,985 offered are Illinois, Minnesota, and New Jersey. All other cooperators requested the offered amount or less.

The remainder of the VHS funds will be spent on the following activities:

- APHIS is providing $87,000 to the University of Arkansas at Pine Bluff to conduct a VHS species susceptibility trial to determine whether farmed baitfish and catfish in warmer waters are susceptible to the disease and if they can act as carriers for the virus.
- $1.968 million will be used for APHIS program activities including: farm-level VHS surveillance testing; data entry of the surveillance data APHIS will receive from our area offices and our cooperators; to provide analytical support and evaluation of the surveillance data; to continue updating the national surveillance plan; storing warehoused supplies such as syringes and personal protective equipment; coordinating technical assistance; developing program policy, and monitoring the program activities.
- APHIS is using $1.4 million to prepare the NVSL aquaculture lab facility so that positive control tissues and reagents can be produced in support of VHS testing by State, university, tribal and private laboratories.
- APHIS is using $345,000 to continue the VHS education and outreach campaign, including producing educational materials and advertisements to increase awareness about VHS and how to prevent its spread, and to train our aquaculture liaisons in proper sampling techniques, regulation, diagnostics and general aquaculture education.

APHIS is requesting $2.7 million in FY 2009 for targeted VHS surveillance to continue determining the scope of this pathogen's distribution. Surveillance data received during FY 2008 will be used to determine where to conduct surveillance in FY 2009. APHIS knows that VHS exists in the Great Lakes, and less surveillance will be required in the States for determining the scope of the virus; therefore, less funding should be needed for surveillance in FY 2009. The remainder of the funds will be used to continue the education campaign and diagnostic services.

Ms. Kaptur: Other than the $5.6 million allocated in last year's appropriations bill, what activities are underway to deal with the VHS fish kill virus outbreak?

Response: APHIS has developed an interim rule to replace the current Federal Order for VHS. The interim rule is currently in regulatory review and is expected to be published by FY 2009.

USDA Cooperative State Research, Education, and Extension Service made available $203,000 for critical VHS research in FY 2007 under their Critical

Issues for Animal Disease funding. Two research proposals were awarded with these funds. In addition, $209,126 is available under federal administration in support of VHS. An award will be made this fiscal year.

ARS FACILITIES

Ms. Kaptur: Your budget proposes closing three extremely important facilities in Ohio. These include Seasonal Grazing activities in Coshocton, Ohio, the Wooster Research Laboratory and Sourcewater Protection Activities in Columbus Ohio. For the record, please elaborate on the activities of these three institutions and the number of employees the Agency would have to lay off in order to accommodate this budget request.

Response: The three laboratories housing this research have a total of 32 permanent employees plus part-time help. Dismissing these employees following closure would be a last resort. The ARS would make every effort to find positions for the affected personnel at other locations in Ohio and in other parts of the country. However, since this is part of a larger proposed national budget reduction of $84 million, many ARS employees in other states with laboratories facing closure will also need to be relocated into new positions.

Coshocton, Ohio – The North Appalachian Experimental Watershed (NAEW) at Coshocton, OH, is engaged in research to determine the Effectiveness of Watershed Land-Management Practices to Improve Water Quality, as part of ARS National Research Program 211–Water Availability and Watershed Management. Information on this National Program can be found at:
http://www.ars.usda.gov/research/programs/programs.htm?np_code=211&docid=16034

In general, the NAEW is a 1,050 acre outdoor laboratory and conducts field-scale research on land management practices to improve water quality, reduce flooding, and to reduce sedimentation, nutrients, and pesticides in water supplies. Current and past contributions of ARS researchers at Coshocton include research related to the effectiveness and impacts of conservation tillage, biofuel production and soil quality, surface mining and reclamation, food safety and security as related to pesticide and pathogen transport, industrial byproducts, flooding, climate change, carbon sequestration, environmental impacts of grazing and cropping systems, and watershed science. Research at Coshocton is not limited to the NAEW, but extends to other parts of the state and the country as well.

The Coshocton lab supports 3 full time scientists and 10 additional staff members. The ARS also often employs between 4 and 6 high school and college students for the summer. Additionally, two full-time persons are employed by the Ohio State University to help with NAEW farm operations. Overall the facility employs between 15 and 21 persons. More information about the Coshocton lab can be found at:
http://www.ars.usda.gov/coshocton

Wooster Research Laboratory - Only the Corn and Soybean Research Unit, is proposed for closing at Wooster, Ohio. The budget cut would affect 3 SYs and 7 other FTE.

Corn research is targeted to virus identification, characterization and epidemiology. The research unit provides an early warning system for exotic viruses and vector-transmitted pathogens that threaten corn production in the

U.S. Soybean research focuses on controlling virus diseases that threaten soybeans. USDA-ARS, Wooster has released more than 30 high-yielding soybean varieties with improved insect and disease resistance and continue to develop top performing cultivars. Stressland, Apex, Croton3.9, Stalwart, Wooster, and Prohio are few of the latest releases from this program. Unit scientists have also developed and released soybean germplasm with multiple pest (e.g., Phytopthora rot and beetle) resistance for use by public and private sector soybean breeders in the U.S.

Columbus, Ohio - Source Water Protection Activities. The Soil Drainage Research Unit (SDRU) is located at the Ohio State University in Columbus, Ohio, and has been actively involved in agricultural drainage research for over 40 years. This unit has provided significant major advances in materials, equipment, concepts, and technologies used in modern agricultural drainage systems. The current research deals with innovative agricultural water management practices and technologies to protect receiving waters (streams, rivers, reservoirs, lakes, and the Gulf of Mexico) from nonpoint source pollution due to prevailing and emerging agricultural production activities and other land uses within the Midwest. These receiving waters often serve as source water supplies for residential drinking water.

Source water protection research is addressed via the project entitled, "Environmental and Source Water Quality Effects of Management Practices and Land Use on Poorly Drained Land." Specifically the unit's objectives are to: 1) determine the effect of drainage water management systems on the movement and fate of agricultural chemicals; 2) quantify the water quality and ecological effect of conservation practices on streams and wetlands; 3) develop and test technologies and management strategies that protect source water supplies; 4) develop water table management strategies that minimize the impact of excess and deficit soil water on year-to-year variability of crop yield; and 5) develop crop varieties that are more tolerant to short periods of excess soil water. Source water protection research within the SDRU supports 3 scientists (2.4 FTE) and 6.5 FTE of associated support staff.

Ms. Kaptur: In your 09 budget, you include baseline activities for Greenhouse research activities at the University of Toledo. However, in your budget, you propose a significant shift of resources from the Wooster Facility where Dr. Krause, the researcher in charge of the Toledo work is housed. What would the effect of the budget proposal to close Wooster be on the ongoing research activities in Toledo?

Response: The proposed budget shift in fiscal year 2009 at Wooster is a budget reduction for the Corn and Soybean Research Unit. There is no fiscal year 2009 budget change proposed for the Application Technology Research Unit, which is led by Dr. Krause and includes the Greenhouse Production Research project at Toledo. Therefore, there should be no effect on the ongoing research activities.

Ms. Kaptur: It is my understanding that ARS has placed Dr. Jonathan Franz based at the University of Toledo as the principal investigator for the Germplasm Center at Ohio State University. I am pleased that ARS has begun to exercise stronger oversight over the Germplasam center with a horticulture expert located in the state. It is also my understanding that with their new leadership, Mr. Locke has uncovered viruses contaminating seed stock stored in Columbus. Please elaborate for the record on the activities of the Germplasm center and future plans for both expanding the seed bank activities and connecting this work with the greenhouse community needs.

Response: Dr. Jonathan Frantz, located at The University of Toledo, is the USDA-ARS Authorized Departmental Officer's Designated Representative (ADODR) of the new Specific Cooperative Agreement (SCA) with the Ohio State University (Columbus), Department of Horticulture and Crop Science. For reference, the ADODR is the ARS equivalent to a university's principal investigator and provides ARS with oversight in such agreements. Thus, Dr. Frantz is leading cooperative studies with the Ornamental Plant Germplasm Center (OPGC) staff at that facility. In the course of these studies during an inventory of certain important geranium selections from OPGC, viral infestations were discovered by Dr. Scott Leisner, Director of the Plant Science Research Center, University of Toledo. He was instrumental in discovering several unknown virus infections. Investigations are currently underway to characterize the above viruses. Dr. James Locke, USDA-ARS is also cooperating in these studies.

The OPGC will continue a focused program of acquiring, maintaining, documenting, characterizing, evaluating, and distributing ornamental genetic resources to researchers and ornamental horticulture/greenhouse producers. The OPGC's overall goal is to furnish genetic raw materials and associated information to enhance American floricultural productivity and to ensure a high-quality supply of herbaceous ornamentals. This effort has been and will continue to be conducted through the strong partnership among The Ohio State University, ARS, other universities and botanical gardens, and the ornamental horticulture/greenhouse industry. The OPGC's strategic direction is determined by a planning team composed of a balanced mixture of academic, ARS, and industry representatives. The Herbaceous Ornamental Crop Germplasm Committee and Crop Specific Technical Groups, composed of national experts in herbaceous ornamental plants, also contribute knowledge and input to the OPGC. Following an intensive planning session in 2006, the scope of OPGC's genetic resource management effort was re-defined to encompass the genera *Begonia, Coreopsis, Lilium, Phlox, Rudbeckia* and *Viola*, which are of strategic importance to the ornamental horticulture/greenhouse industry. Future expansion of the OPGC genebank and research efforts will focus on the goals of establishing a world-class herbaceous ornamental plant genebank as an integrated component of the ARS National Plant Germplasm System; building a network of cooperators from the ornamental horticultural/greenhouse industry, universities, botanic gardens, and arboreta, ARS, crop-specific societies and individual gardeners worldwide; and promoting industry-oriented collaborative research to enhance germplasm utilization. The OPGC will also conduct research projects which identify new approaches to the technologies and protocols for conserving genetic resources for effective utilization in ornamental horticulture/greenhouse industry.

BIOFUELS PRIORITIES AND BIOBASED RESEARCH

Ms. Kaptur: According to information my office has received from the Department, it looks as if the ARS budget for fiscal 2008 will have an increase of $3.25 million for biofuels. What will be the priorities for this research and what are some examples of successes for the biobased research?

Response: Biofuels funding in fiscal year 2007 was $21,028,000; fiscal year 2008 funding was $21,536,000; and fiscal year 2009 is estimated at $24,887,000. The proposed FY 2009 budget, would increase ARS' spending for biofuels research by $3.35 million. The priorities of the new research are as follows:

- Increase photosynthesis efficiency in bioenergy crops
- Optimize practices and systems for the sustainable production of sugar cane and energy cane
- Optimize practices and systems for the sustainable production of grasses and plant residues used for bioenergy
- Optimize practices and systems for the sustainable production of peanuts used for bioenergy

Some recent successes from ARS bioenergy research include the following:

- ARS has shown that switchgrass specifically bred for improved levels of animal digestibility will also yield the most ethanol
- ARS developed a fast analytical method for determining 43 different traits in switchgrass cultivars, including the ethanol yield
- ARS determined that farmers can grow switchgrass profitably and that the net energy generated by producing ethanol from switchgrass can be 5.4 times more than the energy content of the fossil fuels used to produce the switchgrass. These studies confirm that grasses will be excellent sources of renewable energy

To see additional accomplishments, go to "Program Reports" on the ARS Bioenergy Program website (www.ars.usda.gov/research/programs/programs.htm?NP_CODE=307).

Ms. Kaptur: In the 2009 budget the Agency has proposed increasing the Biobased budget by approximately $14 million for CSREES. However, within that budget, the Agency proposes eliminating the Small Business Innovation Research grants while increasing the National Research Initiative from $6.8 million to $25,970 million, a sizable change. For the record, please elaborate on the reasons such a large increase is justified while many other areas in the agency's budget request did not fare well.

Response: The Small Business Innovation Research Program (SBIR) is not proposed for elimination in Fiscal Year (FY) 2009. The Small Business Research and Development Enhancement Act of 1992 (Public Law 102-564) as amended, mandates that 2.5 percent of all Federal extramural research and development funds be set aside and used to fund the SBIR program. Because SBIR is supported through a set aside from appropriated programs, it is not listed as an item in our appropriations request.

Based on Current Research Information System data, approximately $1.8 million of competitively awarded SBIR funds supported energy/biomass related projects in the FY 2006 and a similar estimate is projected for FY 2007 and FY 2008. Although an estimate for FY 2009 was not included on the energy/biomass crosscut submitted as part of the FY 2009 Budget, it is anticipated that some projects funded in FY 2009 may support energy/biomass related research. The exact amount of FY 2009 competitively awarded SBIR funds that support energy/biomass research will not be known until after proposals have been received and peer reviewed in FY 2009.

To support the Department's bioenergy and biobased fuels research initiative and in keeping with the President's goal for achieving a greater degree of energy security for the Nation, the FY 2009 President's Budget proposes an increase of $19.170 million in the peer-reviewed competitively awarded

National Research Initiative (NRI)program. The requested funds will support competitively awarded interdisciplinary projects at $1-3 million per year for three years. Funds will be leveraged by coordinating efforts in bioenergy through participation in key interagency committees and collaborations with other Federal agencies such as Department of Energy, National Science Foundation, National Aeronautics and Space Administration, and the Environmental Protection Agency. The portfolio of projects will reflect a diversity of potential agricultural feedstocks and geographic regions. The long term impacts of the program include the development of a viable bioenergy industry built on a range of feedstocks, including agricultural and forest waste, that can become a major source of domestic energy. In addition, the President's budget proposes an increase of $1.3 million for the Institution Challenge Grants program to establish a Biobased Products and Bioenergy Academic Center of Excellence to create and deliver multidisciplinary undergraduate and graduate-level education, research and extension programs and curricula to serve the emerging bioenergy sector.

Ms. Kaptur: With the recent Renewable Fuels Standard the Energy Bill codified, our country has a high bar. The only way to grow our domestic refining capacity will be for the Department of Agriculture to use expertise in ARS and CSREES to help us transform agriculture to meet this growing need. How does this budget request accomplish this goal? Please provide the committee with the top three research potentials for achieving this lofty goal.

Response: Agriculture must indeed be "transformed" for the Nation to achieve its biofuels production goals while also maintaining our long-term capabilities for food, feed and fiber production. USDA is the Federal entity that can best lead the Nation in meeting this challenge, and the USDA's Research Education and Economics (REE) mission area agencies (ARS, CSREES, ERS and NASS) have a number of unique capabilities being directed on this effort. These capabilities have been identified in detail in the mission area's first *Strategic Energy Science Plan* published in March of 2008 (available electronically at www.REE.USDA.gov). The plan identifies the mission area's internal and external visions, as well as defines the major goals necessary to achieve these visions which take into account sustainability, environment, economic, and social impacts. Specifically, the mission area agencies will focus on:

1. Research that provides farmers and producers with tools to predict how to best incorporate bioenergy feedstock production sustainably into their operations.
2. Research that integrates feedstock development, feedstock production and biorefining to maximize the positive long-term impact of bioenergy production to producers, rural communities and the Nation.
3. Research to ensure that biorefineries maximize the net economic returns captured by agricultural producers and rural communities.

The President's FY 2009 budget provides funding that would facilitate advances in all three research areas. A requested National Research Initiative increase in CSREES will support interdisciplinary research projects that include genomics and genetics, basic and applied plant sciences, novel methods of biological and chemical conversion of biomass, social and economic impact on rural communities. More specifically, new research will be solicited to develop new and sustainable agricultural feedstocks, improve biocatalysts for biomass conversion, improve the understanding of the impact of the biofuel production on the agricultural

ecosystems components including soil fertility and water use, determine the impact of a renewable fuels industry on the economic and social dynamics of rural communities, and reduce the overall cost of biofuels production through the development of valuable co-products. Additional funding for ARS would support development of sustainable biobased production systems that are integrated with other farming operations for food, feed, and fiber production. The President's FY 2009 Budget also proposes an increase for ERS to better understand the regional impacts of bioenergy production and related issues such as transportation networks, feedstock storage, marketing channels and shifts in commodity production. Finally, the President's budget includes complementary funding for NASS to establish a new data series with key elements of bioenergy production and utilization.

RESEARCH AND EXTENSION GRANT ASSESSMENTS

AGRICULTURE SCIENCE, OH

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: CSREES does not explicitly track and validate economic activity (new commercial products, additional jobs and increased volume of sales) generated by this project. However, the investigators report a savings of $67 million because their early warning soybean rust detection plots enabled Ohio growers to not use fungicide.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: Other programs at The Ohio State University involved in this project include the Food Animal Health Research Program and the Plant Pathology Department. No other collaborative arrangements are identified in this project.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: Progress continues on many emerging animal and plant infectious diseases with particular focus on triple assortant H3N2 influenza viruses, SARS coronavirus, and soybean rust. Results from studies on the triple assortant H3N2 influenza virus indicated that turkey viruses were highly related antigenically and genetically, but were distantly related/similar to the swine virus. Results from studies on the SARS coronavirus allowed for the development of SARS specific tests using animal coronavirus. This finding reduces the risk of having to use the human SARS coronavirus as the substrate to detect this virus in clinical specimens. Wide-scale monitoring for soybean rust in Ohio in 2005 showed that the pathogen was not in the state. Initial progress has been made toward the development of field-side diagnostic assays for the identification of this disease.

Other accomplishments include the development of educational materials to assist soybean growers in the gross identification of soybean rust in

infected plants. Furthermore, plans for the construction of the Plant and Animal Agrosecurity Research Facility with BSL-3ag space is still in progress. The Ohio State University is currently reviewing dossiers to select the project consultant for the design phase of the facility.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The principal investigator for this project is Dr. Yehia Mo Saif at The Ohio State University.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expenses, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

AQUACULTURE, OHIO

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The following are examples of new commercial products that have been generated or are anticipated by this project. The first generation of an improved strain of yellow perch has been developed with increased growth and production efficiency of 28-54 percent in commercial conditions. The second generation of improved strains is expected to result in a 40 percent to 70 percent improved growth rate compared to existing commercial stocks used by farmers. Genetically improved yellow perch brood stock will provide 70 percent to 90 percent of the quality seed stock needed by farmers in Ohio. A new line of super male bluegill brood stock can produce all-male populations expected to grow 40 percent to 50 percent faster than mixed sex populations currently used in commercial culture systems.

Ohio has experienced a 67 percent increase in the number of fish farms and 78 percent increase in total sales of aquaculture products in the last seven years. Nationally, Ohio ranks first in farm sales of yellow perch for food and is the number one bluegill producing state. In a recent survey of Ohio aquaculture farms, 36 reported 86 unpaid workers, 6 reported 29 full-time workers, and 18 had 46 part-time workers. The farms with paid workers reported an annual payroll of $935,000.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: The Ohio Aquaculture Research and Development Integration Program is a multi-faceted, multi-collaborator project. The Ohio State Plan for Aquaculture identifies a long-term vision for the project. The Ohio Aquaculture Association, the leading producer association in the state, provides critical stakeholder input on the priorities and direction of the planned research and extension activities. Additional industry input is acquired during extension educational programs, including farm visits and farmer workshops. A integrated research and extension team has been developed with members from the Ohio Agriculture Research and Development Center, Ohio State University Extension, Department of Animal Sciences, School of Natural

and Environmental Sciences, Food Science Department, Ohio Sea Grant program, Center for Innovative Food Technology, John E. Hirzel Agricultural Incubator Foundation, Small Business Development Center at Piketon, North Central Regional Aquaculture Center, Hocking College, and numerous fish farms, which are cooperators with on-farm field tests and demonstrations with yellow perch and baitfish.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: Approximately 60,000 genetically improved yellow perch from the Ohio Genetic Improvement of Farmed-fish Traits program under this project have been distributed to fish farmers in Ohio. The first generation of improved strains improved growth and production efficiency by 28 percent to 54 percent under commercial conditions. Results from this project enabled the establishment of a breeding program for producing all-male bluegill populations to improve fish growth rates by 40 percent to 50 percent. A newly established Aquaculture Genetics and Breeding Laboratory resulting from this project, provides a critical applied breeding research function to advance the state's aquaculture industry. The Bowling Green Aquaculture Center plays a strong role to further the development of aquaculture in northern Ohio. This Center developed the first known indoor, multi-season spawning technique for the spotfin shiner and provided juvenile fish to northern Ohio fish farmers who are growing them for the first time in 2008. A grading technique for yellow perch has improved growth rates and feed efficiency by 30 percent. These and other practical techniques and research findings are being directly employed by farmers to increase the production of marketable farmed fish.

On-farm demonstrations in northern Ohio produced over 800 pounds of golden shiners for the bait fish market, and cooperating farmers learned new low-cost fertilization techniques that are being adopted on their farms. Research has discovered distinct differences in the performance and ease of operation of different recirculating aquaculture systems, with one clearly demonstrated superior system. Over 100 people from northern Ohio obtained the research-based information on recirculating aquaculture systems to help make more informed decisions for the operation of their systems or investments in this technology.

Ms. Kaptur: Who is the principal investigator for the project?

Response: Dr. Hanping Wang of the Ohio Center for Aquaculture Research and Development at The Ohio State University is the principal investigator for this project.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it, include how funds are broken out for faculty resources, student resources, administrative expenses, and proposed operation.

Response: The summary breakdown of the project budget for fiscal year 2008 funding is as follows:

Faculty Resources	$ 99,028
Student Resources	$152,314
Administrative Expenses	$116,413
Project Operation	$253,116
Total	$620,871

CENTER FOR INNOVATIVE FOOD TECHNOLOGY

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: Researchers at the members of Center for Innovative Food Technology, Around the World Gourmet, Inc., and The Ohio State University, are completing a project to develop ingredients that will be capable of yielding gluten-free baked goods with higher levels of consumer appeal. When completed, this will result in increased sales for several Ohio baking companies. A project involving Holmes Cheese Company and The Ohio State University is being completed to develop techniques to accelerate flavor development in Swiss cheese. This has resulted in cost savings for Swiss cheese producers. The Ohio State University and the Arnhem Group have developed methods to apply hydrolyzed gelatin solutions onto meat products electrostatically. By demonstrating the feasibility of this approach, sales of electrostatic coating equipment have been increased. Researchers at The Ohio State University are completing a project to attempt to determine characteristics in various corn cultivars that will translate into quality attributes in mass production. As this research is completed, it will enhance corn grower income for these cultivars. Research sponsored by the Hobart Corporation is being performed to determine factors leading to the formation of biofilm on food processing equipment surfaces, resulting in future increased in equipment sales. Heritage Fare, Inc. and Food Innovation and Design, LLC are together completing research whose goal is to develop formulations for various meat, poultry, and bakery products using "Fan-Tesk", a soy-based fat substitute first developed by the Agricultural Research Service in Peoria, Illinois. Sales for products containing this substance have been increased, and are expected to increase in the future. Several feasibility studies are being performed to evaluate potential techniques to improve productivity in food processing plants. Innovative Controls Corporation is evaluating a concept for a multi-channel feeding system for packaged food products. Fidelis Automation is attempting to determine the potential applicability of a robotic handling system for pork skins. These will each result in increased equipment sales. CSREES does not track jobs and increased volume of sales activities generated by this project.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: All project decisions are made by the Center for Innovative Food Technology Advisory Board, which is comprised of one member from each of the member organizations. The current members are: American Dairy Association Mideast, Columbus, Ohio; Arnhem, Incorporated, Patterson, New Jersey; Around the World Gourmet, Incorporated, Columbus, Ohio; Bavoy, Incorporated, Columbus, Ohio; Brewster Dairy Company, Brewster, Ohio; Bettcher Industries, Birmingham, Ohio; Cooper Foods, Oakwood, Ohio; Day Mark Safety Systems, Bowling Green, Ohio; Dole Fresh Vegetables, Salinas, California; Egg Tech, Incorporated, Whitehouse, Ohio; Food Innovation and Design, Columbus, Ohio; Freshway Foods, Sidney, Ohio; The Fremont Company, Fremont, Ohio; Frito-Lay, Plano, Texas; Graminex, Limited Liability Corporation, Deshler, Ohio; Great Lakes Cheese, Hiram, Ohio; Greenline Foods, Bowling Green, Ohio; GTC Nutrition, Denver, Colorado; Heritage Fare, Cleveland, Ohio; Hirzel Canning, Northwood, Ohio; Hobart Corporation, Troy, Ohio; Holmes Cheese, Millersburg, Ohio; Jones-Hamilton Company, Toledo, Ohio;

Leader Engineering Fabrication, Napoleon, Ohio; Lebensmittel Consulting, Fostoria, Ohio; Lincoln Park Zoological Society, Chicago, Illinois; Microcide, Incorporated, Detroit, Michigan; Ohio Corn Marketing Program, Marion, Ohio; Richter International, Columbus, Ohio; Rockwell Automation, Cleveland, Ohio; Rudolph Foods Company, Lima, Ohio; Salt Institute, Washington, District of Columbia; Sandridge Foods, Medina, Ohio; Tennessee Valley Authority, Nashville, Tennessee; Terronics, Limited, Anderson, Indiana; The Ohio State University, Columbus, Ohio; and Wyandot Foods, Marion, Ohio.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please to be sure to identify the components described in questions 1 and 2 for each of the following accomplishments.

Response: Projects have been completed, or are being completed, that have resulted in the evaluation of engineering concepts necessary to construct small scale washing and disinfecting equipment for vegetables in fresh cut salads, and methods for extending the shelf life of seafood by using ice that has been formed using sanitized water. A project that will result in the development of paradigms for modeling the reactions that occur when food processing waste materials are treated in anaerobic digesters is being completed, and the effectiveness of dry-cleaning procedures in fresh cut salad plants are being evaluated.

Ms. Kaptur: Who is the principal investigator for each component of the project?

Response: The principal investigator for the overall project is David Beck. The lead investigator for the Waste-to-Energy projects is Richard Mazur. The lead investigator for the technology development projects is Shari Plimpton. The lead investigator for the functional food and small business development projects for the Center for Innovative Food Technology is Rebecca Singer.

Ms. Kaptur: Please provide a summary of the budget for the project and within it, include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

DIETARY INTERVENTION, OHIO

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume sales) has been generated to date or is projected by this project.

Response: The Ohio State University and the University of Toledo each receive a share of this grant. The Ohio State University is investigating the chemoprevention effects of freeze-dried black raspberries on cancer and coronary heart disease. Human clinical trials are in place to evaluate the efficiency of treatment of precancerous oral lesions with a bioadhesive gel that contains freeze dried black raspberries. It is projected that this gel or a form of this gel, such as a capsule, will be available as a new product to treat this type of cancer. One immunohistochemistry technician and one and

one half post doctoral research associates are projected to be employed to support this project. The University of Toledo is identifying dietary components at the cellular level to promote the prevention of and therapeutics against obesity, diabetes and related secondary complications. For the University of Toledo two graduate research assistant positions and two part time research technician positions are funded through this project.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: The Ohio State University has a subcontract with Coldstream Laboratories in Lexington, Kentucky for the preparation of the bioadhesive freeze-dried black raspberry gel and water ethanol berry extract. The clinical portion of the project will be done in collaboration with the Department of Surgery and other departments at the University of Texas in San Antonio, Texas and with Texas Tech at El Paso. Black raspberries for clinical trails are purchased from the Dale Stokes Fruit Farm in Wilmington, Ohio. Other associations and entities involved in supporting the project have been the California Strawberry Growers Association, the James Cancer Hospital Development Fund, Ross Laboratories, Wrigley's and the Ohio Agricultural Research and Development Center. The University of Toledo is collaborating with the Medical University of Ohio in Toledo, Department of Pharmacology.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: The Ohio State University focuses on esophageal cancer and cardiovascular disease through clinical trials. If they find that black raspberry consumption reduces the risk of high-risk individuals to the development of oral, esophageal and colon cancer, as well as to cardiovascular disease, this could be highly significant both for human health as well as for the market demand for black raspberries and, possibly, other berry types. The University of Toledo focuses on the identification of specific dietary and genetic risk factors associated with obesity and diabetes through metabolic studies using a mouse model. The collaboration with the laboratory at the Medical University of Ohio enhances the opportunity to work with the mouse model for obesity and diabetes studies.

Ms. Kaptur: Who is the principal investigator for the project?

Response: For The Ohio State University the project is under the direction of Dr. F. William Ravlin with support from six co-investigators in the Departments of Internal Medicine, Pathology, Horticulture and Crop Science, Statistics and in the College of Dentistry. Dr. Marcia McInerney is the principal investigator for this project at the University of Toledo.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expenses, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

FOUNDRY SAND BYPRODUCTS UTILIZATION

Ms. Kaptur: For each of the following projects:

What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The goal of this project is to determine if spent foundry sands, when utilized in value-added products, can be safely used in the environment. If these products are deemed safe, then there is great potential for the commercial, agricultural, and horticultural use of these materials. ARS developed a risk characterization of spent foundry sands that indicated the materials may be safely applied to land or used in manufacturing topsoils or potting media. The U.S. Environmental Protection Agency has endorsed this risk assessment, therefore making it easier to obtain regulatory approval for agricultural and horticultural uses of foundry sands.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: We are currently working with the U.S. Environmental Protection Agency, The Ohio State University, The Pennsylvania State University, Purdue University, Foundry Industry Recycling Starts Today (FIRST), and many U.S. foundries.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: Accomplishments during 2007 are as follows:

Use of spinach, radish, and perennial ryegrass to assess the availability of metals in spent foundry sands (SFS).

Plant uptake is a major pathway by which potentially toxic metals can enter the food chain. In this laboratory study we grew spinach, radish, and perennial ryegrass in sand blends containing 50 percent SFS to assess the availability of the following metals: Al, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, V, and Zn. The WFSs utilized in this study were from aluminum, iron, and steel foundries, which were found to contain metal levels similar to that of native soils. Although there were differences in the amount of metal accumulated by the various plant species, excessive amounts of heavy metals were not taken up, regardless of SFS treatment.

The characterization of total and leachable metals in foundry molding sands - The purpose of this study was to characterize total and leachable metals from spent molding sands. A total elemental analysis for Ag, Al, As, B, Ba, Be, Cd, Co, Cr, Cu, Fe, Mg, Mn, Mo, Ni, Pb, Sb, V, and Zn was conducted on 36 clay-bonded (called green sands) and 7 chemically-bonded molding sands. Total metal concentrations in the molding sands were like those found in agricultural soils. Leach tests revealed that the majority of the spent molding sands have a low metal leaching potential.

Pyrolysis of carbonaceous foundry sand additives: Seacoal and gilsonite - Carbonaceous additives, such as seacoal (crushed bituminous coal) and

gilsonite (a natural asphaltic material), are used in foundry molds to create an atmosphere low in oxygen during casting. An analytical technique known as gas chromatography-mass spectrometry was used to tentatively identify organic compounds generated during the thermal decomposition of seacoal and gilsonite at 500, 750, and 1000°C. A number of compounds of environmental concern were identified, including substituted benzenes, phenolics and polycyclic aromatic hydrocarbons (PAHs), some of which are known carcinogens. These organic compounds, and especially PAHs, were generated at each pyrolysis temperature in all foundry sands containing seacoal. However, in gilsonite-amended sand, mainly hydrocarbons were identified at 500 and 750°C and PAHs at 1000°C. Since there is interest in beneficially using spent green sands in value-added products and agricultural applications, it is necessary to identify thermal decomposition products to ensure the sands are safe to use in the environment.

Polycyclic aromatic hydrocarbons and phenolics in ferrous and non-ferrous spent foundry sands - A total of 43 sets of spent sand were collected from ferrous and non-ferrous foundries in the eastern United States. The concentration of organic compounds known as PAHs and phenolics were determined. These compounds are known to be toxic to humans. 2-Ring and 3-ring PAHs, such as anthracene, fluorene, naphthalene and phenanthrene were the most prevalent PAHs, as they were detected in > 79 percent of the WFSs. In general, however, naphthalene was found at the highest concentrations. For the phenolics, phenol was generally found at the highest concentration and was present in 91 percent of the SFS. Information from this study will help States in developing or reviewing regulatory structures that will ensure environmental protection and encourage the beneficial use of SFS.

ARS conducted a risk characterization of spent foundry sands in soil related applications. Beneficial uses of SFS considered in this risk assessment were direct application to farmland or urban soils to alter soil texture, production of manufactured soil for application at homes and in commercial landscaping, and use in horticultural potting soils. Several different U.S.-EPA risk assessment methods were applied to trace elements and organics in SFS and 14 pathways for transfer of contaminants from SFS to the "most at risk individual" were considered. Trace element concentrations in most SFS were lower than concentrations of trace elements in natural soils. None of the organics in SFS were at levels that would comprise risk to humans or environmental receptors. Thus the risk assessment determined that SFS may be safely applied to land or used in manufacturing topsoils or potting media. The risk assessment was done in cooperation with U.S.-EPA and they have endorsed the results.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The principal investigator for the ARS foundry sand project is Dr. Rufus Chaney. The research is being conducted at the Environmental Management and Byproduct Utilization Laboratory (EMBUL) in Beltsville, Maryland. In-house cooperators include Dr. Eton Codling and Dr. James Reeves.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The fiscal year 2008 funding for Foundry Sand Byproducts Utilization is $680,205.

GREENHOUSE AND HYDROPONICS RESEARCH

Ms. Kaptur: For each of the following projects:

What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: A comprehensive computer greenhouse model called Virtual Grower developed by the ARS Greenhouse Production Research Group (GPRG) located in Toledo and was released through the Internet. To date, Virtual Grower has had more than 3,100 downloads provided without charge to users. In addition, the three ARS scientists assigned to the Research Group have written 34 refereed publications, 48 non-refereed articles, including 19 state extension articles for tech transfer, made 31 posters or presentations at national or international meetings, given at least 35 invited local, regional, and departmental talks, and made over 115 visits to local and regional greenhouses.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: ARS Toledo has received stakeholder input from: Plant Science Research Center, University of Toledo; Beroske's Greenhouses, Swanton, Ohio; Bostdorff's Greenhouse, Bowling Green, Ohio; Creques Farm and Greenhouse, Sylvania, Ohio; Great Lakes Hydroponics Association; Keil Greenhouses, Toledo; Klyn Nursery, Perry, Ohio; Lakewood Greenhouse, Northwood, Ohio; Natorp's Nursery and Garden Centers, Cincinnati, Ohio; Ohio Florists Association; Ohio Nursery and Landscape Association, Columbus, Ohio; Hoen's Greenhouse, Holland Ohio; Ohlman's Farm and Greenhouses, Toledo, Ohio; Possum Run Greenhouse, Butler, Ohio; Society of American Florists; Strain's Greenhouse, Toledo, Ohio; Toledo Area Flower and Vegetable Growers; Toledo Botanical Garden; Ornamental Plant Germplasm Center, Columbus, Ohio; Wardell's Farm Market, Waterville, Ohio; Whiteford Greenhouse, Toledo, Ohio; and Willoway Nursery, Huron/Avon, Ohio. In addition, the ARS Customer/Stakeholder Liaison Committee at this location is very active and has met 14 times since the initiation of this project to assist ARS and its cooperators in building the research program, and to help address the research needs of local, regional, and national stakeholders.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: First, an active communications network has been established, so that growers, industry leaders, and ARS and university scientists can communicate frequently to discuss the industry's problems and challenges. Next, ARS initiated on-farm research, long a keystone of the

Research Group's effort. ARS scientists conduct on-site visits and develop research projects specifically tailored to address growers' problems. Plant nutrition, air pollution effects, use of water gels, potting media quality, and disease diagnosis for hydroponic production are some of the current specific research topics. The continuing economic impacts of future accomplishments from that ongoing research will occur when the research results, such as the Virtual Grower software described above, are applied to solve the problems facing greenhouse growers. The accomplishments and results of that research are continually assessed for their relevance, quality and impact via ARS's existing review process.

Ms. Kaptur: Who is the principal investigator for the project?

Response: Dr. Charles Krause, the ARS Research Leader/Plant Pathologist, Wooster/Toledo, is the ARS version of a Principle Investigator.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The fiscal year 2008 funding for Greenhouse and Hydroponics Research is $1,544,470.

GREENHOUSE NURSERIES

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: CSREES does not track economic activity for this project.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: The information is submitted for the record.

[The information follows:]

Collaborators on project include:

1. Maumee Valley Growers
2. Bostdorff Greenhouse Acres
3. Hecklinger Greenhouse Inc.
4. Louis Keil & Sons
5. Schmidlin Greenhouse Inc.
6. Wardell's Farm Market
7. Schmidt Brothers Inc.
8. Dearing Greenhouse
9. The Department of Geography and Planning, the University of Toledo
10. The Urban Affairs Center, the University of Toledo
11. Department of Geography, Bowling Green State University
12. The Center for Regional Development, Bowling Green State University
13. Department of Geography, Geology, and Anthropology, Indiana State University

14. Department of Sociology, Indiana State University
15. Department of Horticulture and Crop Science, Ohio State University
16. Agricultural Extension Service, Michigan State University
17. Agricultural Extension Service, Ohio State University
18. USDA, Agricultural Research Service
19. Toledo Botanical Gardens
20. Regional Growth Partnership
21. Thread, Inc.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: In 2005, Northwest Ohio growers organized as an industrial cluster, operating under the newly established brand name of Maumee Valley Growers. A comprehensive branding and marketing strategy has been developed and is being implemented by Maumee Valley Growers in conjunction with branding and marketing consultant, Thread, Incorporated. In 2006, the major accomplishment of the grant was to develop the progress of a sustainable greenhouse cluster in northwest Ohio. The cluster holds regular monthly meetings at which growers discuss solutions to large-scale industry-wide problems that are inhibiting their economic competitiveness. Two major challenges that have been successfully addressed by Maumee Valley Growers during the last twelve months are the implementation of a coordinated marketing effort that capitalizes on the Maumee Valley Growers brand, and the implementation of a group buying program that will save the northwest Ohio greenhouse industry an estimated $250,000 in energy workers compensation, and insurance costs during the next twelve months.

Ms. Kaptur: Who is the principal investigator for the project?

Response: Dr. Forest William Ravlin, Assistant Director, The Ohio State University, Wooster, Ohio.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

HYDROPONIC TOMATO PRODUCTION, OHIO

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The Hydroponic Tomato Production project was initiated in 1998. The original goals of this research were to identify markets and develop and test production facilities, technology and management systems for profitable, year-around hydroponic greenhouse production of floriculture and vegetable crops, especially lettuce and tomatoes. Significant progress has been made in the areas of economic analyses to enable producers to make fiscally sound decisions on choice and operation of production facilities, cropping patterns and marketing decisions. This information has been

provided to the user community in formats that are easily used including demonstration greenhouses at Toledo, printed information, Web-based information, and conferences. There is continuous, ongoing testing/demonstration of improved technology including determination of the economic feasibility of using the new technology systems. A Web-based grower information system with interactive decision model for growing hydroponic tomatoes, which is available at www.oardc.ohio-state.edu/hydroponics, was initiated in 1999 and is continuously updated and modified.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: This is a collaborative project between The Ohio State University and the Toledo Botanical Gardens. Project personnel provided leadership to form the Great Lakes Hydroponic Association. Project personnel work closely with the Toledo Area Flower and Vegetable Growers Association to enhance a Web site to market northwest Ohio greenhouse produce throughout the United States.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: A number of programs have been developed to continually provide growers with the information and technology they need to maintain their competitive edge. A hydroponic crop demonstration program and monthly educational meetings have been maintained since 1999 at Toledo Botanical Gardens. The greenhouse and hydroponic technology have been updated continuously. A hydroponics web site related to the project, which can be viewed at www.oardc.ohio-state.edu/hydroponics, was compiled and has been continuously updated. It has become the best source for information related to all programming activity as well as business planning, crop management guidelines, and links to suppliers and related businesses. The Great Lakes Hydroponic Association nurtures grower leadership and organization of monthly educational meetings and grower tours. Project personnel have worked closely with the Toledo Area Flower and Vegetable Growers Association to further develop and enhance a Web site to market the products and services of the greenhouse growers in northwest Ohio. The Web site connected the participating northwest Ohio greenhouse growers to customers throughout the United States. This marketing tool will be publicized using both the Internet and printed media to increase the sales and customer base of the greenhouse businesses.

In fiscal year 2006, the hydroponic vegetable extension program assisted existing and prospective hydroponic vegetable growers in Ohio and abroad with technical, cultural, and marketing support through one-on one consultations and site visits, telephone and e-mail communications, a monthly greenhouse newsletter, a website, as well as through support for the grower-led organization, the Great Lakes Hydroponic Association.

Ms. Kaptur: Who is the principal investigator for the project?

Response: Dr. Ted H. Short, Professor Emeritus, Department of Agricultural Engineering, The Ohio State University at Wooster.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

INCOME ENHANCEMENT DEMONSTRATION

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The original goal of this project was to develop new agricultural businesses and restructure and expand existing businesses in response to domestic and international challenges. In 2005, the project was moved from The Ohio State University to the Edison Industrial Systems Center, and more specifically to a non-profit subsidiary of that company, the Center for Innovative Food Technology (CIFT). The proposal listed several target activities all of which are underway. To date, new accomplishments are: Greenhouse Sector Energy Audits and Results: an energy study has been conducted wherein several greenhouse operations are receiving an audit highlighting current practices and means of making improvements relating to energy. Grape Industry Review and Analysis: an extensive review of the current grape industry has been conducted identifying new, value-added opportunities such as grape seed extracts, new grape varieties, and fresh juice. Direct Marketing Efforts: a *Producers Resource Guide* has been created depicting new areas to market products, such as government, farmers markets, schools, State, and similar entities. It describes challenges and opportunities associated with each. Feasibility Study: an advisory committee was created consisting of industry representatives to conduct a feasibility analysis relating to greens, edamame production and harvesting, honey, and apple slicing. Waste to Energy Project: expanding research conducted with digesters to explore what additional components can be incorporated to yield high levels of energy. A community digester study has been initiated to determine if a county or similar area could utilize waste streams effectively enough to generate positive energy. Direct Marketing Program: increased attention to local produce with a successful Farm to Chef Initiative expanding to include more than fifty restaurants and forty-five farmers connecting products to chefs. Bowling Green University reports spending increased amounts on local produce; the Summit County Farm Bureau, Extension and Chamber of Commerce began discussions on starting similar programs in other regions. A guide and presentations for starting new Agritourism ventures, including marketing guidance, was created. CIFT assisted several organizations in creating new farmers markets and collaborated with the Ohio Department of Agriculture to create a guide for future farmers market planners. Connections between local food processors and local sources of ingredients have occurred, increasing production to accommodate demand. Greenhouse and Nursery Program: CIFT continues to conduct energy audits and recommend energy saving activities to offset continually increasing energy costs within the greenhouse industry. Energy assessment in one instance accounted for more than $2,000 in direct savings with minimal investment. Additional energy modeling and attendant savings continue to occur. Biomass Waste-to-Energy Program: CIFT continues to work with local cooperatives to install digestion and energy generation systems, such as working with a consortium to install such a system at a dairy enterprise. The proposed

system will accept dairy manure and additional food processing waste and provide valuable co-products. The project is a first of its kind in the region and can be replicated for large operations. CIFT has also engaged in the alternative fuel arena by providing outreach, education, conducting training seminars and meetings. Specialty Crop Program: CIFT continues to be involved in alternative crops research, including mushrooms, aquaculture, berries and more, posting information online for broad availability to producers. In the CIFT Small Business Program, nine businesses have been formed, advancing products to the marketplace. Technical assistance, including seminars, have been provided to start-up entities regarding product formulation, shelf life, increased batches, packaging and ingredient sourcing, food safety, and legal issues. More than sixty attendees have participated in these sessions. By working with the Northwest Ohio Green Products Center, assistance to companies creating green products has been enhanced. Limited growth in small scale livestock production has occurred due to slaughtering and processing capacity decline. CIFT has been involved in alternative production and slaughtering studies to continue providing usable information to the producer community in these important portions of the industry. Food safety: CIFT is providing audits for more than forty fruit and vegetable growers regarding food safety practices.

CSREES does not track additional jobs and increased volume of sales for this project.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: Representatives from the following organizations are involved in guiding the activities of the program so that relevance to the industry is maintained:

Producer groups such as the Ohio Corn Growers and Grape Industry Council, The Ohio Farm Bureau Federation, The Ohio Farmers Union, The Ohio State University Extension, National Soybean Association, Independent producers, other resource groups such as the Small Business Development Centers, Coastal Ohio, and the Family Business Institute; Ohio Corn Marketing Program; Ohio Clean Fuels Coalition; Ohio Energy Office; several Small Business Development Centers; Northwest Ohio Greenhouse Cluster; Maumee Valley Growers; Bowling Green State University; Summit County Farm Bureau, Extension and Chamber of Commerce; Augsburg and Sylvania Farmers Markets; Bostdorff Greenhouse Acres; ARS Greenhouse Production Research Group; RainFresh Harvests; Creque's Greenhouse; North West Ohio Agricultural Development Consortium; Manders Dairy; USDA BioPreferred program, and other stakeholders including independent producers in specific projects.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: Previous accomplishments included the following: Greenhouse/Nursery Project: development of best management practices relative to energy use and consumption with the idea of identifying the most economic practices. Direct Marketing Research: identified methods and requirements for growing and preparing items for sale to local institutions, including schools, universities, social programs, and restaurants. Grape/Wine Industry Enhancement: research was completed on non-thermally processed grape juices,

and a feasibility study has been completed to determine the economic scale necessary for economic viability of a grape seed extract cooperative venture. Waste-to-Energy Project: with matching funds from the State of Ohio in the amount of $50,000, two pilot anaerobic digesters were designed and constructed with the idea to evaluate the economic justification of anaerobic digestion for specific applications. Additional accomplishments include expansion of network of fifty restaurants and forty-five farmers connecting product directly to chefs; increase in spending by Bowling Green State University on local produce; consultation with local farm bureau and chamber of commerce on how to start farm-to-chef programs in others regions; guide creation on starting agritourism ventures created; presentations to over two hundred producers on increasing agritourism enterprises associated with their production operations; improved educational resources on creation of farmers markets; continued conduct of energy audits resulting in increased savings of energy costs to production facilities, particularly in the greenhouse industry; demonstrations of alternative boilers providing increased fuel utilization and cost savings; work with local cooperatives on proposed anaerobic digestion system which would accept manure and food processing waste from the region; additional training on food safety, good agricultural practices and attendant audit resulting in financial savings to producers and preparation for third party review required by the industry.

The organizations listed above were also involved in providing guidance to the program prior to the aforementioned previous accomplishments.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The Principal Investigator for this project is Ms. Rebecca Singer, Manager of Agricultural Programs, EISC, Inc., Center for Innovative Food Technology.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The FY 2008 award has not been made; therefore, budget information is not available.

MONITORING OF AGRICULTURAL SEWAGE SLUDGE APPLICATION

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The scientists are working to develop a model based on field data, to provide a determination of contaminants involved in dispersion. They will also seek to develop a software program and a screening risk assessment module for bioaerosols.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design, and/or operation of the project.

Response: The scientists are currently working with the private sector entities including Oregon Wastewater Treatment Plant (Oregon, OH), Perrysburg Wastewater Treatment Plant (Perrysburg, OH), S & L Fertilizer, and several

local farmers in Lucas County, OH. In addition, the University of Toledo has a subcontract with Bowling Green State University.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: Remote Sensing Application - this component of the project is being conducted by collaborators at Bowling Green State University. The local farmers are also participants since their farms or adjacent areas are being sampled.

Bioaerosol Sampling - this component of the project is being conducted by students at the University of Toledo and at Bowling Green State University, in collaboration with the Oregon Wastewater Treatment Plant and the local farmers.

Microbial Transport via Field Drainage - this work is being done on farm fields in collaboration with local farmers.

Epidemiological Surveys - this work is being conducted in collaboration with the Wastewater Treatment Plants, and Wood, Greene and Lucas County officials in Ohio.

Pharmaceutical and Personal Care Products - this component is being conducted in collaboration with the Wastewater Treatment Plants where samples are being collected.

Ms. Kaptur: Who is the principal investigator for the project?

Response: Dr. Kevin Czajkowski at the University of Toledo is the principal investigator for this project.

Ms. Kaptur: Please provide a summary of the budget for the project, and with it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The approved fiscal year 2008 budget follows.

Faculty Resources	$111,014
Student Resources	$112,120
Administrative Expense	$216,150
Project Operation	$397,219
Total	$836,503

PHYTOREMEDIATION PLANT RESEARCH

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: There are no commercial products or sales associated with this project. However, the project creates immediate jobs through contracts with private sector entities, and student post-doctoral positions at the University of Toledo. Future employment can be in the form of construction jobs related to construction of wetlands. Also, the project will produce

uncontaminated recreational sites that will be used by more tourists which will boost the economy of Lucas County, OH.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design, and/or operation of the project.

Response: The scientists are currently working with Pilkington International, and Hull and Associates in the design and installation of the wetlands being used in the study. Pilkington International is also specifically involved in devising a plant-based remediation system for removing arsenic from contaminated water. The Ohio Department of Natural Resources is also being engaged as a potential purchaser of the wetlands. In addition, the scientists are establishing a relationship with the Maumee Valley Growers association for growing the plants that will be used in the proposed wetland. The United States Geological Survey (USGS), along with local governments are involved in the design and operation of the project.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: The design of the wetland was created by Hull and Associates. Pilkington International is specifically involved in the removal of arsenic (one of the targeted contaminants) from the surrounding areas via the wetlands. Since the proposed project is focusing on Maumee Bay State Park, the Ohio Department of Natural Resources is very interested in its successful outcome and may eventually purchase the wetland. One of the primary reasons is that the annual restrictions placed on swimming and beach-related activities in the State Park will be lifted, and this could subsequently increase tourism, thereby boosting the local economy.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The principal investigator for the project is Dr. Daryl Dwyer with the University of Toledo.

Ms. Kaptur: Please provide a summary of the budget for the project, and with it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The approved fiscal year 2008 budget follows.

Faculty Resources	$215,707
Student Resources	$ 37,834
Administrative Expense	$164,152
Project Operation	$119,528
Total	$537,221

PHYTOESTROGENS IN THE DEVELOPMENT OF NATURAL PRODUCTS

Ms. Kaptur: For each of the following projects:

What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: To date, this project has resulted in one new product, a natural compound from soy that has shown potential in laboratory assays to act as an anti-breast cancer agent. This project has attracted additional Federal and private funds. Projected economic activity and advantages could be leveraged by the development of technologies through this research to discover and induce commercial scale levels of potentially new and useful phytoestrogens in soybean, thus 1) adding value to soy-based products and benefiting the agricultural economy in the U.S., and 2) increasing the health of people consuming soy-based products, thereby helping to decrease health problems associated with hormonal changes.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: USDA/ARS, Tulane/Xavier Universities Center for Bioenvironmental Research and the Center for Drug Design and Development, University of Toledo, Toledo, Ohio, have partnered with additional cooperators at the Tulane University School of Medicine and Wake Forest University School of Medicine.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: So far, a group of candidate compounds, glyceollins that can be induced to much higher than normal levels in soybeans have shown the ability to inhibit the proliferation of breast cancer cells in lab bioassays. Additional recent experiments in mice have substantiated these findings that glyceollins significantly suppress estrogen dependent breast cancer as well as ovarian cancer cell growth, and without estrogenic effects on the uterus. Glyceollin-enriched soybean protein has been evaluated successfully in animal studies for cancer prevention. Thus, a prototype technology has been developed to induce this soy compound with possible health benefits that can be translated to commercial levels.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The project is being co-led by the following scientists: Dr. T. Ed Cleveland, Research Leader, Food and Feed Safety Research, USDA/ARS, Dr. John McLachlan, Director of the Tulane/Xavier Universities Center for Bio-Environmental Research, and Dr. Paul Erhardt, Director of the Center for Drug Design and Development, University of Toledo.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The fiscal year 2008 funding for Phytoestrogen Research in New Orleans is $1,519,290.

VIRAL HEMORRHAGIC SEPTICEMIA

Ms. Kaptur: What economic activity (new commercial products, additional jobs, increased volume of sales) has been generated to date or is projected by this project?

Response: The Viral Hemorrhagic Septicemia project is a new grant for fiscal year 2008 and has no previous history of research funded by the agency. Many aquatic fish species that are susceptible to this virus are of economic importance in the Great Lakes region. This emerging virus has caused massive fish die-offs and severe hardships to recreational interests including fishing, boating, and tourism and has impacted economic development from commercial fisheries and aquaculture operations. New restrictions and new testing requirements for the movement of certain species of live fish have created significant economic impacts in the Great Lakes region across these economic sectors. The added costs of testing have particularly impacted small businesses. The research planned for fiscal year 2008 is intended to help understand the nature of this disease and develop improved science-based management protocols to ease economic losses.

Ms. Kaptur: Please identify any companies, associations, producers, or other entities that are also involved in the planning, design and/or operation of the project.

Response: The research team will be collaborating with other scientists working with this virus and federal and state agencies who are responsible for developing science-based policies and regulations to control the spread and limit adverse economic impacts associated with this fish disease. Some of these include: Western Fisheries Research Center, United States Geological Survey; Great Lakes WATER Institute in Milwaukee, Wisconsin; Ohio Department of Natural Resources; New York Department of Environmental Conservation; Michigan Department of Natural Resources; Ontario Ministry of Natural Resources; Ohio Center for Aquaculture Development, Ohio State University; United States Geological Survey Great Lakes Science Center; and Ohio Department of Agriculture.

Ms. Kaptur: With respect to the accomplishments that have been previously reported for this project, please be sure to identify the components described in questions 1 and 2 for each of the accomplishments.

Response: This is a new project which will begin this fiscal year.

Ms. Kaptur: Who is the principal investigator for the project?

Response: The principal investigator is Dr. Carol Stepien, Director of the Lake Erie Center at the University of Toledo.

Ms. Kaptur: Please provide a summary of the budget for the project, and within it include how funds are broken out for faculty resources, student resources, administrative expense, and project operation.

Response: The summary breakdown of the project budget for fiscal year 2008 funding for this project is as follows:

Faculty Resources	$ 43,576
Student Resources	$ 13,167
Administrative Expense	$ 59,011
Project Operation	$ 93,372
Total	$209,126

QUESTIONS SUBMITTED BY CONGRESSMAN JACKSON

URBAN AGRICULTURE

Mr. Jackson: In many urban neighborhoods, grocery stores are scarce or obsolete. Some residents have to travel several miles to a major grocery store. They are forced to purchase foods from corner stores and liquor stores, both of which do not carry proper nutritious foods. These areas are often referred to as "food deserts."

One solution to this problem is to increase and encourage urban agriculture production. Residents can grow food locally which encourage economic development and provides healthy foods for local residents.

What research is being done in regard to urban agriculture? Does science support the idea of "urban agriculture?"

What training and technical assistance programs are available for urban farmers? What extension programs currently exist to encourage more urban farming?

Response: CSREES works with Urban Extension programming contacts across the Land Grant System in 46 states, Puerto Rico, and the District of Columbia to increase awareness of the need for Cooperative Extension Service programs in urban areas, including funding for such programs. CSREES, like many Federal agencies, is continuing to build partnerships with other Federal agencies to strengthen extension program delivery. Programs in youth development, human nutrition, and urban gardening have a proven track record in urban areas. As societal demands and competition increase for fewer Federal, state, and county dollars, Urban Extension programming is a cost-effective way of reaching a large number of our citizens through the delivery of Urban Programs.

A major program of USDA and the land-grant university system is the Extension Master Gardener Program. The Master Gardener Program was started in 1972 as a means of extending the horticultural and pest management expertise to the general public. As interest in gardening has grown, extension staff nationwide are organizing and expanding Master Gardener programs to meet the local needs of gardeners. This is particularly true in urban and suburban areas where home gardens can serve a valuable adjunct to other forms of food supply.

Today, this popular program can be found throughout the United States educating residents about safe, effective and sustainable horticultural practices that build healthy gardens, landscapes, and communities. The Master Gardener Program is a part of the land-grant university and Cooperative Extension Service in that state. The program is designed to train volunteer horticultural educators for Cooperative Extension. Participants receive training in basic subjects and agree to work in their communities to teach residents to cultivate garden spaces and manage landscapes sustainably using research-based information. Each year, thousands of volunteers are trained to work with their neighbors and fellow citizens to improve their communities' ability to produce vegetables and flowers.

CSREES is currently funding a project that is being led by the Cornell University Cooperative Extension Service to expand urban community gardens.

The "Garden Mosaics and Urban Agriculture" research project provides educators, youth, gardeners and residents with opportunities to gain hands-on training and knowledge, and conduct actions that benefit local community resources such as gardens and farmers markets. Impacts are as follows: formal and non-formal educators in the South Bronx, now trained in Garden Mosaics informal science education model and resources, have the potential to reach thousands of youth in underserved communities, addressing science literacy, awareness and stewardship of local environments; importance of local food accessibility to sustain well being; and value of community elders as resources for learning and as cultural mentors. Williamsburg, Brooklyn teens and college students received valuable retail and professional experience and were exposed to agricultural production processes through farmer market and farm experiences. They also played an important role by helping to facilitate communication between farmers and the local Hispanic community. In the Lower East Side, Manhattan, local teens learned about the food production system, related environmental issues, and the importance of healthy eating. They gained hands-on experiences through numerous culinary activities, as well as improved communication, marketing and public presentation skills. Program participants from Brooklyn and Manhattan overall gained knowledge and skills related to agriculture and the environment, the importance of healthy eating, as well as practical skills that will enable them to be better prepared for future employment and education.

Since 1988, the Sustainable Agriculture Research and Education (SARE) program has helped advance farming systems that are profitable, environmentally sound and good for communities through a nationwide research and education grants program. In regards to Urban Agriculture, the program has funded a variety of projects, including the Urban Farming Literacy project in St. Louis, Missouri. This project aims to educate the St. Louis region on urban farming and eating locally while providing the necessary knowledge and skills to establish and support a local food system in the city of St. Louis. Accomplishments/milestones to date are as follows: 1. School to Farm program - curriculum and teacher packet is being developed; 2. HomeGrown workshops - binder summarizing concepts for first workshop -layout, materials, no-till bed construction, intensive planting designs, crop rotation - is currently being developed; and 3. Outreach for local food advocacy - pamphlet will be designed and will be distributed at farmers' markets and grocery stores.

There are Urban Extension programs across the Land Grant System that provide training and outreach. For example, the University of Illinois - Urbana Champaign supports its Urban Leadership Center to offer expertise and resources in educational policy and leadership, school law, curriculum development, teacher education, instructional research and curriculum evaluation, early childhood education, child care, multicultural bilingual education, vocational, adult and continuing education, and community and neighborhood development. In-depth training is provided to district and local school councils, community leaders, parents, and citizens to better understand and participate in the public school education process. Examples of such training include: increasing schools' awareness and skills in volunteerism to expand the involvement of parents, students, and community members, improving the knowledge and skills of council members and local citizens in the management and governance of public schools, preparing local school council members to develop an appropriate school improvement plan and budget, designing student team-building opportunities to strengthen the linkage among faculty, students, parents, and community.

AGRICULTURAL EDUCATION

Mr. Jackson: In order to encourage healthy eating and healthy lifestyles, we must educate children at a young age about what foods to eat and how food gets on the table. There are education programs at the collegiate level and in rural schools, but what agricultural education programs currently exist in urban public school districts? In Chicago there is one public high school which focuses on agriculture and horticulture - the Chicago High School for Agricultural Sciences. Are there other schools like this around the country?

Response: Since 1981, the Cooperative State Research, Education and Extension Service, CSREES, has sponsored an outreach program for K-12 teachers to advance agricultural literacy, by helping students in the classroom learn how food is produced and the steps needed to get food to the dinner plate. Annually, CSREES' Agriculture in the Classroom (AITC) network of state contacts work with more than 90,000 classroom teachers, 20,000 pre-service teachers, and 20,000 volunteers to advance agricultural literacy and nutrition education. These teachers and volunteers use AITC resource materials with more than 5 million students each year.

AITC's top priority is advancing agricultural literacy and nutrition education. In 2008, AITC conducted four regional conferences. AITC state contacts from 40 states have received the training needed to introduce K-12 teachers during future teacher training workshops. These efforts are focused on providing teachers with the curriculum materials they need to introduce knowledge that will improve food choices, eating habits, and exercise behaviors. The results of this effort will begin to be implemented during the 2008-2009 academic year. This effort is know as The Farmer Grows a Rainbow. Linking to USDA's Food Pyramid, The Farmer Grows a Rainbow will be featured at the National AITC Conference in June 2008. This training will be attended by K-12 educators from across the nation.

Also featured will be the California Schools Gardens network. Urban schools throughout California have integrated the planning and development of gardens at school sites throughout California. Schools that agree to use garden planning curriculum materials in their classroom teaching receive special funding from state sources to support the planning and development of schools gardens. California students learn math, science, and reading skills as they use AITC curriculum materials. Students harvest and eat what they produce as a part of their agricultural and nutrition literacy learned through the school garden. Cooperative Extension volunteer Master Gardener programs are assisting in the implementation of these efforts. AITC educators from across the nation will be learning more about this model at the 2008 National AITC conference.

AITC state contacts have recognized the following urban high school efforts across the nation as good models for advancing agriculture and nutrition literacy: Chicago's High School for Agricultural Sciences and John Marshall High School; New York City Borough of Queens', John Bowne High School; Louisiana School for the Agricultural Science; Philadelphia's W.B. Saul High School; Boston's Norfolk County Agricultural High School; Rhode Island's Children's Garden Network and Kids First Cafeteria; Maryland's Urban Youth Garden Grant program, and Kansas City and Wichita Healthy Life Styles Initiative.

FEDERAL FUNDING FOR THE UNDERSERVED

Mr. Jackson: For many decades now, African American, Native American, Hispanic, and U.S. territorial communities have been grossly underserved by America's land-grant system. While this situation has several root causes, the primary problem is a continual shortage of federal funding.

1890 Land Grant universities are not receiving their fair share of federal funding. Why do these trends continue to exist year after year?

Response: As reflected in the President's Budget proposal, the Department supports funding for programs that benefit not only the 1890 land-grant institutions but also other underserved groups. CSREES is working with the 1890 Institutions to expand their participation in a number of programs. CSREES is also seeking additional funding for the Expanded Food and Nutrition Education Program. In Memphis, Tennessee on March 19, 2008, CSREES staff met with approximately 160 researchers from the 1890 Institutions to discuss keys to success in our competitive grants programs. We are encouraging the 1890 Institutions to compete in the National Research Initiative and in other competitive programs.

FY 2009 Questions for the Record
Cooperative State Research, Education, and Extension Service

1890 INSTITUTIONS

Ms. DeLauro: Please update the tables on pages 480 and 481 of last year's hearing record on the funding provided to 1890 institutions.

Response: The information is submitted for the record.

[The information follows:]

CSREES Research and Education Activities: Evans-Allen Program Institution	Fiscal Year 2007 Actual	Fiscal Year 2008 Actual	Fiscal Year 2009 Budget
Alabama A&M University	$2,097,000	$2,116,000	$1,975,000
Tuskegee University	2,078,000	2,097,000	1,956,000
University of Arkansas-Pine Bluff	1,822,000	1,838,000	1,723,000
Delaware State University	1,084,000	1,089,000	1,051,000
Florida A&M University	1,636,000	1,652,000	1,533,000
Fort Valley State University	2,403,000	2,425,000	2,264,000
Kentucky State University	2,842,000	2,870,000	2,670,000
Southern University	1,642,000	1,655,000	1,560,000
University of Maryland-Eastern Shore	1,231,000	1,241,000	1,167,000
Alcorn State University	2,048,000	2,064,000	1,947,000
Lincoln University	2,765,000	2,794,000	2,586,000
North Carolina A&T State University	3,364,000	3,392,000	3,187,000
Langston University	1,798,000	1,817,000	1,681,000
South Carolina State University	1,812,000	1,827,000	1,714,000
Tennessee State University	2,612,000	2,636,000	2,459,000
Prairie View A&M University	3,717,000	3,759,000	3,449,000
Virginia State University	2,239,000	2,260,000	2,112,000
West Virginia State University	1,177,000	1,188,000	1,108,000
Total Payment to States	38,367,000	38,720,000	36,142,000
Small Business Innovation Research	986,000	995,000	930,000
Current Research Information System	44,000	46,000	44,000
Biotech Risk Assessment	63,000	58,000	65,000
Federal Administration	1,220,000	1,232,000	1,150,000
Total, Evans-Allen Program	40,680,000	41,051,000	38,331,000

CSREES Extension Activities: Payments to the 1890 Institutions	Fiscal Year 2007 Actual	Fiscal Year 2008 Actual	Fiscal Year 2009 Budget
Institution			
Alabama A&M University	$1,722,000	$1,756,000	$1,663,000
Tuskegee University	1,722,000	1,756,000	1,662,000
University of Arkansas-Pine Bluff	1,533,000	1,561,000	1,485,000
Delaware State University	1,057,000	1,066,000	1,041,000
Florida A&M University	1,484,000	1,512,000	1,434,000
Fort Valley State University	2,081,000	2,120,000	2,014,000
Kentucky State University	2,607,000	2,655,000	2,523,000
Southern University	1,395,000	1,417,000	1,354,000
University of Maryland-Eastern Shore	1,111,000	1,128,000	1,080,000
Alcorn State University	1,654,000	1,682,000	1,604,000
Lincoln University	2,614,000	2,664,000	2,526,000
North Carolina A&T State University	3,013,000	3,062,000	2,927,000
Langston University	1,577,000	1,609,000	1,519,000
South Carolina State University	1,502,000	1,530,000	1,455,000
Tennessee State University	2,316,000	2,358,000	2,241,000
Prairie View A&M University	3,330,000	3,405,000	3,199,000
Virginia State University	1,959,000	1,995,000	1,897,000
West Virginia State University	1,120,000	1,140,000	1,086,000
Total Payment to States	33,797,000	34,416,000	32,710,000
Federal Administration	1,408,000	1,434,000	1,363,000
Total, 1890 Institutions Extension Program	35,205,000	35,850,000	34,073,000

1890 INSTITUTIONS, TUSKEGEE UNIVERSITY and WEST VIRGINIA STATE UNIVERSITY FUNDING

	2007 Actual	2008 Actual	2009 Budget
	(Dollars in Millions)		
Research and Education Activities:			
Evans-Allen Formula	40.7	41.1	38.3
Capacity Building Grants	12.4	13.6	12.4
Other Programs to 1890 Institutions and Tuskegee University	1.0	2.9	1.0
Subtotal, Research and Education Activities	54.1	57.6	51.7
Extension Activities:			
Formula Payments for Extension	35.2	35.8	34.1
Facilities Grants	16.8	17.3	16.6
Subtotal, Extension Activities	52.0	53.1	50.7
Integrated Activities	0.0	0.1	0.1
Section 2501 Outreach	2.6	1.5	1.5
Total, CSREES	108.7	112.3	104.0

1890 INSTITUTIONS

Ms DeLauro: Please provide data comparable to that on page 503 of last year's hearing record on the number of FTEs these funds support at each location for fiscal years 2007 and 2008.

Response: Recipients of 1890 Institutions funds have the flexibility to distribute funds among research projects, infrastructure, and personnel as they wish to meet the needs of their university. The distribution of these dollars varies from state to state. The latest data on personnel supported with 1890 funds as reported into the Current Research Information System (CRIS) by recipient institutions is for fiscal year 2007. The recipient institutions do not assemble the data until the close of the fiscal year and then the reporting process requires approximately six months. The fiscal year 2008 data is being collected now but not all institutions have made their reports available yet.

The information is submitted for the record.

[The information follows:]

Summary of Personnel Supported at 1890 Institutions with CSREES Funds in Fiscal Year 2007

University/Recipient	Funds	Scientist Support	Professional Support	Technical Support	Clerical Support	Total Support
TUSKEGEE UNIVERSITY	$2,276,339	21.6	38.1	2.1	4.9	66.7
ALABAMA A&M UNIVERSITY	3,018,143	13.5	56.7	6.3	11.2	87.7
UNIVERSITY OF ARKANSAS	2,054,199	11.0	13.2	3.6	8.0	35.8
DELAWARE STATE UNIVERSITY	1,083,552	3.1	4.4	3.8	7.5	18.8
FLORIDA A&M UNIVERSITY	2,175,908	11.1	7.7	9.3	6.7	34.8
FORT VALLEY STATE UNIVERSITY	2,344,839	2.6	1.5	0.3	3.1	7.5
SOUTHERN UNIVERSITY	1,641,607	11.1	9.0	14.0	9.5	43.6
UNIV OF MARYLAND EASTERN SHORE	1,594,470	4.0	8.3	6.2	1.5	20.0
ALCORN STATE UNIVERSITY	2,646,432	11.3	7.2	5.0	8.4	31.9
LINCOLN UNIVERSITY	2,041,284	14.3	3.5	18.1	1.0	36.9
NORTH CAROLINA A&T STATE UNIVERSITY	3,695,074	16.9	28.4	25.6	17.1	88.0
LANGSTON UNIVERSITY	3,068,326	21.6	10.4	5.0	2.0	39.0
SOUTH CAROLINA STATE UNIVERSITY	1,811,507	9.4	2.0	7.6	3.8	22.8
TENNESSEE STATE UNIVERSITY	3,206,309	18.4	23.9	13.1	9.6	65.0
PRAIRIE VIEW A&M UNIVERSITY	336,935	4.4	3.5	3.5	7.0	18.4
VIRGINIA STATE UNIVERSITY	2,518,738	5.9	8.3	5.8	8.0	28.0
WEST VIRGINIA STATE UNIVERSITY	1,226,691	5.3	1.0	7.2	11.3	24.8
TOTAL	36,740,353	185.5	227.1	136.5	120.6	669.7

NOTE: Totals may not add due to rounding.

1890 INSTITUTIONS

Ms. DeLauro: Please describe at least one accomplishment for fiscal years 2007 and 2008 for each university or entity that received funding these payments.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007

Alabama. Alabama A&M University. Green leafy vegetables contain a significant level of phytochemicals which have many health benefits, such as decreased risk of heart disease and some hormone-related cancers. Nutritionists at Alabama A&M University designed a project to increase the consumption of green leafy vegetables and enhance the phytochemical contents of these leafy vegetable through development of functional foods. The research findings will give the consumer alternative ways for food preparation. It is expected that an increase in consumption of leafy vegetables may have an impact in preventing or offsetting cancer as well as some other health benefits.

Tuskegee University. The sweet potato weevil is a major pest that damages the sweet potato in the US and the Caribbean. Investigators at Tuskegee University used conventional taxonomy combined with DNA characterization to collect information on the variations among the weevil in the US and the Caribbean. Information gathered should have an immediate impact on sweet potato breeding programs by improving the natural resistance of sweet potato to the weevil.

Arkansas. Investigators at University of Arkansas Pine Bluff are working on incorporating isoflavones, a class of phytochemicals, into rice through molecular techniques and biotechnology. The investigators established an efficient and reliable whole plant regeneration system from mature seed in rice. The regeneration system was subsequently utilized for regenerating transgenic rice containing isoflavone genes.

Delaware. Potato leaf hopper and tarnished plant bug are major pests of alfalfa in the Northeast. Researchers at Delaware State University are establishing economic thresholds for potato leaf hopper in resistant varieties of alfalfa and establishing *Peristenus howardi* to control the tarnished plant bug. This technique will provide another tool in developing an integrated pest management program for controlling pest in alfalfa.

Florida. Researchers at Florida A&M University in collaboration with scientists from neighboring states conducted studies on the change patterns in the use of Temporary Assistance for the Needy Family program among current and former recipients. Twenty-five participants from selected counties of Florida, Louisiana, and South Carolina were studied in detail over a five year period. The results showed significant social and economical changes in neighborhoods over a five year period. Policy makers at the local, state, and federal level now have the social, economical, and gender data needed to establish a sound community-based decision making processes.

Georgia. At Fort Valley State University, the researchers conducted studies on controlling gastrointestinal nematodes in sheep and goats by feeding tannin containing plants. The investigators identified condensed tannin containing plants that are most effective at controlling internal parasites in sheep and goats. The most significant impact of this project is

reduction in production costs and pronounced reduction in commercial drug utilization.

Kentucky. Kentucky State University nutritionists are investigating the synergistic effects of soy products and tea on bone loss due to estrogen deficiency in postmenopausal women. The data showed that bone soups could be an alternative source for calcium; however, there is a need for the addition of vinegar and proper preparation procedures to derive adequate amount of calcium from the soups. Results showed the project helped people to develop effective dietary strategies at reasonable costs to reduce the risk of osteoporosis.

Louisiana. Nutritionists at Louisiana State University researched strategies to ensure healthy nutrition in preschool and Head Start children by developing healthy eating habits early in their lives. Post test survey indicates the following impacts: physical activities for children increased by 62 percent to 100 percent daily; 96 percent of the teachers used My Pyramid Food Guide to develop instructions for children. Over 64 percent of the teachers reported an increase in fruit and vegetable consumption by children; and 64 percent increased moderation in cholesterol and trans fat intakes. Potential impact of their research effort is the reduction in prevalence of obesity related childhood diseases such as diabetes, hypertension, femoral epiphysis, and lower cholesterol and other lipids.

Maryland. Scientists at the University of Maryland Eastern Shore are studying the use of probiotics to decrease potential foodborne pathogens in livestock. Two graduate students were trained on microbial identification using molecular biology techniques and traditional microbial cultures. Two different graduate students were involved in the research project in a hands-on basis, helping to design and conduct the animal-related portion of the project. At least three undergraduate students were exposed to research through working on these projects as well.

Mississippi. At Alcorn State University, horticulturists identified peach, nectarine, plum and pecan cultivars based on their adaptation to southwest Mississippi soils and climatic conditions. Interested fruit growers will be able to learn more about low input fruit production practices. Practices involved in low input fruit production systems have been shown to improve environmental quality by reducing soil and water pollution.

Missouri. Research at Lincoln University indicated that the St. Louis sweet potato variety offers good market opportunity for sweet potato producers in Missouri. The study suggests that with improved management practices it is possible for farmers to increase their on-the-farm income by growing this high quality sweet potato.

North Carolina. Investigators at North Carolina A&T linked the primary survey data on the characteristics of successful Community Based Organizations (CBOs) to researchers, extension personnel, rural development agencies and policy makers to explain the formation of social capital, CBOs' performance and program initiatives. Insights provided by the project will enable universities to build strong and meaningful collaborative partnerships with CBOs as a mean to strengthen their capacity building.

Oklahoma. Langston University scientists are studying the effect of diets deficient or adequate in nitrogen on energy and nitrogen metabolism to determine if there are differences between meat goat genotypes. The research findings showed significant variations in goat responses. This research will yield a better understanding of the feeding value of feed ingredients and the

performance of different goat breeds and will identify appropriate goat genotypes best suited for harsh production environments in Oklahoma.

South Carolina. South Carolina State University scientists are learning more about a new class of vitamin E derivatives that can act as potential chemotherapeutic agents in the fight against human breast cancer. Previous methods for the synthesis of the 6 amino derivatives of tocopherols or vitamin E, have always provided a mixture of products. The researchers at South Caroline appear to overcome this problem by employing modern palladium catalyzed Naryl amination chemistry to substitute natural tocopheryl esters with nitrogen to produce tocopheramines. If these investigations prove successful, there will be great interest in these compounds in fighting some forms of breast cancer in humans.

Tennessee. Researchers at Tennessee State University studied microbial contamination in used; second hand, refrigerators. This study indicates a high potential for food borne illnesses originating in used refrigerators purchased by limited resource households. With the increase awareness through literature and demonstrations, consumers reported changes in their behaviors related to food storage and sanitation of refrigerators.

Texas. Population structure within goat breeds in the US is often not well defined. Investigators at Prairie View University are carrying out research to quantify genetic diversity within and among eight goat breeds located in Texas and the southeastern US. They also are identifying the evolutionary genetic relationships among the eight goat breeds -- Boer, Spanish, Tennessee Stiff-legged Myotonic, Nubian, Toggenburg, Angora, San Clemente and Brush Goats. Two hundred genetic markers with potential for production traits are pre screened on these goat breeds with the expectation that performance and production of products will improve over time.

Virginia. Virginia State University scientists are conducting research in an effort to identify bacterial strains for efficient nitrogen fixation by tepary bean, a plant native to the southwestern US. The investigators also are determining genetic variation among 100 tepary bean lines and are evaluating the suitability of tepary bean in meeting nitrogen-(N) needs of succeeding winter wheat crop through high nitrogen fixation. This research aims to utilize tepary bean's drought tolerance and biological N fixation properties to develop it into a summer legume cover crop to enhance the farm economy, protect ground and surface water from N pollution, diversify cropping systems, and to help improve human nutrition.

West Virginia. West Virginia State University is studying quantitative detection techniques for key bacterial populations in order to develop predictive models and to monitor the presence of hermophilic anaerobic bacterial populations. The scientists were able to quantitatively detect tetracycline resistance genes in pathogenic bacteria on poultry farms using the developed technique.

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Alabama. Alabama A&M University scientists evaluated strategies to increase the efficiency of encapsulated butylated hydroxyanisole (BHA) activity in contaminated meats. Extending the shelf-life of ground meat increases the profit margin of producers without increasing the unit price to consumers. Several dyes were tested for their proficiency in differentiating the individual leaves of liposomes and the presence of encapsulated BHA.

Researchers at Tuskegee University are using of both soil enzyme assays and microbial diversity measurements to evaluate the effects of tillage and

cropping practices on water quality, selected soil factors and enzyme activities in 8 watersheds in Alabama.

Arkansas. Researchers at the University of Arkansas Pine Bluff found feeding cottonseed hulls and protein concentrate mix that also contains broken rice, can provide protein, fiber and energy for maintenance and weight gain for goats. Goats that are fed either whole cottonseed with some hay supplementation would gain weight higher than goats the are fed cottonseed hulls with protein concentrate mix that also contains broken rice. A balanced mixture of soybean meal, broken rice, chopped corn, vitamins and minerals is relatively, as good as commercial grain mix of equivalent protein levels in helping goats gain weight. The use of whole cottonseed or cottonseed hulls with protein and rice concentrate mix would provide cheap sources of nutrients and reduce production cost of goats.

Delaware. The obesity epidemic is associated with the consumption of calorie dense foods. Management of type II diabetes is a major health problem among low income Americans. Research is developing and promoting low-glycemic index recipes with high monounsaturated fatty acids as an intervention strategy to prevent/reduce obesity and manage type 2 diabetes. The research is also increasing the opportunity for food and nutrition students to receive hands-on laboratory training in food chemistry, increase consumer awareness of foods with low-glycemic index and high monounsaturated fatty acids. This awareness, in turn is assisting consumers with weight control, management of diabetes and associated diseases. The project has strengthened collaboration between Delaware State University Cooperative Extension and the research unit within the College of Agriculture and Related Sciences. Collaboration between the Delaware State University research scientists and scientist at the Agricultural Research Service Lab in Wyndmoor, Pennsylvania targets developing new products aimed at managing type II diabetes and obesity related health problems.

Florida. Researchers at Florida A&M University in cooperation with the Agricultural Research Service of USDA in Fort Pierce initiated a grape functional genomic project. The major focus of this project was to develop molecular markers to identify the genes associated with improved berry quality and disease/insect resistance in muscadine grapes. Through the cooperative efforts of these researchers, 30,000 pieces of short sequences of genes have been sequenced from which 10,000 genes were assembled. The sequence analysis led to the discovery of genes uniquely found in the native grape species. A new improved cultivar "Majesty' was released.

Georgia. Researchers at Fort Valley State University evaluated goat meat consumption, factors influencing consumption both within the general population and the Hispanic sub-market for the southern region of the United States. It also involved an assessment of farmer and farm characteristics on supply and marketing. These studies revealed that the four most important chevon attributes to consumers and potential consumers were government inspection labeling, fat and cholesterol content and price. The loin chop was ranked as the most important cut of chevon of existing consumers.

Kentucky. Thousands of low and medium income families in Kentucky are not aware of the opportunities to reduce or eliminate tax obligations through the Earned Income Credit and Child Tax Credit programs. Kentucky State University's Family Economics and Management Specialist provides leadership to the statewide program for Kentucky coordinating the efforts of Extension Food and Consumer Science Agents in all 120 counties, Expanded Food and Nutrition Education Program Assistants, Small Farm Assistants, churches, nursing homes, libraries and other local community agencies and organizations. The specialist collaborates with the Internal Revenue Service

Volunteer Income Tax Assistance Program to provide free tax preparation at locations throughout Kentucky. Hundreds of families are filing tax returns that othewise would not have done so with more than 600 applying for the Earned Income Tax Credit.

Louisiana. Louisiana State University. Louisiana livestock and crop producers suffered substantial losses as a result of hurricanes Katrina and Rita. Research was conducted and information disseminated to producers in the various areas including: grazing and forage quality on the production, growth and carcass of cattle and goats; pasture rearing of poultry and rabbits; evaluation and usage of aquatic wastes as soil amendment and feed; and production of alternative horticultural crops for niche markets. Establishment of community gardens, participation in Farmers' Market activities and other methods of adding value to farm products to increase producers' share of the food dollar, and various related methods of ensuring competitiveness and profitability, were promoted. The Small Farmers Agricultural Leadership Training Institute, Sustainable Agriculture Field Days, Parish advisory council, farm/site visits, were some of the activities conducted. Participants received information and training in various areas of agricultural operations, record keeping, pesticide application, parasite symptom detection, alternative enterprises, financing, real estate planning, legal issues, profitability, etc. Overall assessment conducted during the sessions indicated that 80 percent of the participants gained new knowledge and skills while 78 percent indicated that they will utilize knowledge and skills gained.

Maryland. Extension at the University of Maryland Eastern Shore has worked with the University of Maryland College Park in the 4-H, Operation: Military Kids Program. This program worked to develop community networks and build infrastructure for identified programs in communities of military youth and families. Maryland 4-H reached 1,600 military youth through this outreach effort. In the state of Maryland a total number of 41 teens were trained in the Speakout for Military Youth Program, from the Maryland National Guard, DC National Guard, 4-H State Teen Council, and Hereford High For Our Troops Club. Individual groups came together for the 4-H Teen Focus Leadership Conference to present their projects to community volunteers, partners, and members of the 4-H youth development program. Additional presentations were made during the MD National Guard Family Readiness Program Workshop; DC National Guard Spring Break event; Maryland State Fair; and the Maryland Cooperative Extension Annual Conference.

Mississippi. Overuse of nitrogen fertilizer is a common problem among limited-resource farmers. It is often applied at the expense of other nutrients. Five workshops were conducted by Alcorn State University to educate farmers on the importance of soil testing and fertilizer application methods. A total of 312 farmers attended the workshops. Ninety percent of farmers who attended the workshop indicated their willingness to conduct soil test before planting and also apply fertilizer according to soil test results.

Missouri. Lincoln University. Lead contamination in soils and lands from abandoned mining and smelting areas in Missouri, has been identified as a human health and ecological threat. In southwest and southeast Missouri, there are thousands acres of land and urban soils that have been contaminated by disposal of lead, cadmium, and zinc-rich mine tailings and smelting operations. Leaching experiments show that phosphate treatment effectively immobilized soil lead and significantly reduced leachable lead and plant uptake, which potentially lowered the ecological risk to water quality and plant community. The lead phosphates were chemically and biologically stable under the surface soil and resistant to alteration of soil acidity and plant

root influences. Data from plant tissue and water analyses indicated that metal uptakes by plants were reduced and surface & ground water quality improved in terms of aqueous lead and ecological toxicity, as a result of the soil treatment. This study will ultimately lead to a cost-effective and environmentally safe remedial technology or best land management practice that reduces health and ecological risk of soil lead.

North Carolina. A research team at North Carolina A&T identified natural bioactive agents with moderately strong anticancer properties from Rosa canina and Phytolocca americana. These bioactive agents may be helpful in cancer prevention and alternative treatment. In vitro tests showed that crude extracts from these plants significantly reduced the growth and proliferation of colon, breast, and cervical cancer cells --three prominent cancer types that affect both African-American men and women. The bioactive agents in the same extracts were also effective in boosting egg production in molting laying hens and could have potential use in the poultry industry.

Oklahoma. Langston University established a certified Dairy Heard Improvement laboratory that operates under the supervision of the National Dairy Heard Improvement Association to provide services to goat producers in the nation. Langston has also worked in cooperation with Texas A&M University to write a program that utilizes goat language instead of cow language. This program produces records with dairy goat breeds along with correct sex identification and expected delivery dates for pregnant does. As a result, goat producers are now able to get records for their animals that reflect accurate information with the correct language. These records not only reflect higher fat and protein values for a doe, but also are easier to understand when used for genetic evaluation and for herd management. Currently, Langston University is serving 120 goat producers in 30 states. Information provided by the Langston University Dairy Heard Improvement Laboratory has allowed goat producers to demand higher prices for their animals during sales.

South Carolina. South Carolina State University researchers are conducting tests to determine if candles from soybean products could replace paraffin wax, in order to produce better and safer products. This would have a direct economic impact on soybean farmers as well as a health and environmental impact for the country. Billions of candles are sold each year to people to enjoy inside the home for look and beauty. Many are unaware of the harmful emissions and products concentrated indoors and inhaled. Certain brands of candles may cause skin irritation as well as exposure to smoke which cause illnesses. Soybeans are a renewable and biodegradable resource and a prime source for candle wax.

Tennessee. Imported fire ants are a serious pest causing multiple negative impacts to agricultural producers such as quarantines, damage to electrical systems, livestock injury, harvesting equipment damage; and the general public such as threat to human health, road damage, electrical system damage, recreational impacts, and loss of wildlife and ecosystem diversity. Researchers at Tennessee State University presented imported fire ant management and new control techniques to agricultural audiences that included nursery growers, landscapers, turf growers, and multistate Project scientists. Nursery growers, landscapers, and turf producers were given the latest treatment techniques for managing imported fire ants. The relative costs for different treatment techniques were compared to allow stakeholders to make informed decisions that will improve the productivity of their agricultural businesses. Safety issues for handling agrochemicals were also addressed to enhance the safety and quality of life for agricultural workers.

Texas. Currently a research program is being maintained entitled "Establishing a Biodiversity and Genetic Resource Conservation Center for Goats at Prairie View A&M University." The long term goals are: To establish a germplasm conservation center for goats, characterize goat breeds, improve meat/milk production in goats through modern molecular technologies and study genetic drift in small populations maintained in situ.

Virginia. Virginia State University conducted a project that examines the microbial and chemical quality of raw meats, frozen beans, and honey sold through the internet for food safety. A total of 272 fillets consisting of aqua-cultured catfish, salmon, tilapia, and trout each from nine local and nine Internet retail markets were tested. This study shows that Internet fish products are either equally or more likely to have excessive microbial contamination, including *L. monocytogenes*, than locally purchased fillets. Effective educational and/or regulatory interventions are needed to support the healthy development of this emerging market.

West Virginia. West Virginia State University is conducting research on alternative agriculture products and practices such as organic/sustainable farming and hydroponic systems which are becoming an important component in agriculture. As a result of research, an off season strawberry production method using a vertical hydroponic system showed promise for production of strawberries for winter harvesting. Further research is being done to evaluate germplasm for desirable traits and enhance existing cultivars by transferring these traits to develop new cultivars for the greenhouse tomato industry with resistance to insects and diseases and better sensory properties to meet the needs of the North American producer.

AGENCY AUDITS

Ms. DeLauro: Provide a brief description of all Government Accountability Office, Office of the Inspector General, and internal audits that were completed in fiscal years 2007 and 2008, and those that are ongoing in fiscal year 2009.

Office of Inspector General audits:

Response: The information is submitted for the record.

[The information follows:]

The audits below were completed in fiscal year 2007.

Department of Agriculture's Progress in Enhancing Agriculture Biosecurity Through Diagnostic and Reporting Networks - Audit Report Number 50601-13-At

CSREES provides funding and leadership to the National Animal Health Laboratory Network and the National Plant Diagnostic Network. The primary objective of this effort is to establish a functional national network of existing diagnostic laboratories to rapidly and accurately detect and report animal and plant diseases and other pests of national interest, particularly those pathogens that have the potential to be intentionally introduced through bio-terrorism.

In February 2006, the Office of Inspector General (OIG) began reviewing the effectiveness of the National Animal Health Laboratory Network and the National Plant Diagnostic Network. Efforts center on conducting interviews with agency and university scientists overseeing the two networks.

The Office of Inspector General has closed the audit file for this assignment with no report being issued.

Evaluation Report: Saving the Chesapeake Bay Watershed Requires Better Coordination of Environmental and Agricultural Resources - joint EPA OIG 2007-P-00004 and USDA OIG 50601-10-Hq

In partnership with the Environmental Protection Agency, the Office of Inspector General sought to identify the principal barriers to achieving nutrient reduction goals in the Chesapeake Bay. The report concentrated on agricultural best management practices used to address nonpoint nutrient and sediment loading to the Chesapeake Bay watershed. The Office of the Under Secretary for Natural Resources and Environment commented on the draft report October 12, 2006. The report was issued November 11, 2006. Management decision was reached on all recommendations on February 22, 2007. No further action by CSREES is required.

Review of Trade Adjustment Assistance (TAA) for Farmers Program - Fiscal Year 2005 and 2006 - Audit Report Number 50601-3-Hy

OIG evaluated whether the Foreign Agricultural Service effectively implemented the Trade Adjustment Assistance program in accordance with the intent of the program. They also evaluated the level of coordination and cooperation between the Foreign Agricultural Service, the CSREES and the Farm Service Agency in implementing the program, the effectiveness of the Foreign Agricultural Service's implementation of the program at the local level, and the effectiveness of the technical assistance provided to the producers by the CSREES. The final report was issued on June 13, 2007, with no specific findings or recommendations for CSREES.

Review of Fiscal Year 2005 Congressional Earmarks - Audit Report Number 50601-15-Te

OIG investigated the total number and dollar amount of Congressional earmarks made to the United States Department of Agriculture, and the oversight conducted on earmarks. They found that there was no formal process for collecting earmark totals. They did not make a recommendation on this issue since the Office of Management and Budget recently issued guidance for earmarks. Controls were found to be adequate and that Congressional earmark projects were treated the same as any other Federal assistance. The Office of Inspector General required no further action. The Report was signed March 12, 2007. No further action by CSREES is required.

The audits below were completed in fiscal year 2008.

CSREES Management of Facilities Construction Grants - Audit Report 50601-5-At

OIG performed an audit to determine if (a) CSREES provided oversight in the development and construction of facilities, (b) institutions' matching requirements were met, (c) grantees complied with applicable regulations and requirements, including fund accountability, (d) facilities were used for their intended purposes, (e) the research priorities of the department were adequately supported, and (f) there were duplications between CSREES and Agricultural Research Service (ARS) research facilities. The Office of the Chief Financial Officer accepted final action on the last recommendation in their letter dated March 24, 2008. The acceptance of that final action completed all of the planned corrective actions and no further reporting to the OCFO is necessary.

Cooperative State Research, Education, and Extension Service Application Controls Review of the Cooperative Research, Education, and Extension Management System - Audit Report Number 13501-01-Hy

CSREES uses the Cooperative Research, Education, and Extension Management System to manage its grants throughout their life cycle from proposal receipt through post-award review. This electronic database serves as a key application in CSREES' management of financial operations. CSREES uses the database to authorize payment of Federal funds, and it is the source for data entry into the agency's accounting system. The audit field work began in May 2003. The final audit report was issued on July 8, 2005 with a management decision being reached on all 14 recommendations. The Office of Inspector General found that CSREES had not complied with numerous information system security program requirements for the system. Specifically, they found that CSREES had not (1) documented its risk assessment, (2) prepared a comprehensive contingency plan, (3) provided annual security awareness training to all users, (4) completed the official authorization, by a designated approving agency official, to place or maintain a system in operational use, (5) implemented adequate logical and physical access controls, and (6) provided adequate legal notice regarding improper access or use of the system. Most of these findings and recommendations were resolved through the Certification and Accreditation process or other actions taken by the Information Systems and Technology Management unit of the agency prior to the issuance of the final report.

The last finding and recommendation addressed CSREES not being in compliance with the Federal Managers' Financial Integrity Act. This was due to the inconsistent processing procedures used by the financial system components, that is, the Cooperative Research, Education, and Extension Management System and the Department of Health and Human Service's Payment Management System.

CSREES worked with the Department of Health and Human Service system staff to change the allocation methodology used by the Payment Management System to correspond with the allocation methodology used by the Grants Management System to process payments when multiple financial data codes and Treasury Symbols are involved. This was accepted prior to the end of fiscal year 2005. CSREES has taken corrective action on all 14 recommendations. The Office of the Chief Financial Officer accepted closure on all recommendations February 5, 2008.

The audits below are ongoing in fiscal year 2009.

Implementation of the Agricultural Research, Education, and Extension Reform Act of 1998 - Audit Report Number 13001-3-Te

The audit objectives were to determine whether CSREES established effective controls to ensure that land-grant institutions implemented the Agricultural Research, Extension, and Education Reform Act of 1998 provisions in accordance with law and regulations. In addition, the audit determined fiscal year 1997 baseline expenditures for integrated and multi-State activities and evaluated whether an institution met subsequent year Hatch and Smith-Lever expenditure goals as set forth in the Agricultural Research, Extension, and Education Reform Act of 1998. At the time of the publication of the audit report on August 16, 2004, a management decision was reached on 15 of the 17 audit recommendations. CSREES concurred with the recommendations to ensure that reductions in target percentages are granted only when warranted, monitor land-grant institutions' annual reports to ensure expenditures of formula funds are at the agreed-upon level, ensure that matching requirements are met, and ensure that formula funds are not distributed until institutions' plans of work meet standards. On March 25, 2005, the CSREES provided documentation to the Office of Inspector General to reach management decision on the remaining two audit recommendations, numbers 12 and 16.

On April 28, 2005, the United States Department of Agriculture Office of Inspector General accepted management decision on the two remaining recommendations. Since the inception of this audit, CSREES has established better controls and business practices to ensure compliance with the Agricultural Research, Extension, and Education Reform Act of 1998 by the 1862 and 1890 land-grant institutions. It is now in the final action phase with the Office of the Chief Financial Officer. CSREES anticipates that corrective action will be completed in 2009.

Biosecurity Grant Funding Controls Over Biosecurity Grant Funds Usage - Audit Report Number 50099-17-KC

On October 22, 2004, OIG issued a discussion draft audit report which evaluated the propriety and timeliness of the Department of Agriculture's use of supplemental funds appropriated by Congress for Homeland Security purposes. The report reviewed the external use of funds under grants and cooperative agreements administered by the Animal and Plant Health Inspection Service, the Agricultural Research Service, and CSREES and recommended: 1) the three agencies have the cited awardee institutions adjust their financial records to remove improper charges from the Homeland Security grants; 2) CSREES take appropriate action to ensure that grant recipients submit timely reports; and 3) the Agricultural Research Service and CSREES establish and document their policies and procedures for conducting site visits.

Management decision was reached on all recommendations. CSREES has assigned a staff person to monitor the progress reports for these grants and is developing a policy on post-award management which will contain a component

on conducting site visits. CSREES anticipates that corrective action will be completed in 2009.

Cooperative State Research, Education, and Extension Service Tribal Land Grant Institutions - Audit Report Number 13011-3-At

OIG assessed the management and accounting controls over grants to ensure that the institutions are eligible for such grants and are expending grant funds in accordance with the applicable laws, regulations, and grant agreements. Their scope included grants to 1994 Land Grant Institutions (Tribal Colleges) for fiscal years 2004 and 2005. The final report was issued August 17, 2007. The OIG has accepted the agency's actions to reach management decision on seven out of eight recommendations contained in the report. On August 22, 2008, CSREES received a memorandum from the OIG stating that they are unable to reach management decision on the remaining recommendation. CSREES is reviewing the August 22, 2008 OIG memorandum, as well as the grant files for these awards. CSREES is working with the USDA Office of General Counsel and the OIG on the resolution of issues identified in the OIG memorandum and anticipates reaching management decision by December 31, 2008.

Implementation of Renewable Energy Programs in USDA - Audit Report Number 50601-13-Ch

OIG is seeking to gather information about renewable energy efforts, reporting, and programs within the United States Department of Agriculture. The audit evaluated the Department's key internal controls for renewable energy initiatives. Additionally, OIG evaluated controls over individual agency efforts to promote renewable energy projects, to monitor program activities, and to determine the effectiveness of renewable energy projects. In the final report issued August 14, 2008, management decision was reached on all nine recommendations.

National Research Initiative - Competitive Grants Program (NRICGP) - Audit Report Number 13601-1-Hy

OIG evaluated CSREES' NRICGP to ensure that high-priority research areas were funded and they evaluated the adequacy of CSREES' management controls to ensure that funds were used for the intended purposes. In coordination with a Departmentwide review of the implementation of the USDA's renewable energy programs, they also evaluated CSREES' agencywide actions to address the Presidential initiative for renewable energy. To accomplish their objectives, OIG reviewed applicable regulations and policies, interviewed pertinent personnel, and reviewed how CSREES was using the Current Research Information System in conjunction with its funded grant projects. OIG also visited 4 universities and examined 14 grants totaling $5,074,520. In the final report issued May 2008, management decision was reached on each of the three recommendations.

Exports of Genetically Engineered Agricultural Commodities - Audit Report Number 50601-14-Te

OIG is looking at United States Department of Agriculture policies related to the exports of genetically engineered agricultural commodities. Most of the work was done with the Foreign Agricultural Service but the auditors also met with CSREES staff about the role the agency plays in research and extension activities related to genetically engineered commodities. The audit is still in process.

Controls over Genetically Engineered Animal and Insect Research - Audit Report Number 50601-16-Te

OIG is determining whether adequate management controls have been established over animal and insect research and field testing to ensure that genetically engineered animals and insects are not inadvertently released into the environment. CSREES provided requested budget information to OIG on February 20, 2008. The audit is still in process.

Government Accountability Office audits:

The audits below were completed in fiscal year 2007.

Influenza Pandemic: Efforts to Forestall Onset Are Under Way; Identifying Countries at Greatest Risk Entails Challenges - Job Code 320396, GAO-07-604

The Animal and Plant Health Inspection Service was the lead respondent. This was a Congressional request to learn how the Department of Agriculture was collaborating with other agencies and countries. The scope was animal and human disease in Asia. The final report was issued June 20, 2007 with no specific findings or recommendations for CSREES.

SMALL BUSINESS INNOVATION RESEARCH: Agencies Need to Strengthen Efforts to Improve the Completeness, Consistency, and Accuracy of Awards Data - Job Code 360677, GAO-07-38

CSREES was the lead. The final report was released November 20, 2006 with findings and recommendations specific to CSREES. Corrective action has been taken.

U.S. International Basic Education Efforts - Job Code 320399, GAO

The Foreign Agricultural Service was the lead. The report issued March 30, 2007 with no specific findings or recommendations for CSREES.

Avian Influenza: USDA Has Taken Important Steps to Prepare for Outbreaks but Better Planning Could Improve Response - Job Code 360700, GAO-07-652

The focus was on planning, preparation, response and recovery from Avian Influenza. This was a Government Accountability Office initiative. This was in addition to 'Influenza Pandemic' above (focus on human health). CSREES was mentioned in the report. The final report was issued June 11, 2007 with no specific findings or recommendations for CSREES.

Information on Federal Programs and Interagency Efforts that Support Small Businesses Engaged in Manufacturing - Job Code 360715, GAO-07-714

Rural Business-Cooperative Service was the lead. The final report was issued May 18, 2007 with no specific findings or recommendations for CSREES.

BEGINNING FARMERS Additional Steps Needed to Demonstrate the Effectiveness of USDA Assistance - Job Code 360761, GAO-07-1130

Senator Harkin requested the investigation. The final report was issued September 18, 2007 to the requestor and October 19, 2007 to the public with no specific findings or recommendations for CSREES.

Influenza Pandemic: Further Efforts are Needed to Ensure Clearer Federal Leadership Roles and an Effective National Strategy - Job Code 450450, GAO-07-781

The Animal and Plant Health Inspection Service was the lead. This job was coordinated with GAO 320396, GAO 360700, and OIG 33701-1-HY. The final report was issued August 14, 2007 with no specific findings or recommendations for CSREES.

Tax Exempt Organizations with Federal Tax Debt Review - Job Code 192222, GAO-07-563, GAO-07-1090T Testimony

CSREES met with the Government Accountability Office January 29, 2007. We supplied the requested documents. The final report was issued June 29, 2007 with no specific findings or recommendations for CSREES. The testimony was released July 24, 2007.

Critical Infrastructure Protection for Pandemic Influenza - Job Code 450489, GAO-08-36

The Department of Agriculture was the lead. The final report was issued October 31, 2007 with no specific findings or recommendations for CSREES.

Trade Adjustment Assistance: New Program for Farmers Provides Some Assistance, but Has Had Limited Participation and Low Program Expenditures - Job Code 130622 (was Job Code 130596), GAO-07-201

The Foreign Agricultural Service was the lead. The final report was issued December 18, 2006 with no specific findings or recommendations for CSREES.

USDA Classical Plant and Animal Breeding Research - Job Code 360832, GAO-07-1171R

The Agricultural Research Service was the lead. The final report was issued to the requestor September 13, 2007 and released to the public October 15, 2007. There were no specific findings or recommendations for CSREES.

The audits below were completed in fiscal year 2008.

Federal Grant and Direct Assistance Participants Who Owe Outstanding Federal Taxes - Job Code 192238

This investigation is a follow-on to job code 192222. The Office of Chief Financial Officer is the lead. The draft report was sent to the Internal Revenue Service and the Office of Management and Budget on September 28, 2007 for comment. The final report was issued in November 2007. No recommendations for CSREES.

Offshore Marine Aquaculture - Job Code 360830, GAO-08-594

The entrance conference was June 1, 2007. There was a follow-up meeting November 6, 2007 with agency staff. The final report was May, 2008. No recommendations for CSREES.

Defense Infrastructure - Job Code 350970, GAO-08-665

We responded to the Government Accountability Office questionnaire June 2007. They were satisfied with the response and would contact us if they needed more information. The final report was June, 2008. No recommendations for CSREES.

Exposure to Indoor Mold - Job Code 360801, GAO-08-980

The entrance conference was conducted on June 12, 2007. USDA was out of scope. Report issued September, 2008. No recommendations for CSREES.

The audits below are ongoing in fiscal year 2008.

Improving Federal Oversight and Accountability for Federal Grant Funds - Job Code 194749

We responded to GAO survey on single audit process August 8, 2008. GAO estimated completion date is December 2008.

Veterinarian Capabilities for Disease Prevention, Food Safety, and Defense - Job Code 360855

Entrance conference was conducted on September 26, 2007. Survey completed by October 4, 2007. Survey updated August 2008. Exit conference was conducted on October 20, 2008. There will be recommendations for USDA.

USDA Biofuel Efforts - Job Code 360978

Entrance conference was conducted on November 13, 2008.

Integration of U.S. Biosurveillance Efforts - Job Code 440674

Entrance conference was conducted on March 13, 2008. Biosurveillance meeting was conducted on August 8, 2008.

Federal Funding to the Nonprofit Sector - Job Code 450625

Entrance conference was conducted on July 18, 2008. Report to be issued early spring 2009. No specific recommendations for CSREES.

Office of Management and Budget Circular A-133 Single Audits:

The audits below were completed in 2007 and 2008

Year	Audit Report Number	Name	Type of Audit	Audit Period Year Ended
2005	1001	United Indian Health Services, Inc.	A-133	6/30/2005
2005	1002	Keck Graduate Institute	A-133	6/30/2005
2005	1003	Kentucky State University	A-133	6/30/2005
2005	1004	University of Massachusetts	A-133	6/30/2005
2005	1005	Northern Marianas College	A-133	9/30/2005
2005	1006	University of the District	A-133	9/30/2005
2005	1007	Hope College	A-133	6/30/2005
2005	1008	University of New Mexico	A-133	6/30/2005
2005	1009	Langston University	A-133	6/30/2005
2005	1010	Ohio State University	A-133	6/30/2005
2005	1011	National 4-H Council and Controlled Affiliates	A-133	6/30/2005

2005	1012	Janus Youth Programs, Inc.	A-133	6/30/2005
2005	1013	United Indian Health Services, Inc.	A-133	6/30/2005
2005	1014	Pacific International Center for High Tech	A-133	9/30/2005
2005	1015	California State University, Fresno Foundation	A-133	6/30/2005
2005	1016	Wake Forest University	A-133	6/30/2005
2005	1017	Lincoln University	A-133	6/30/2005
2005	1018	University of Massachusetts	A-133	6/30/2005
2005	1019	State of Wisconsin	A-133	6/30/2005
2005	1020	State of Colorado	A-133	6/30/2005
2005	1021	State of Montana	A-133	6/30/2005
2005	1022	University of Arkansas for Medical Sciences	A-133	6/30/2005
2005	1023	Howard University	A-133	6/30/2005
2005	1024	University of Denver - Colorado Seminary	A-133	6/30/2005
2005	1025	Kentucky State University	A-133	6/30/2005
2005	1026	Research Foundation of the City University	A-133	6/30/2005
2005	1027	State of Florida	A-133	6/30/2005
2005	1028	Cold Spring Harbor Laboratory	A-133	12/31/2005
2005	1029	Wayne State College	A-133	6/30/2005
2005	1030	Northwestern University	A-133	8/31/2005
2005	1031	Brown University	A-133	6/30/2005
2005	1032	Duquesne University	A-133	6/30/2005
2005	1033	Carnegie Institution of Washington	A-133	6/30/2005
2005	1034	University of Puerto Rico	A-133	6/30/2005
2005	1035	Crownpoint Institute of Technology, Inc.	A-133	5/31/2005
2005	1036	Marquette University	A-133	6/30/2005
2005	1037	State of Arkansas - see 03-1016	A-133	6/30/2005
2005	1038	University of Louisville Research Foundation	A-133	6/30/2005
2005	1039	The Northern West Virginia Center for Independent Living	A-133	9/30/2005
2005	1040	SRI International	A-133	12/27/2005
2005	1041	State of Connecticut	A-133	6/30/2005
2005	1042	Rutgers, The State University of New Jersey	A-133	6/30/2005
2005	1043	Northern Marianas College	A-133	9/30/2005
2005	1044	The Trustees of Columbia University	A-133	6/30/2005
2005	1045	The Oceanic Institute	A-133	6/30/2005
2005	1046	South Carolina State University	A-133	6/30/2005
2005	1054	Tuskegee University	A-133	6/30/2005
2005	1055	University of the Virgin Islands	A-133	9/30/2005
2005	1056	University of Alabama	A-133	9/30/2005
2005	1057	University of Michigan	A-133	6/30/2005
2005	1058	Academy of Natural Sciences of Philadelphia	A-133	12/31/2005
2005	1059	College of Micronesia	A-133	9/30/2005
2005	1060	Delaware State University	A-133	6/30/2005
2004	1001	Lincoln University	A-133	6/30/2004
2004	1002	Hope College	A-133	6/30/2004
2004	1003	United Indian Health Services, Inc.	A-133	6/30/2004
2004	1004	United Tribes Technical College	A-133	6/30/2004

2004	1005	Prairie View A&M University	A-133	8/31/2004
2004	1006	South Carolina State University	A-133	6/30/2004
2004	1007	Cold Spring Harbor Laboratory	A-133	12/31/2004
2004	1008	Langston University	A-133	6/30/2004
2004	1009	University of Massachusetts	A-133	6/30/2004
2004	1010	University of the Virgin Islands	A-133	9/30/2004
2004	1011	Kentucky State University	A-133	6/30/2004
2004	1012	Northern Marianas College	A-133	9/30/2004
2004	1013	University of New Mexico	A-133	6/30/2004
2004	1014	Ohio State University	A-133	6/30/2004
2004	1015	National 4-H Council and Controlled Affiliates	A-133	6/30/2004
2004	1016	Janus Youth Programs, Inc.	A-133	6/30/2004
2004	1017	Research Foundation of the City University	A-133	6/30/2004
2004	1018	Pacific International Center for High Tech	A-133	9/30/2004
2004	1019	California State University, Fresno Foundation	A-133	6/30/2004
2004	1020	Wake Forest University	A-133	6/30/2004
2004	1021	Howard University	A-133	6/30/2004
2004	1022	State of Wisconsin	A-133	6/30/2004
2004	1023	State of Colorado	A-133	6/30/2004
2004	1024	State of Montana	A-133	6/30/2004
2004	1025	University of Arkansas for Medical Sciences	A-133	6/30/2004
2004	1026	University of Denver - Colorado Seminary	A-133	6/30/2004
2004	1027	State of Florida	A-133	6/30/2004
2004	1028	Wayne State College	A-133	6/30/2004
2004	1029	Northwestern University	A-133	8/31/2004
2004	1030	Brown University	A-133	6/30/2004
2004	1031	Duquesne University	A-133	6/30/2004
2004	1032	Carnegie Institution of Washington	A-133	6/30/2004
2004	1033	University of Puerto Rico	A-133	6/30/2004
2004	1034	Crownpoint Institute of Technology, Inc.	A-133	5/31/2004
2004	1035	Marquette University	A-133	6/30/2004
2004	1036	State of Arkansas - see 03-1016	A-133	6/30/2004
2004	1037	University of Louisville Research Foundation	A-133	6/30/2004
2004	1038	The Northern West Virginia Center for Independent Living	A-133	9/30/2004
2004	1039	SRI International	A-133	12/27/2004
2004	1040	State of Connecticut	A-133	6/30/2004
2004	1041	Rutgers, The State University of New Jersey	A-133	6/30/2004
2004	1042	The Trustees of Columbia University	A-133	6/30/2004
2004	1043	The Oceanic Institute	A-133	6/30/2004
2004	1044	Tuskegee University	A-133	6/30/2004
2004	1045	University of Alabama	A-133	9/30/2004
2004	1046	University of Michigan	A-133	6/30/2004
2004	1047	Academy of Natural Sciences of Philadelphia	A-133	12/31/2004
2004	1048	College of Micronesia	A-133	9/30/2004
2004	1049	Delaware State University	A-133	6/30/2004
2004	1050	University of Richmond	A-133	6/30/2004

2004	1051	Auburn University	A-133	6/30/2004
2004	1052	Battelle Memorial Institute	A-133	9/30/2004
2004	1053	Boston College	A-133	6/30/2004
2004	1054	California Institute of Technology	A-133	5/31/2004
2004	1055	Divergence Inc.	A-133	12/31/2004
2004	1056	Eastern Virginia Medical	A-133	6/30/2004
2004	1057	Georgetown University	A-133	6/30/2004
2004	1058	Georgia Tech Research	A-133	6/30/2004
2004	1059	Harvard University	A-133	6/30/2004
2004	1060	Illinois Central School District	A-133	6/30/2004
2004	1061	Illinois Institute of Technology	A-133	5/31/2004
2004	1062	Lehigh Carbon College	A-133	6/30/2004
2004	1063	Massachusetts Institute Technology	A-133	6/30/2004
2004	1064	Michigan Research Institute	A-133	12/31/2004
2004	1065	Michigan State University	A-133	6/30/2004
2004	1066	Middlebury College	A-133	6/30/2004
2004	1067	National Biodiesel Board	A-133	9/30/2004
2004	1068	Save the Children	A-133	9/30/2004
2004	1069	State of Louisiana	A-133	6/30/2004
2004	1070	State of Rhode Island	A-133	6/30/2004
2004	1071	State of Texas	A-133	8/31/2004
2004	1072	State of Utah	A-133	6/30/2004
2004	1073	The General Hospital Corporation	A-133	9/30/2004
2004	1074	University of Alabama	A-133	9/30/2004
2004	1075	University of California	A-133	6/30/2004
2004	1076	University of Pennsylvania	A-133	6/30/2004
2004	1077	University of Wyoming	A-133	6/30/2004
2003	1001	Hope College	A-133	6/30/2003
2003	1002	University of New Mexico	A-133	6/30/2003
2003	1003	Langston University	A-133	6/30/2003
2003	1004	Ohio State University	A-133	6/30/2003
2003	1005	National 4-H Council and Controlled Affiliates	A-133	6/30/2003
2003	1006	Janus Youth Programs, Inc.	A-133	6/30/2003
2003	1007	United Indian Health Services, Inc.	A-133	6/30/2003
2003	1008	Pacific International Center for High Tech	A-133	9/30/2003
2003	1009	California State University, Fresno Foundation	A-133	6/30/2003
2003	1010	Wake Forest University	A-133	6/30/2003
2003	1011	Lincoln University	A-133	6/30/2003
2003	1012	University of Massachusetts	A-133	6/30/2003
2003	1013	State of Wisconsin	A-133	6/30/2003
2003	1014	State of Colorado	A-133	6/30/2003
2003	1015	State of Montana	A-133	6/30/2003
2003	1016	University of Arkansas for Medical Sciences	A-133	6/30/2003
2003	1017	Howard University	A-133	6/30/2003
2003	1018	University of Denver - Colorado Seminary	A-133	6/30/2003
2003	1019	Kentucky State University	A-133	6/30/2003
2003	1020	Research Foundation of the City University	A-133	6/30/2003
2003	1021	State of Florida	A-133	6/30/2003
2003	1022	Cold Spring Harbor Laboratory	A-133	12/31/2003
2003	1023	Wayne State College	A-133	6/30/2003
2003	1024	Northwestern University	A-133	8/31/2003

2003	1025	Brown University	A-133	6/30/2003
2003	1026	Duquesne University	A-133	6/30/2003
2003	1027	Carnegie Institution of Washington	A-133	6/30/2003
2003	1028	University of Puerto Rico	A-133	6/30/2003
2003	1029	Crownpoint Institute of Technology, Inc.	A-133	5/31/2003
2003	1030	Marquette University	A-133	6/30/2003
2003	1031	State of Arkansas - see 03-1016	A-133	6/30/2003
2003	1032	University of Louisville Research Foundation	A-133	6/30/2003
2003	1033	The Northern West Virginia Center for Independent Living	A-133	9/30/2003
2003	1034	SRI International	A-133	6/30/2003
2003	1035	State of Connecticut	A-133	6/30/2003
2003	1036	Rutgers, The State University of New Jersey	A-133	6/30/2003
2003	1037	Northern Marianas College	A-133	9/30/2003
2003	1038	The Trustees of Columbia University	A-133	6/30/2003
2003	1039	The Oceanic Institute	A-133	6/30/2003
2003	1040	South Carolina State University	A-133	6/30/2003
2003	1041	Tuskegee University	A-133	6/30/2003
2003	1042	University of the Virgin Islands	A-133	9/30/2003
2003	1043	University of Alabama	A-133	9/30/2003
2003	1044	University of Michigan	A-133	6/30/2003
2003	1045	Academy of Natural Sciences of Philadelphia	A-133	12/31/2003
2003	1046	College of Micronesia	A-133	9/30/2003
2003	1047	Delaware State University	A-133	6/30/2003

The audits below are ongoing in fiscal year 2009.

Year	Audit Report Number	Name	Type of Audit	Audit Period Year Ended
2002		Arkansas Land and Farm Development Corporation	A-133	9/30/2002
2002		Auburn University	A-133	9/30/2002
2002		Brown University	A-133	6/30/2002
2002		Carnegie Institution of Washington	A-133	6/30/2002
2002		College of Micronesia Land Grant Program	A-133	9/30/2002
2002		Commonwealth of Virginia - Department of Accounts	A-133	6/30/2002
2002		Cornell University	A-133	6/30/2002
2002		Howard University	A-133	6/30/2002
2002		Institute of Paper Science and Technology, Inc	A-133	6/30/2002
2002		Kentucky State University	A-133	6/30/2002
2002		Miami University	A-133	6/30/2002
2002		National Tribal Development Association	A-133	12/31/2002
2002		Northern Marianas College	A-133	9/30/2002
2002		Northwestern University	A-133	8/31/2002
2002		Rural Action, Inc	A-133	12/31/2002
2002		South Carolina State University	A-133	6/30/2002
2002		Southeastern Healthcare System Inc./ Memorial Hospital of Rhode Island	A-133	9/30/2002

2002	State of Colorado	A-133	6/30/2002
2002	State of Florida	A-133	6/30/2002
2002	State of Georgia	A-133	6/30/2002
2002	State of North Carolina	A-133	6/30/2002
2002	State of Texas c/o Comptroller of Public Accounts	A-133	8/31/2002
2002	State of Wisconsin	A-133	6/30/2002
2002	The General Hospital Corporation	A-133	9/30/2002
2002	The Ohio State University	A-133	6/30/2002
2002	The University of Alabama	A-133	9/30/2002
2002	The University of Massachusetts	A-133	6/30/2002
2002	Thomas Jefferson Institute for Crop Diversification	A-133	12/31/2002
2002	Tuskegee University	A-133	6/30/2002
2002	University of Arkansas for Medical Sciences	A-133	6/30/2002
2002	University of Georgia	A-133	6/30/2002
2002	University of Missouri System	A-133	6/30/2002
2002	University of New Mexico	A-133	6/30/2002
2002	University of Pennsylvania	A-133	6/30/2002
2002	University of Puerto Rico	A-133	6/30/2002
2002	University of the Virgin Islands	A-133	9/30/2002
2002	University of Wyoming	A-133	6/30/2002
2003	Academy Of Natural Sciences of Philadelphia	A-133	12/31/2003
2003	Blackfeet Tribe of Blackfeet Indian Reservation	A-133	9/30/2003
2003	Brown University	A-133	6/30/2003
2003	Cloverdale Community School Corporation	A-133	6/30/2003
2003	College of Micronesia	A-133	9/30/2003
2003	Columbia University	A-133	6/30/2003
2003	Crownpoint Institute of Technology	A-133	5/31/2003
2003	Delaware State University	A-133	6/30/2003
2003	Duquesne University	A-133	6/30/2003
2003	Howard University	A-133	6/30/2003
2003	Kentucky State University	A-133	6/30/2003
2003	Langston University	A-133	6/30/2003
2003	Marquette University	A-133	6/30/2003
2003	National Tribal Development Association	A-133	12/31/2003
2003	Northern Marianas College	A-133	9/30/2003
2003	Northern West Virginia Center For Independent Living, Inc	A-133	9/30/2003
2003	Research Foundation of the City University of New York	A-133	6/30/2003
2003	Northwestern University	A-133	8/31/2003
2003	Rural Action, Inc	A-133	12/31/2003
2003	Rutgers, The State University Of New Jersey	A-133	6/30/2003
2003	South Carolina State University	A-133	6/30/2003
2003	South Middlesex Regional Vocational Technical School District	A-133	6/30/2003
2003	State Of Arkansas	A-133	6/30/2003
2003	State Of Colorado	A-133	6/30/2003
2003	State Of Florida	A-133	6/30/2003
2003	State Of Montana	A-133	6/30/2003

2003	State Of Texas c/o Comptroller Of Public Accounts	A-133	8/31/2003
2003	State Of Wisconsin	A-133	6/30/2003
2003	The Oceanic Institute	A-133	6/30/2003
2003	The Ohio State University	A-133	6/30/2003
2003	The Trust For Public Land	A-133	3/31/2003
2003	The University Of Alabama	A-133	9/30/2003
2003	The University Of Massachusetts	A-133	6/30/2003
2003	Thomas Jefferson Institute For Crop Diversification	A-133	12/31/2003
2003	Tuskegee University	A-133	6/30/2003
2003	University Of Arkansas For Medical Sciences	A-133	6/30/2003
2003	University Of Denver - Colorado Seminary	A-133	6/30/2003
2003	University Of Louisville Research Foundation, Inc	A-133	6/30/2003
2003	University Of New Mexico	A-133	6/30/2003
2003	University Of Pennsylvania	A-133	6/30/2003
2003	University Of Puerto Rico	A-133	9/30/2003
2003	University Of The Virgin Islands	A-133	9/30/2003
2003	University Of Wyoming	A-133	6/30/2003
2003	Wake Forest University	A-133	6/30/2003
2004	Langston University	A-133	6/30/2004
2004	Lincoln University	A-133	6/30/2004
2004	South Carolina State University	A-133	6/30/2004
2004	Tuskegee University	A-133	6/30/2004
2004	Auburn University	A-133	9/30/2004
2004	Battelle Memorial Institute	A-133	9/30/2004
2004	Boston College	A-133	5/31/2004
2004	California Institute Of Technology	A-133	9/30/2004
2004	College Of Micronesia - Land Grant Program Only	A-133	9/30/2004
2004	Columbia University	A-133	6/30/2004
2004	Divergence, Inc	A-133	12/31/2004
2004	Eastern Virginia Medical School	A-133	6/30/2004
2004	Georgetown University	A-133	6/30/2004
2004	Georgia Tech Research Corporation/Georgia Institute of Technology	A-133	6/30/2004
2004	Harvard University	A-133	6/30/2004
2004	Illinois Central College District 514	A-133	6/30/2004
2004	Illinois Institute Of Technology	A-133	5/31/2004
2004	Lehigh Carbon Community College	A-133	6/30/2004
2004	Marquette University	A-133	6/30/2004
2004	Massachusetts Institute Of Technology	A-133	6/30/2004
2004	Michigan Research Institute	A-133	12/31/2004
2004	Michigan State University	A-133	6/30/2004
2004	Middlebury College	A-133	6/30/2004
2004	National Biodiesel Board And Affiliates	A-133	9/30/2004
2004	Northern Marianas College	A-133	9/30/2004
2004	Save The Children Federation, Incorporated	A-133	9/30/2004
2004	State Of Arkansas	A-133	6/30/2004

2004	State Of Colorado	A-133	6/30/2004
2004	State Of Florida	A-133	6/30/2004
2004	State Of Louisiana, for the Fiscal Year Ended June 30, 2004	A-133	6/30/2004
2004	State Of Rhode Island And Providence Plantations	A-133	6/30/2004
2004	State Of Texas C/O Comptroller Of Public Accounts	A-133	8/31/2004
2004	State Of Utah	A-133	6/30/2004
2004	State Of Wisconsin	A-133	6/30/2004
2004	The General Hospital Corporation	A-133	9/30/2004
2004	The University Of Alabama	A-133	9/30/2004
2004	The University Of Massachusetts	A-133	6/30/2004
2004	University Of Arkansas For Medical Sciences	A-133	6/30/2004
2004	University Of California	A-133	6/30/2004
2004	University Of Pennsylvania	A-133	6/30/2004
2004	University Of Richmond & Its Affiliate	A-133	6/30/2004
2004	University Of The Virgin Islands	A-133	9/30/2004
2004	University Of Wyoming	A-133	6/30/2004
2005	American Samoa Community College	A-133	9/30/2005
2005	Auburn University	A-133	9/30/2005
2005	Battelle Memorial Institute	A-133	9/30/2005
2005	California State University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	College of Micronesia Land Grant Program, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2005	The Trustees of Columbia University in the City of New York, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Georgetown University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Georgia State University Research Foundation, Inc, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Georgia Tech Research Corporation/Georgia Institute of Technology, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Illinois Institute of Technology, for the Fiscal Year Ended May 31, 2005	A-133	5/31/2005
2005	Kentucky State University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Kewaunee School District, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Langston University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Massachusetts Institute of Technology, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Michigan Research Institute, for the Fiscal Year Ended December 31, 2005	A-133	12/31/2005
2005	Michigan State University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	National Biodiesel Board, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005

2005	National Tribal Development Association, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2005	Northern Marianas College, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2005	Ohio University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	School District of Monroe, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	South Carolina State University, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of Arkansas, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of Colorado, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of Florida, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of Georgia, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of South Carolina, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	State of Texas c/o Comptroller of Public Accounts, for the Fiscal Year Ended August 31, 2005	A-133	8/31/2005
2005	State of Wisconsin, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Chicago Zoological Society, for the Fiscal Year Ended December 31, 2005	A-133	12/31/2005
2005	The University of Alabama, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2005	The University of Georgia Research Foundation, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Massachusetts, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Tuskegee University, for the Fiscal Year Ended June 30, 2002	A-133	6/30/2005
2005	University of Arkansas for Medical Sciences, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of California, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Delaware, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Hawaii, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Idaho, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Maine System, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Medicine and Dentistry of New Jersey, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Missouri, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Pennsylvania, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Richmond, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005

2005	University of Southern California, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of the Virgin Islands, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2005	University of Vermont and State Agricultural College, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	University of Wyoming, for the Fiscal Year Ended June 30, 2005	A-133	6/30/2005
2005	Wayne State University, for the Fiscal Year Ended September 30, 2005	A-133	9/30/2005
2006	Alabama A&M University, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	American Samoa Community College, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Auburn University, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Carnegie Institution of Washington, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Case Western Reserve University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Children's Hospital and Regional Medical Center, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	College of Micronesia, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Georgetown University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Georgia State University Research Foundation, Inc., for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Sate of Georgia/Georgia Institute of Technology, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Girl Scouts of the United States of America, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Goodwill Industries, Inc./Easter Seals Minnesota, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Illinois Institute of Technology, for the Fiscal Year Ending May 31, 2006	A-133	5/31/2006
2006	Long Island University, for Fiscal Year Ending August 31, 2006	A-133	8/31/2006
2006	Marine Biological Laboratory, for the Fiscal Year Ending December 31, 2006	A-133	12/31/2006
2006	Marquette University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Massachusetts Institute of Technology, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006

2006	New England Medical Center Inc. and Affiliates, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Northeastern University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Northern Marianas College, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Northern West Virginia Center for Independent Living, Inc., for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Southeastern Oklahoma State University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Rochester Institute of Technology, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Rutgers, The State University of New Jersey, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Sheldon Jackson College, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Smithsonian Institution, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	South Carolina State University, for Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	St. Augustine College, for Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	State of Florida, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	State of Mississippi Institutions of Higher Learning, for the Fiscal year Ending June 30, 2006	A-133	6/30/2006
2006	State of North Dakota, for Fiscal Year ending June 30, 1006	A-133	6/30/2006
2006	State of Rhode Island and Providence Plantations, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	State of South Carolina, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	State of Texas c/o Comptroller of Public Accounts, for the Fiscal Year August 31, 2006	A-133	8/31/2006
2006	State of Wisconsin, for the fiscal year ending June 30, 2006	A-133	6/30/2006
2006	The Brigham and Women's Hospital, Inc., or the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	The Ohio State University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	The University of Alabama, for the Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	The University of Toledo, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Tillamook School District No. 9, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006

2006	Tuskegee University, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Delaware, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Hawaii, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Idaho, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Medicine and Dentistry of New Jersey, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Miami, for the Fiscal Year Ending May 31, 2006	A-133	5/31/2006
2006	University of Missouri, for the Fiscal year ending June 30, 2006	A-133	6/30/2006
2006	University of Richmond and Affiliate, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Southern California, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University of Wyoming, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	University System of New Hampshire, for the Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Verona Area School District, for Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Wayne State University, for Fiscal Year Ending September 30, 2006	A-133	9/30/2006
2006	Yale University, for Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2006	Youngstown State University, for Fiscal Year Ending June 30, 2006	A-133	6/30/2006
2007	Appleton Area School District, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Boise State University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Carnegie Institution Of Washington, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Case Western Reserve University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Coastal Enterprises, Inc & Subsidiaries, for Fiscal Year Ending September 30, 2007	A-133	9/30/2007
2007	The Trustees of Columbia University in the City Of New York, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Dodgeville School District, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Georgia Institute of Technology/ Georgia Tech Research Corporation, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Howard-Suamico School District, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Keck Graduate Institute of Applied Life Sciences, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007

2007	Massachusetts Institute of Technology, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	New England Medical Center Hospitals, Inc., for Fiscal Year Ending September 30, 2007	A-133	9/30/2007
2007	Riverdale School District, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Rutgers, The State University Of New Jersey, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Saint Louis University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	School District Of Denmark, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	School District Of Platteville, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	School District Of Waupaca, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Southern Illinois University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	St. Augustine College, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Colorado, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Florida, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Montana, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Tennessee, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Texas C/O Comptroller of Public Accounts, for Fiscal Year Ending August 31, 2007	A-133	12/31/2007
2007	State Of Utah, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	State Of Wisconsin, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	The Ohio State University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Delaware, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Hawaii/State of Hawaii, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University of Medicine & Dentistry of New Jersey, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Missouri System, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Puerto Rico, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Southern California, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	University Of Vermont and State Agricultural College, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007

2007	University Of Wyoming, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Waianae District Comprehensive Health and Hospital Board, Incorporated and Subsidiary, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007
2007	Wayne State University, for Fiscal Year Ending September 30, 2007	A-133	9/30/2007
2007	Youngstown State University, for Fiscal Year Ending June 30, 2007	A-133	6/30/2007

ALTERNATIVE CROPS

Ms. DeLauro: Please describe for the Committee the work carried out on canola and hesperaloe under the alternative crops program in fiscal years 2007 and 2008.

Response: The canola research has primarily been focused on improving agronomic production of the crop. Research priorities include plant physiology, entomology, agronomic testing, rotation practices, weed control, and breeding.

For hesperaloe, funding for research was not provided for Fiscal Year 2008. Funds for Fiscal Year 2007 were focused on optimizing agronomics for maximum fiber production and minimal inputs.

Ms. DeLauro: Please update the list in last year's hearing record of the locations where these activities are being carried out, including the funding by location.

Response: For canola, in fiscal year 2007 and 2008, research was funded at five geographical regions of the US. The regions were the Northern Plains grant, North Dakota State University, $250,978 and $180,000 for fiscal years 2007 and 2008, with sub-grants to South Dakota, Minnesota, and Montana; the Pacific Northwest grant, University of Idaho, $103,346 and $131,700 for fiscals year 2007 and 2008, with sub-grants to Washington, Oregon, and Montana; the Great Plains grant, Kansas State University, $144,000 and $128,300 for fiscal years 2007 and 2008, with sub-grants to Colorado, Missouri, Nebraska, Oklahoma, and Texas; the Midwest grant, Southern Illinois University, $100,079 and $152,000 for fiscal years 2007 and 2008, with sub-grants to Michigan, Virginia.; the Southern regional grant, University of Arkansas, $100,000 for fiscal year 2008, with sub-grants to Alabama and South Carolina. The South Central, High Plain, regional grant, Texas A&M, $173,327 and $83,000, with sub-grants to New Mexico and Colorado. The totals were $771,730 and $775,000 for fiscal year 2007 and 2008, respectively.

For hesperaloe, funds were appropriated only for fiscal year 2007; the University of Arizona was the only recipient with $335,053.

Ms. DeLauro: With respect to hesperaloe, please update the response in last year's hearing record on partners in the paper industry and their willingness to share some of the research costs.

Response: A Canadian company, Arbokem Inc., continues to be the industry advisor for commercial scale pulping and paper-making trials. A paper mill in Slovenia has produced paper that is a blend of hesperaloe and recycled newsprint; however, a change in management personnel has resulted in terminating this work. Currently, the Finnish Pulp and Paper Institute in Helsinki will continue with the papermaking and printing. Samples will be provided to Greenpeace and other prospective interested commercial parties for evaluation.

Regarding research costs, CSREES has not found a formal partner to share research costs to bring this product to the market. However, the paper mill in Slovenia encountered several problems during the pulping process. They used their own resources to address and overcome the problems caused by the fact hesperaloe is a new fiber and has different characteristics from traditional wood fiber used in paper-making.

ANIMAL GENOME MAPPING

Ms. DeLauro: Please update your response in last year's hearing record, with respect to the animal genome mapping projects that are being funded by CSREES.

Response: CSREES invests in animal genome mapping through competitive and noncompetitive funding mechanisms.

In the fiscal year 2008 Animal Genome Program, the CSREES National Research Initiative Competitive Grants Program supported 20 Standard Research awards with an average award size of $491,601; 1 Standard Strengthening award for $725,000; 3 Postdoctoral Fellowship awards totaling $375,000; and 2 Conference awards totaling $20,000 for totaling approximately $11,000,000. Many of these projects focus on and are using the chicken, bovine and swine genome sequence maps and information. Other projects focus on identifying genetic markers, quantitative trait loci, or genes that affect growth and body composition, milk production, carcass quality, reproduction, or disease resistance in animals of agricultural importance including aquacultured species. Projects were also supported in the area of bioinformatics that will: 1) develop a database and web-based tools to combine sequence, haplotype, quantitative trait, and gene expression data with graphical interfaces; 2) curate bovine genome sequence annotations; 3) develop more integrative informatics tools to allow mining of the vast amount of biological and genomic data generated by the cattle and swine genome sequencing projects as well as high throughput gene expression studies; and 4) allow efficient transfer of comparative information across species. The animal genome program also supported one project on whole genome selection in beef and dairy cattle industries and one project on a genome-wide screen for identifying genes that can be used as genetic markers to select for chickens with superior resistance to Marek's disease.

The noncompetitive support for animal genome mapping comes from Hatch Formula grants. Hatch funding is provided to the National Research Support Project-8 under the National Animal Genome Research Program and at least nine multistate research committees that include scientists from land grant universities throughout the United States.

Ms. DeLauro: What is the total CSREES spending for animal genome mapping in fiscal years 2007, 2008 and 2009?

Response: In fiscal year 2007, the National Research Initiative had $11 million available for animal functional genomics, genetic mechanisms, gene mapping, bioinformatics, and development of tools and reagents for animal genome research. A large portion of the monies that were being used for swine genome sequencing will be used to increase the animal genome program's efforts in bioinformatics. Also approximately $2.4 million in Hatch funding was available for animal genome mapping activities.

In fiscal year 2008, the National Research Initiative awarded $11 million in Applied Genomics, Bioinformatics, Tools and Resources, Functional Genomics and Whole Genome Assisted Animal Selection categories. Also approximately $1.5 million in Hatch funding was available for animal genome mapping activities.

In fiscal year 2009, the National Research Initiative Animal Genome, Genetics and Breeding program will have approximately $11 million available for awards under various program categories including Translational Animal Genomics, Tools and Resources, Bioinformatics, Functional Genomics and Whole Genome Enabled Animal Selection. Also approximately $1 million in Hatch funding will support animal genome mapping activities.

Ms. DeLauro: What has been achieved with this funding?

Response: Investigators are identifying new genetic regions in livestock, poultry and aquaculture species which are involved in both animal production and health traits. Physical location of these genetic regions on chromosomes is now better understood due to the availability of genetic physical and linkage maps. The genome-wide selection studies have provided valuable information on biodiversity thereby allowing researchers and producers to identify and select animal genetic strains that are most valuable for preserving genetic diversity.

ANIMAL HEALTH AND DISEASE RESEARCH

Ms. DeLauro: Please update the table on page 500 of last year's hearing record on Animal Health and Disease program grants.

Response. The information is submitted for the record.

[The information follows:]

Institution	FY 2008 Section 1433 Formula Funds
Auburn University, Agricultural Experiment Station	$27,217
Auburn University, School of Veterinary Medicine	86,960
Tuskegee University, School of Veterinary Medicine	799
University of Alaska, Agricultural Experiment Station	1,040
University of Arizona, Agricultural Experiment Station	50,688
University of Arkansas, Agricultural Experiment Station	99,060
University of California-Oakland, Agricultural Experiment Station	66,095
University of California- Davis, School of Veterinary Medicine	418,354
Colorado State University, Agricultural Experiment Station & College of Veterinary Medicine	290,146
University of Connecticut-Storrs, Agricultural Experiment Station	23,543
University of Delaware, Agricultural Experiment Station	17,638
University of Florida, Agricultural Experiment Station	73,350
University of Florida, College of Veterinary Medicine	7,179
University of Georgia, Agricultural Experiment Station	9,027
University of Georgia, College of Veterinary	122,375
University of Hawaii, Agricultural Experiment Station	5,833
University of Idaho, Agricultural Experiment Station	67,093
University of Illinois, Agricultural Experiment Station & College of Veterinary Medicine	122,338
Purdue University, Agricultural Experiment Station & College of Veterinary Medicine	63,763
Iowa State University, Agricultural & Home Economics Experiment Station	54,783
Iowa State University, College of Veterinary Medicine	128,639
Kansas State University, Agricultural Experiment Station & College of Veterinary Medicine	138,830
University of Kentucky, Agricultural Experiment Station	71,287
Louisiana State University, Agricultural Experiment Stations	27,871
Louisiana State University, College of Veterinary Medicine	30,469
University of Maine, Agricultural Experiment Station	9,858
University of Maryland, Agricultural Experiment Station	30,951
University of Massachusetts, Agricultural Experiment Station	3,525
Tufts University, School of Veterinary Medicine	53,137
Michigan State University, Agricultural Experiment Station & College of Veterinary Medicine	102,616
University of Minnesota, Agricultural Experiment Station	51,946
University of Minnesota, College of Veterinary Medicine	98,986
Mississippi State University, Agricultural and Forestry Experiment Station & College of Veterinary Medicine	88,957
University of Missouri, Agricultural Experiment Station	29,634
University of Missouri, College of Veterinary Medicine	125,485
Montana State University, Agricultural Experiment Station	57,985
University of Nebraska, Agricultural Experiment Station	151,498
University of Nevada, Agricultural Experiment Station	8,125
University of New Hampshire, Agricultural Experiment Station	6,186
Rutgers University, Agricultural Experiment Station	13,223
New Mexico State University, Agricultural Experiment Station	36,537

Cornell University, Agricultural Experiment Station	31,233
Cornell University, College of Veterinary Medicine	152,484
North Carolina State University, Agricultural Experiment Station	31,768
North Carolina Sate University, College of Veterinary Medicine	158,445
North Dakota State University, Agricultural Experiment Station	33,792
Ohio State University, Ohio Agricultural Research & Development Center	20,034
Ohio State University, College of Veterinary Medicine	45,536
Oklahoma State University, Agricultural Experiment Station & College of Veterinary Medicine	123,206
Oregon State University, Agricultural Experiment Station	62,084
Oregon State University, College of Veterinary Medicine	0
Pennsylvania State University, Agricultural Experiment Station	87,056
Pennsylvania State University, College of Veterinary Medicine	121,678
University of Puerto Rico, Agricultural Experiment Station	9,629
University of Rhode Island, Agricultural Experiment Station	3,083
Clemson University, Agricultural Experiment Station	22,980
South Dakota State University, Agricultural Experiment Station	59,056
University of Tennessee, Agricultural Experiment Station	29,217
University of Tennessee, College of Veterinary Medicine	25,477
Texas A&M University, Agricultural Experiment Station & College of Veterinary Medicine	350,759
Utah State University, Agricultural Experiment Station	31,057
University of Vermont, Agricultural Experiment Station	10,304
Virginia Polytechnic Institute, Agricultural Experiment Station & College of Veterinary Medicine	56,099
Washington State University, Agricultural Experiment Station	8,792
Washington State University, College of Veterinary Medicine	124,458
West Virginia University, Agricultural & Forestry Experiment Station	8,453
University of Wisconsin, Agricultural Experiment Station & College of Veterinary Medicine	108,366
University of Wyoming, Agricultural Experiment Station	26,825
Total Payments to States	4,614,897
Small Business Set-Aside	119,303
Federal Administration	198,838
Biotechnology Risk Assessment	37,920
Total Appropriation	4,970,958

ANIMAL HEALTH AND DISEASE RESEARCH

Ms. DeLauro: Please update the table on page 503 in last year's hearing record on the number FTEs these funds support at each location to include fiscal year 2007 and 2008 data.

Response: Recipients of Animal Health and Disease Research funds have the flexibility to distribute funds among research projects, infrastructure, and personnel as they wish to meet the needs of their university. The distribution of these dollars varies from state to state. The latest data on personnel supported with Animal Health and Disease Research funds as reported into the Current Research Information System (CRIS) by recipient institution is for fiscal year 2007. The recipient institutions do not assemble the data until the close of the fiscal year and the reporting process requires approximately six months. The fiscal year 2008 data is being collected now but not all institutions have made their reports available yet. Therefore, we do not have complete data for fiscal year 2008 at this point.

The information is submitted for the record.

[The information follows:]

Summary of Personnel Supported with Animal Health Funds in Fiscal Year 2007

University/Recipient	Station	Funds	Scientist Support	Professional Support	Technical Support	Clerical Support	Total Support
AUBURN UNIVERSITY	ALA	$39,910	1.0	0.0	0.0	0.0	1.0
AUBURN UNIVERSITY	ALAV	50,671	0.0	0.0	0.0	0.0	0.0
UNIVERSITY OF ALASKA	ALK	2,276	0.0	0.0	0.1	0.0	0.1
UNIVERSITY OF ARKANSAS	ARK	105,587	3.2	13.3	10.5	3.5	30.5
UNIVERSITY OF ARIZONA	ARZT	48,143	2.1	2.9	0.0	0.2	5.2
UNIVERSITY OF CALIFORNIA	CALB	112,531	5.0	22.9	2.5	8.3	38.7
UNIVERSITY OF CALIFORNIA (VET-MED)	CALV	410,107	1.6	6.0	0.1	1.0	8.7
COLORADO STATE UNIVERSITY	COLV	288,649	66.3	244.7	46.0	36.8	393.8
UNIVERSITY OF CONNECTICUT	CONS	17,856	0.1	0.3	0.0	0.2	0.6
UNIVERSITY OF DELAWARE	DEL	18,338	1.0	0.0	0.0	0.0	1.0
UNIVERSITY OF FLORIDA	FLA	60,726	3.6	0.0	4.2	0.0	7.8
UNIVERSITY OF FLORIDA	FLAV	18,536	0.1	0.0	1.5	0.1	1.7
UNIVERSITY OF GEORGIA	GEO	14,493	1.5	1.7	1.7	1.1	6.0
UNIVERSITY OF GEORGIA	GEOV	114,405	8.4	3.5	5.0	3.7	20.6
UNIVERSITY OF HAWAII	HAW	4,708	0.1	0.0	0.0	0.0	0.1
UNIVERSITY OF IDAHO	IDA	62,714	0.0	0.0	0.0	0.0	0.0
UNIVERSITY OF ILLINOIS	ILLU	137,355	0.7	3.0	0.3	1.5	5.5
PURDUE UNIVERSITY	IND	60,068	2.5	2.7	1.0	2.3	8.5
IOWA STATE UNIVERSITY	IOW	48,605	0.1	1.1	0.0	0.5	1.7
IOWA STATE UNIVERSITY	IOWV	142,751	0.3	0.3	0.0	0.0	0.6
KANSAS STATE UNIVERSITY	KAN	142,766	1.6	0.2	0.0	0.0	1.8
UNIVERSITY OF KENTUCKY	KY.	73,261	3.2	3.7	1.0	4.3	12.2
LOUISIANA STATE UNIVERSITY	LA.B	34,457	0.4	2.0	0.2	0.3	2.9
LOUISIANA STATE UNIVERSITY	LA.V	33,655	0.5	0.6	4.6	0.0	5.7
UNIVERSITY OF MASSACHUSETTS	MAS	26,069	0.1	0.0	0.0	0.0	0.1
TUFTS UNIVERSITY	MASV	16,592	0.3	0.0	0.0	0.0	0.3
UNIVERSITY OF MARYLAND	MD.	31,011	0.6	0.7	0.2	0.5	2.0
UNIVERSITY OF MAINE	ME.	10,678	0.5	0.7	0.8	0.0	2.0
MICHIGAN STATE UNIVERSITY	MICL	102,479	0.9	1.8	0.1	1.2	4.0
UNIVERSITY OF MINNESOTA	MIN	55,796	1.4	0.7	0.0	1.6	3.7
UNIVERSITY OF MINNESOTA	MINV	108,660	0.1	0.0	0.0	0.0	0.1
MISSISSIPPI STATE UNIVERSITY	MISV	89,819	14.3	9.0	15.0	0.0	38.3
UNIVERSITY OF MISSOURI	MO.	47,310	0.1	0.4	0.0	0.0	0.5
UNIVERSITY OF MISSOURI	MO.V	114,268	2.5	0.4	0.0	0.0	2.9
MONTANA STATE UNIVERSITY	MONB	60,259	0.0	2.3	0.1	0.3	2.7
NORTH CAROLINA STATE UNIVERSITY	NC.	44,464	2.1	3.5	4.8	1.2	11.6
NORTH CAROLINA STATE UNIVERSITY	NC.V	142,734	24.2	0.0	70.1	0.0	94.3
NORTH DAKOTA STATE UNIVERSITY	ND.	35,010	2.3	6.1	0.0	1.8	10.2
UNIVERSITY OF NEBRASKA	NEB	157,489	4.0	3.4	5.9	1.3	14.6
UNIVERSITY OF NEVADA	NEV	10,552	0.3	0.5	0.0	0.1	0.9
UNIVERSITY OF NEW HAMPSHIRE	NH.	6,795	0.0	0.0	0.0	0.0	0.0
RUTGERS UNIVERSITY	NJ.	14,672	0.4	1.2	0.0	0.0	1.6
NEW MEXICO STATE UNIVERSITY	NM.	34,105	0.8	1.0	0.0	1.5	3.3
CORNELL UNIVERSITY	NY.C	29,640	0.1	1.4	0.0	2.6	4.1
CORNELL UNIVERSITY	NYCV	179,349	6.2	1.8	2.3	5.3	15.6
OHIO STATE UNIVERSITY	OHO	40,787	0.7	1.4	0.7	0.9	3.7
OHIO STATE UNIVERSITY	OHOV	19,766	7.4	18.5	1.3	0.6	27.8
OKLAHOMA STATE UNIVERSITY	OKL	135,447	3.3	5.5	1.2	2.4	12.4
OREGON STATE UNIVERSITY	ORE	68,801	2.1	1.8	0.1	0.2	4.2
PENNSYLVANIA STATE UNIVERSITY	PEN	53,815	20.9	24.8	0.0	10.4	56.1
UNIVERSITY OF PENNSYLVANIA	PENV	116,327	1.0	0.0	1.0	0.0	2.0
UNIVERSITY OF RHODE ISLAND	RI.	2,367	0.0	0.0	0.0	0.0	0.0
CLEMSON UNIVERSITY	SC.	23,088	0.5	0.3	0.4	0.2	1.4
SOUTH DAKOTA STATE UNIVERSITY	SD.	65,377	0.4	0.0	0.0	0.3	0.7
UNIVERSITY OF TENNESSEE	TEN	31,215	0.9	1.8	1.2	0.2	4.1
UNIVERSITY OF TENNESSEE	TENV	17,573	0.0	0.0	0.0	0.0	0.0
TEXAS A&M UNIVERSITY	TEX	85,522	0.8	1.8	0.0	0.0	2.6
UTAH STATE UNIVERSITY	UTA	30,990	2.0	0.1	0.0	0.0	2.1
VIRGINIA POLYTECHNIC INSTITUTE	VA.	58,740	1.1	1.3	0.3	0.2	2.9
UNIVERSITY OF WISCONSIN	WIS	99,708	0.3	1.5	0.0	0.3	2.1
WASHINGTON STATE UNIVERSITY	WN.P	11,756	1.8	0.0	0.4	0.1	2.3
WASHINGTON STATE UNIVERSITY	WN.V	114,199	0.2	0.0	1.1	0.0	1.3
WEST VIRGINIA UNIVERSITY	WVA	9,143	0.0	0.1	0.0	0.0	0.1
UNIVERSITY OF WYOMING	WYO	30,323	1.4	2.2	0.1	0.2	3.9
TOTAL		4,375,263	209.3	404.9	185.8	97.2	897.2

NOTE: Totals may not add due to rounding.

ANIMAL HEALTH AND DISEASE RESEARCH

Ms. DeLauro: Please describe at least one accomplishment for fiscal year 2007 and 2008 for each university that received funding under the Animal Health and Disease program.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007

Alabama: Auburn University: Bovine viral diarrhea virus can cause significant economic loss and disease in cattle when transmitted in association with transferred bovine embryos. Researchers have shown that embryos can be safely exposed to effective concentrations of an agent that prevents the replication of bovine viral diarrhea virus in embryo productions systems.

Alabama: Tuskegee University: Definitive diagnosis of Johne's disease by microbial culture is an extremely tedious process because of the slow growth characteristis of the pathogen. Scientists are developing a more rapid and sensitive DNA-based test to detect the disease agent in milk.

Alaska: University of Alaska: Mineral nutrition, particularly copper (Cu) and zinc (Zn), has been shown to have profound effects on the function of ruminant immune systems. Scientists have continued to perform studies that have identified two protein supplement sources that can be used in feed rations to assure ingestion of sufficient levels of Cu and Zn to support reindeer health.

Arizona: University of Arizona: *Arcanobacterium pyogenese* is an economically significant pathogen affecting many domestic animal species. However, little is known about the mechanism of colonization of this bacterium. Researchers have identified a specific collagen binding protein which may play an important role in the binding of the *A. pyogenese* to host epithelial cells. This work provides a possible new target for vaccine development.

Arkansas: University of Arkansas: Researchers have identified at least two non-antibiotic alternatives for disease control in commercial poultry. The products of this research have received interest from the private sector and efforts to commercialize are underway. This research is important because of recent concerns regarding the development of antimicrobial resistance in animals treated with traditional antibiotics.

California: University of California, Davis: Scientists have extended their previous studies and have determined that it is possible to expedite detection and identification of the agent causing Johne's disease by combining traditional culture methodologies with polymerase chain reaction (PCR) analysis. Whereas a traditional culture assay takes up to 30 days for this pathogen, micro-colonies could be sampled and used as target material for PCR analysis, with positive results as early as 7-14 days after sample plating.

Colorado: Colorado State University: Experiments were conducted to determine how Equol, a major metabolite of a molecule found abundantly in soy products, may act to interfere with male reproductive function. Scientists have found that Equol binds a natural steroid metabolite of dihydrotestosterone (DHT) and that this can lead to alteration of development and responsiveness of certain tissues including prostate and epididymal glands. As Equol may be incorporated into animal feeds, these findings are important in as much as

consumption of this natural contaminant could alter or interfere with reproductive function. Conversely, the demonstration of Equol's ability to bind DHT suggests possible clinical uses.

Connecticut: University of Connecticut: Scientists are studying oyster disease resistance mechanisms that are affected by the pathogen Perkinsus marinus, as well as various environmental factors such as temperature and salinity. In response to the their discovery that cell death processes appear to be critical to these defense mechanisms, this year these researchers have successfully developed and validated assays to quantify cell death and thereby monitor the relative degree of resistance to infection in various strains of oyster.

Delaware: University of Delaware: Using Intracerebral Pathogenicity Indices Testing, scientists have determined that 2 out of a set of 5 NewCastle Disease Virus (NDV) vaccine strains would probably not have sufficient reactivity to protect against NDV field strains.

Florida: University of Florida: Researchers are addressing the observation that Florida has one of the lowest average calf crops in the continental U.S.. Studies have revealed improved pregnancy percentages in groups treated with Chlortetracycline trace mineral 30 days prior to breeding, suggesting that subclinical infectious disease is one factor contributing to depression of calving rates.

Georgia: University of Georgia: Scientists have provided proof that short interfering ribonucleic acids (RNAs) can be used to inhibit replication Bovine Respiratory Syncitial Virus in cell culture. These findings will provide the basis for further studies to determine whether these short interfering RNAs can also be used in live animals as antiviral therapy.

Idaho: University of Idaho: Critical infrastructure needs at the animal and dairy facilities continued to be supported in 2007, and equipment and supply needs were met for animal health and disease scientists whose research projects contribute to animal health and disease research capacity.

Illinois: University of Illinois: Scientists have shown that feeding a high-straw, low-energy diet to cows results in improved health and metabolic indicators of energy status after calving. These findings are expected to help producers improve dry period management of dairy cows, and that these management changes could lead to decreased incidence and severity of metabolic and infectious diseases around caving.

Indiana: Purdue University: Researchers have investigated an alternative approach to the treatment of septic synovitis in horses. Studies have shown that the continuous intrasynovial infusion system developed by these investigators compared favorably with other adjunctive therapies used to treat this condition, thus expanding the range of treatment options available to the clinician.

Iowa: Iowa State University: Scientists have developed research that shows injected glucagon can be used to decrease the severity of fatty liver disease in the cow without causing major production and metabolite disturbance.

Kansas: Kansas State University: The development and spread of antibiotic resistant is a growing concern. Results from experiments on bison show that these animals can serve as sentinel populations to investigate the spread and origin of antibiotic resistance in an environment not under heavy antibiotic pressure.

Kentucky: University of Kentucky: Researchers are identifying stress factors that can exacerbate reactivation/transmission events in horses infected with equine herpes virus-1. This research should help define herd health intervention strategies that can minimize the number and severity of reactivation/transmission events.

Louisiana: Louisiana State University: Researchers have shown that in horses affected with recurrent airway obstruction, there is aberrant regulation of particular receptor called NK-2. These findings suggest a potential therapeutic role for antagonists of this receptor class in the management and control of recurrent airway obstruction.

Maine: University of Maine: Researchers have been able to demonstrate that, in horses, the nasal route is an effective route to vaccinate uterine mucosae. These finding are expected to lead to clinical trials of improved vaccines against *Streptococcus zooepidemicus*, an important cause of uterine infection.

Maryland: University of Maryland: Researchers have discovered a virulence factor which appears to regulate avian pathogenic *E. coli* attachment to epithelial cells. By developing attenuated (gene knockout) versions of pathogenic gram negative bacteria (like *E. coli*), these scientists have created a promising genetically modified vaccine strain that may lead to much reduced embryo lethality.

Massachusetts: University of Massachusetts: Researchers continue to characterize molecular events which precede molecular indicators of equine laminitis pathology, and are most likely responsible for downstream pathologic events. As a result, new therapeutic approaches to equine laminitis are being considered.

Tufts University: Scientists have been able to rule out as efficacious a hypothesized novel strategy for treating *staphylococcal* mastitis in cows. These investigators found no support for the use of teat infusions of live (non-pathogenic) *Staphylococcus xylosus* to treat *Staphylococcus aureus* infected quarters.

Michigan: Michigan State University: Development of a biosensor for rapid detection of animal viruses would greatly improve both routine field diagnosis for individual animals and serious disease outbreaks. Investigators have developed a biosensor capable of detecting Bovine Viral Diarrhea Virus in pure culture and in artificially inoculated blood samples. Work continues toward development of next-generation biosensors sensitive enough to work on field samples.

Minnesota: University of Minnesota: Determination of negative herd status is critical to any animal disease control program. Scientists have determined that, for the Porcine Respiratory and Reproductive Syndrome, the ideal monitoring program for negative boar studs would involve testing a large number of boars by serum polymerase chain reaction. The team further concludes that because this is expensive and laborious, there is a need for solutions that make a very intensive monitoring protocol affordable.

Mississippi: Mississippi State University: Researchers have delineated how to modify the molecular pathogenesis of a variety of disease states relevant to equine and livestock production industries by exposure to controlled electromagnetic fields and other agents.

Missouri: University of Missouri: Scientists are studying various therapeutic options for the treatment of *Hexamita meleagridis* infections in turkeys. Through these experiments, an effective treatment regimen for the disease has been developed.

Montana: Montana State University: Calf scours is a disease of significant economic importance in the U.S. Researchers have conducted studies consistent with the conclusion that *Salmonella-K99* vaccine is effective for stimulating long-lasting immunity in heifers and that vaccination also conferred protection to newborn calves.

Nebraska: University of Nebraska: Scientists are examining the role of a number or genes involved in the pathogenesis of lung infections caused by bacterial pathogens. This team has made significant progress in the characterization of virulence determinants in respiratory pathogens that play an important role in pathogenesis.

Nevada: University of Nevada: Scientists are continuing to investigate the frequency of infection in both the ticks and livestock populations with tick-borne pathogens within the state of Nevada, and establishing a statewide surveillance program for ticks and tick-borne diseases.

New Hampshire: University of New Hampshire: Embryonic and fetal loss is a major cause of infertility in dairy cattle, and may occur due to luteal insufficiency. Experimental results are being generated that characterize the relationship between the protein expression patterns of bovine ovarian luteal cells and the incidence of cell death mediated by specific ligands and cofactors.

New Jersey: Rutgers University: Strongyle parasites cause economic losses in domestic animal farm production systems. Researchers are continuing studies aimed at determining the effects of rainfall and field topography on the distribution of these parasites. Results suggest that the appearance of infective parasite larvae on the field occurs after the rain begins, with the highest accumulations occurring in the low regions of the field.

New Mexico: New Mexico State University: Scientists conducted a study to investigate the effectiveness of commercial cattle ear tags against field population of horn flies, which are livestock pests. Further analyses are being done to determine optimal control strategies for horn flies.

New York: Cornell University: In a molecular epidemiology study of antibiotic resistant *Salmonella* isolates on dairy farms, scientists have determined that farm-to-farm spread of resistant strains independent of antibiotic use may be more important in maintaining this type of resistance, than antibiotic selection pressure in individual herds.

North Carolina: North Carolina State University. In studies of the involvement of selenium in the growth and health of poultry species, scientists have shown that ingestion of the anti-oxidant, selenium, provides a buffer against the potential damaging effects of free radical production. It was further shown that organic selenium is superior to inorganic selenium.

North Dakota: North Dakota State University. Using molecular epidemiological approaches, scientists have collected and typed antibiotic resistance patterns of 41 multi-drug resistant *E. coli* isolates from North Dakota calves. Laboratory analysis of isolate DNA samples revealed no identical genetic patterns, indicating random emergence of multi-drug resistant *E. coli* in North Dakota.

Ohio: Ohio State University: A comparison of archival and current porcine circovirus-2 isolates has shown a consistent difference in nucleotide sequence which translates into a 3 amino acid difference in the nucleotide capsid. Further studies will help to determine if this mutation played a role in the emergence of new, pathogenic PCV-2 in recent years.

Oklahoma: Oklahoma State University: Multidrug resistance of bacteria in cattle has been evaluated. Identification of the changes in gene expression caused by exposure to oxytetracyline are leading to a better understanding of the efflux pumps and porin expression systems that result in multidrug resistance in *Salmonella Typhimurium* and *Mannheimia haemolytica*.

Oregon: Oregon State University: Foot-rot is the most common cause of lameness in sheep flocks. Research has shown a positive correlation between foot-rot and low blood selenium concentrations. Selenium supplementation also resulted in a positive correlation with a decrease in foot-rot.

Pennsylvania: Pennsylvania State University: Paramyxovirus PIV5 has been shown to be a good vector for expression of influenza genes, making it a candidate for development of an avian influenza (AI) vaccine that will not interfere with AI surveillance programs.

University of Pennsylvania: The storage of porcine semen for extended periods of time is difficult, and often results in nonviable semen. The use of cyclodextrin as a cryoprotectant of porcine semen has been shown to be effective in long-term storage, thus extending the fertilizable lifespan of the semen and facilitating biosecurity measures aimed at preventing the spread of pathogens through semen.

Rhode Island: University of Rhode Island: *V. Harveyi* was identified as an opportunistic pathogen of summer flounder, with potentially significant effects on the development of summer flounder aquaculture through its contribution to flounder infectious necrotizing enteritis (FINE). This information has been used in the development of an extension publication that provides recommendations for improved management and prevention strategies that should result in a reduction of FINE and enhancement of summer flounder production.

South Carolina: Clemson University: Thrombocytes were identified as a major source of prostaglandin D2 synthase production during an infectious challenge. These cells are being further investigated to determine there overall contribution to inflammation in chickens.

South Dakota: South Dakota State University: Differential bacterial binding in porcine cell cultures indicated that the cell lines may be valuable and convenient tools for the screening of plant-derived compounds intended to block toxigenic *E. coli* adhesion in pig intestines.

Tennessee: University of Tennessee: Development of novel research procedures to identify molecular changes in sperm following exposure to environmental stressors are leading to an understanding of management practices that can reduce the stressors affects on food animal fertility and production.

Texas: Texas A & M University: Through selective targeting of dendritic cells with killed vaccine preparations, it has been possible to enhance the immunogenic potential of the killed vaccines in order to avoid the use of live-modified vaccines and their inherent problem of potential reversion to virulence.

Utah: Utah State University: Intestinal nematodes are a major problem in US sheep production. Quantitative trait loci have been identified that correlate with parasite burden, and can be used to identify animals that are relatively susceptible and resistant to nematode infestation for management purposes.

Vermont: University of Vermont: Model predictions and empirical observations correlated well, and have allowed for the description of both direct and indirect effects of mastitis treatment interventions in dairy cattle.

Virginia: Virginia Polytechnic Institute and State University: A novel glycolipid of *F. tularensis* has been isolated, and is under investigation as a candidate for both improved diagnostic tests and vaccines for tularemia.

Washington: Washington State University: *Mycoplasma bovis* infection can manifest as mastitis, pneumonia, arthritis and other clinical problems in cattle. Eight monoclonal antibodies have been produced that react with surface exposed membrane proteins of *M. bovis*, and are monospecific in Western Blots. These monoclonal antibodies are under evaluation as diagnostic reagents for improved detection and control measures.

West Virginia: West Virginia University: Data has been collected and is under analysis concerning 1) the effect of peptidoglycan-polysaccharide on inflammatory mediators during early gestation in sheep and 2) the uterine concentration of TGF-1 in relation to seminal plasma and/or sperm. The results will help to identify the influence of infections on early embryonic loss in farm animals.

Wisconsin: University of Wisconsin: Research showed that the monocyte receptor pathway for *Mycobaterium paratublerculosis* entry can affect the number of bacteria that enter the cell and the fate of the bacteria. Stimulation of certain cytokines and nucleotide receptors appears to have negative affects on bacterial survival, suggesting possible new routes for development of Johne's vaccines.

Wyoming: University of Wyoming: A twenty-two year retrospective study of rabies in wildlife and livestock in Wyoming has been conducted, and the data is under analysis. The results of this study should help to improve rabies control programs in this area through better understanding of climate and ecological effects on rabies distributions.

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Alabama: Auburn University: Bovine viral diarrhea virus can cause significant economic loss and disease in cattle when transmitted in association with in vitro-derived or nuclear transfer-derived bovine embryos. This project sought to identify and characterize effective antiviral agents that can be added to bovine embryo culture systems to prevent viral replication while allowing normal embryonic development. This research demonstrated that aromatic compounds which are effective antiviral agents against bovine viral diarrhea virus can be safely added to bovine in vitro embryo production systems. Addition of a compound at effective concentrations did not impede the development or reproductive potential of resulting offspring. Further research indicates that these compounds are nontoxic when administered at estimated antiviral concentrations to young calves.

Alaska: University of Alaska: Herd health is an important component of a productive and profitable reindeer operation in Alaska. Mineral nutrition, particularly cooper and zinc, has been shown to have profound affects on the functioning of ruminant immune systems and subsequent health. This information will benefit producers by establishing baseline seasonal mineral requirements in the diet of reindeer, reduce costs through least cost ration formulation, improve the energy balance of reindeer in winter and promote herd health through a proper functioning immune system. Mean serum concentrations of Zinc, Iron, Magnesium, Selenium and Copper were measured in yearling male and female reindeer during summer. Mean serum concentrations of yearling male and female reindeer during winter showed important variations. There were significant differences in June male and female calf weight due to range but all calf weights found in this study compared very favorably to calf weights found in other circumpolar reindeer populations.

Arizona: University of Arizona: Research is expected to address the defined need for control strategies and ultimately lead to the development of novel, commercially viable approaches for immunologic intervention against cryptosporidiosis. These studies have identified multiple additional monoclonal antibody-parasiticide fusions having anti-cryptosporidial activity in vitro and in the neonatal mouse model which exceeds that of the individual monoclonals or parasiticides, either alone or in combination. Thus far, efficacy against clinical disease has been demonstrated for one of the fusions in neonatal pigs based on reductions in fecal oocyst shedding, diarrhea, and systemic clinical signs.

Arkansas: University of Arkansas: Gastrointestinal parasitisms of farm animals are the norm. These parasitisms are usually subclinical, but tremendously important in regard to animal performance, efficiency and profitability. Studies conducted in Arkansas investigatee the incidence, resistance status, and control of internal parasites that inhabit Arkansas farm animals. The research provides information on the effectiveness of products that are available for helminth infection control in farm animals; information that is essential for animal health and optimal animal production.

California: University of California, Davis: Researchers have established geographic information system based surveillance and reporting systems to describe possible incursions of exotic ticks and tick-borne disease. Predictions for ultimate ecosystem contamination with these ticks and pathogens are made using a Genetic Algorithm for Rule Production which will allow researchers to provide a color-coded map giving the expected probability for a tick or disease to become endemic once introduced. In addition, prospective surveillance has been implemented for ticks of cattle and tick-borne disease in multiple regions in northern California, including Brown's Valley, Capay Valley, multiple eastern Sierra locations, Humboldt coastal and interior sites, Mendocino and Sonoma County coastal sites, and coastal ranches near San Luis Obispo.

Colorado: Colorado State University: Research results suggest that equol is a major metabolite of a plant estrogen that is abundant in soy products. Since these products are often used as feed for domestic animals, it is possible that such products may impact the reproductive ability of those animals. This study determined that equol binds to the androgen responsible for stimulating growth of the accessory sex glands and for providing negative feedback on the hormones controlling the reproductive system. The existence of the precursor of this compound in animal feeds suggests that such feeds could have major negative impacts on the reproductive ability of these animals. This has the potential to have major economic impacts on livestock

producers that use soy products for feeding their animals. Antimicrobial resistance continues to develop as a problem that impacts both animal and human health. The indiscriminate use of antimicrobial drugs in livestock and as feed additives has the potential to negatively impact the ability to treat microbial diseases in animals and humans.

Connecticut: University of Connecticut: Three bacterial strains were administered to three separate groups of birds. In the case of the fourth group, the birds were exposed to used litter from a local poultry farm, as a source of Clostridium perfringens. Birds in two groups developed disease, but of different severity. Birds in the remaining 2 groups, which includes the group exposed to used litter, did not develop disease. This result showed that - disease could be reproduced on a normal US maize based diet showing that the maize verses wheat diet is not a key factor contributing to disease development - there was strain variation - not all strains recovered from diseased birds cause disease. Results to date indicate that there is strain variation in pathogenicity, and that this may be the most important factor in development of disease.

Delaware: University of Delaware: Many broiler chicken producers have favored new strains of mild Newcastle Disease vaccine virus. To control disease caused by Newcastle Disease Virus, vaccination programs need to be continuously reviewed. The University of Delaware will test the effectiveness of these new strains by simulating real life exposure to other common disease causing agents prior to challenge with very virulent Newcastle Disease Virus.

Florida: University of Florida: An important disease agent impacting the performance of cattle state-wide is Mycobacterium avium subsp. paratuberculosis (MAP). It is a bacterium that infects ruminants worldwide. It causes chronic, thickening of the gut, Johne's disease. The disease is characterized by chronic diarrhea and weight loss. There is no known cure for the disease and it is eventually fatal. Results from a University of Florida animal health research could be the basis for further research to create a rapid method to select for more resistant individuals, genetically contributing to the control of Johne's disease.

Georgia: University of Georgia: Novel viruses involved in runting-syndrome of broilers were isolated and characterized. Studies were conducted to determine the pathogenicity of novel astroviruses and reoviruses isolated from chickens with runting-stunting syndrome. These research activities have provided further information that will lead to improved prevention and intervention strategies for important current poultry diseases in the United States: Avian mycoplasmosis, infectious bronchitis, clostridial dermatitis in broilers, and runting-stunting syndrome in broilers. These are currently all very important diseases in the U.S. poultry industry and have a significant financial impact.

Idaho: University of Idaho: A better understanding of the interactions between cattle grazing and montane-riparian shrub utilization is critical to sustaining the ecological integrity of riparian and aquatic habitats in the Intermountain West. In conjunction with Eastern Oregon multicultural Research Center, research at the University of Idaho was assessed management strategies to improve cattle distribution, decrease improper grazing of montane-riparian shrubs and provide riparian shrub utilization criteria for rangeland managers. Study results indicated that consumption of protein supplement in the uplands of riparian pastures in late summer alters livestock distribution, improves cattle performance and decreases riparian vegetation use. Improved cattle performance provides financial incentives for livestock producers and reduced riparian vegetation use improves the health of riparian and aquatic ecosystems. This research suggests that upland

protein supplement is a practical method for conserving riparian vegetation by improving the uniformity of livestock grazing.

Illinois: Research at the University of Illinois is addressing the care and repair of equine musculoskeletal injuries. First, the clinical utility of progenitor cells from fat tissue, bone marrow, and synovial tissue for cartilage development is being assessed. The results of these experiments will demonstrate which of these tissue sources is most appropriate for cartilage repair strategies. The second series of experiments is developing an expression vector for equine bone morphogenetic protein 2, a soluble protein that has proven to be clinically valuable for a range of musculoskeletal tissue repair applications in people and small companion animals. In particular, it is projected that this agent will prove valuable in repairing fractures in adult horses.

Indiana: Purdue University: Salmonella represents a persistent threat to the wholesomeness of the food supply for humans and animals. Purdue University researchers studies the cycle of Salmonella infection in swine and clarification of the numerous factors that conspire to promote infection and persistence of Salmonella in intensive swine environments. This information will enable development of strategies that may be employed to mitigate the influence of Salmonella in the production environment and effectively curtail entry into the food supply of humans and animals.

Iowa: Iowa State University: Antibiotic resistance derived from mass medication of food animals is thought to threaten public health and the use of human antibiotics. However, antibiotic use in food animals generally results in healthier animals which may be a public health benefit. In this study, subclinically ill pigs with lung peel-outs were thought to have a higher incidence of fecal contamination, which would directly relate to human health. 358 pigs were swabbed, photographed and cultured for fecal bacteria. Three veterinary pathologists viewed the photographs and scored the severity of lesions on carcass and heart. Researchers found that Salmonella contamination of the carcass was more than two times as likely in pigs with evidence of lung adhesions. Multivariate analysis is being completed. The data provides evidence that subclinically ill pigs with lung peel-outs are more likely to be contaminated with Salmonella, and therefore, indicate an increased risk of foodborne illness in humans.

Kansas: Kansas State University: Researchers have evaluated the frequency and strains of Salmonella present in both clinically ill and clinically normal feedlot cattle. Most of the cattle that were clinically ill and treated with antimicrobials were shedding Salmonella in their feces. However, during the following year, the prevalence for clinically normal cattle, both at arrival and pre-slaughter, was also high. Researchers found little evidence that Salmonella shedding in general was associated with clinical or subclinical disease in the cattle. It appears that any effects associated with clinical outcomes depend on the Salmonella strain and lot-level risk factors. Although the high prevalence of Salmonella in cattle feces may have public health implications, the frequency distribution of serotypes in this study is not similar to the distribution of serotypes reported in national human disease surveillance programs. The project contributes to the long-term goal, which is to identify and reduce the impacts on cattle health, cattle production and human health associated with Salmonella in beef cattle production systems.

Kentucky: University of Kentucky: Research has experimentally demonstrated the establishment of equine herpesvirus-1 latency in pregnant broodmares, monitored the reactivation and subsequent transmission of the latent herpesvirus to herdmates, and identified farm management associated risk factors for viral reactivation. It is anticipated that such information

obtained from this project will be practicably applicable to efforts aimed at optimal maintenance of the health, reproductive success, and economic profitability of the equine breeding segment of the nation's agriculture. Researchers also expect that knowledge drawn from these experiments will illuminate some general aspects of the complex biology of the equine herpesvirus-1 pathogen, particularly in the areas of the establishment and reactivation of herpesvirus latency and of transmission patterns of the reactivated viral pathogen.

Louisiana: Louisiana State University: Researchers found a novel rough B. abortus phosphoglucomutase deletion mutant strain showing promise as a potential bovine vaccine. However, as a stable attenuated rough strain, the strain must be capable of transient colonization in cattle without causing disease in pregnant animals prior to being considered a viable vaccine candidate. The vaccine strain colonized non-pregnant animals and did not cause any pathology when administered to pregnant animals. No brucellae have been cultured from any calf pair indicating that the organism did not infect and set up residence in the reproductive tract. Due to the continuous threat of disease transmission of brucellosis from the wildlife reservoirs, new vaccine candidates are needed to aid in the eradication program.

Maine: University of Maine: Researchers were able to detect a potential genetic site for strain switching of Streptococcus zooepidemicus. Observation, for the first time, of action of mucociliary currents in the equine cervix occurred. Detection of similar anatomical features of mucociliary action in human and equine cervices was found. New methods under consideration in diagnosing and treating uterine infections were found. This research will potentially improve fertility of horses and livestock.

Maryland: University of Maryland: *E. coli*-borne illness affects about 80 percent of the adult population in the developing countries and 15 percent of the adult population United States and poultry are major reservoir of these bacteria. Researchers explored the role of an important global regulator of virulence factors which helps the bacterium survive and multiply within the poultry farm environment. Initially the research team figured out the feasibility of a reduction of virulence in avian pathogenic *E. coli* strains. More recently researchers have sequenced the genome of one of the major pathogens affecting the poultry industry.

Massachusetts: University of Massachusetts: Lameness in general and laminitis in particular have been identified as high priority concerns to the horse industry and there is a need for detailed research in this area. Researchers evaluated the contribution of pro-inflammatory leukocytes to the development of equine laminitis using the well-characterized black walnut toxin model. As a result, researchers understand that the presence of MMP-9 in the digital lamellae of horses with naturally acquired and experimentally induced laminitis results from the recruitment of inflammatory leukocytes into the tissue and that lamellae MMP-9 is solely produced by these leukocytes. It is also clear that elevated MMP-9 alone cannot be responsible for pathophysiology of equine laminitis because some animals develop raised lamellar MMP-9 without developing extensive tissue damage. Experiments are underway to identify metalloproteinases in addition to MMP-9 that may contribute to laminitis.

Tufts University: Researchers established vaccination strategies for suburban landscapes that have been used nationally. There have been over 250 cases of rabies detected in wildlife on Cape Cod despite several attempts to halt this spread by vaccination on the Cape itself. Animal trapping studies allow assessments of three different study sites and provided a diverse assessment of the vaccinated zone, with different habitats, and different

baiting strategies in each. The results when available will be used to formulate better baiting and vaccination strategies to reduce wildlife rabies cases on Cape Cod.

Michigan: Michigan State University: Cattle persistently infected with bovine viral diarrhea virus are the major source of virus spread within and between farms. Detecting and eliminating these animals is critical for the efficient control of this important virus. An inexpensive and rapid biosensor platform for detecting Bovine viral diarrhea virus has been developed and initially tested. Rapid and cost effective detection of cattle persistently infected with Bovine viral diarrhea virus will significantly enhance Bovine viral diarrhea virus control programs both national and globally. Additionally, the developed technology can potentially be adapted to many important pathogens including foreign animal diseases those targeted as potential agroterroism agents.

Minnesota: University of Minnesota: Parkinson's disease, a disorder cause primarily by the loss of dopamine neurons, has been linked with genetic predisposition and pesticide exposure based on mutation analysis and epidemiological data, respectively. How specific genes may cause enhanced susceptibility to pesticide and neurotoxin exposure resulting in Parkinson's disease is not clear. From this project, techniques have been pursued that allow for in vivo and in vitro knockdown in gene expression, specifically the Nurr1 gene, an inducible transcription factor important for differentiation and survival of mesencephalic dopamine neurons. These techniques are essential for understanding how gene expression interacts with environmental toxicants. Specifically, the impact of this project is that researchers have designed and tested the efficacy of both Nurr1 antisense phosphothioated oligonucleotides and modified double stranded DNA to attenuate Nurr1 levels in vitro.

Missouri: University of Missouri: Research is determining and seeks to quantitate the efficacy of intravenous serum transfusion in reducing calf mortality in dairy heifer calves with failure of passive transfer. The results of studies completed to date will create incentives for dramatic changes in colostrum administration practices. We believe the proposed changes will result in decreased calf morbidity and mortality and substantial increases in cow productivity.

Montana: Montana State University: After isolating *S. aureus* from infected cows researchers isolated *S. aureus* DNA and used spa typing to determine the clonal types. Findings of community-associated methicillin-resistant *S. aureus* in milk from infected cows are worth pursuing and have implications for both human and animal health. Collectively, data will be very relevant to animal health. Defining the predominant *S. aureus* strain causing mastitis in Montana's dairy herds will improve treatments (by using the proper antibiotics) and understanding this strains virulence potential will improve current therapeutics. Defining reservoirs of community-associated methicillin-resistant *S. aureus* infection has implications for animal heath and for the health of animal caretakers.

Nebraska: University of Nebraska: The results from experiments have changed the knowledge that researchers had previously about the Vascular Endothelial Growth Factor, or VEGF's, role in both testis development and follicle progression. Researchers believe methods can develop to enhance follicle progression and potentially impact development of a viable oocyte. Furthermore, different VEGF isoforms may potentially regulate spermatogenesis as well as testis development which may lead to methods to increase fertility in males.

Nevada: University of Nevada: The small scale of this project has made gaining a statewide perspective regarding tick species composition and tick-borne pathogen distribution across Nevada difficult. An important outcome of this research has concerned the information researchers have gathered regarding the host feeding preferences of the tick vector of Epizootic Bovine Abortion, *O. coriaceus*. Previously, deer and cattle were considered the two most important host species for this tick but research indicates that rodents and lagomorphs serve as host species for these ticks especially in their nymphal life stages. This same pattern of host preferences is seen in many species of ticks and rodents plays an important role as reservoirs for a variety of tick borne diseases such as Lyme disease and granulocytic anaplasmosis. These findings will allow researchers to focus the search for a potential reservoir host of Epizootic Bovine Abortion to those mammalian species identified as important blood meal sources for the tick vector.

New Hampshire: University of New Hampshire: A new method for genetic manipulation of bacteria was generated during the study. This method can be applied to any microbial organism, was disseminated publicly in a poster presentation, and a manuscript on the method is in preparation. The technique will be broadly useful for bacterial manipulation. This year researchers developed the experimental system for study. Researchers have shared bacterial strains and methods with colleagues at University of Connecticut and Cal Poly San Luis Obispo. In a recent study, researchers determined that the GacA mutant, which is incapable of normal host signaling, does not have normal innate immune accomodation; specifically, unlike wild-type symbionts which are not attacked by host macrophages, GacA mutants are attacked and engulfed by these immune cells. This indicates that work on this regulon will elucidate how host immune systems learn to recognize their commensals. Disruption of this immune recognition and accommodation is the basis for many auto immune diseases.

New Jersey: Rutgers University: Strongyle parasites are a big economic problem on domestic animal farms. Rutgers University researchers investigated environmental and topological features that lead to aggregation of parasites on pastures. Research from this project will provide useful information in the sustainable control of parasites by elucidating their spatial transmission strategies.

New Mexico: New Mexico State University: New Mexico State University research has provided a better understanding of the interactions between livestock and associated pests. Quantitative data allows for economically feasible technology for controlling stable flies on confined and pastured livestock. Such strategies will reduce the impact of these flies on livestock production and the resulting impact on neighboring residential areas. Accurate models of fly population dynamics permit livestock producers to economically implement appropriate control strategies before populations reach levels necessitating insecticide treatments.

New York: Cornell University: The study showed that third-generation cephalosporin resistance is occurring in multiple Salmonella strains and is geographically widespread. This type of resistance is of human and animal health importance. Ceftiofur and ceftriaxone resistance is almost always combined with resistance to multiple antimicrobial agents. Researchers were not able to demonstrate an association of ceftiofur resistance with antiobiotic use on farms including an analysis of organic and conventional farm management. This suggests that farm-to-farm spread of resistant strains independent of antibiotic use may be more important in maintaining this type of resistance than antibiotic selection pressure in individual herds. Therefore preventive programs should include management changes that will

decrease the introduction and persistence of certain multi-drug resistant Salmonella strains.

North Carolina: North Carolina State University: Researchers completed four experiments with neonatal pigs to examine the impacts of dietary fatty acid, dietary plasma protein, dietary vegetable proteins, and enteric viruses on intestinal health and growth. This research has generated an increase in scientific knowledge of factor, both dietary & viral, impacting intestinal health of the neonatal pig. Extension of this work into practical application could improve the dietary management of mamalian neonates, leading to improved intestinal health, growth and development. The work has also contributed to the training of approximately a dozen graduate students and scientists.

North Dakota: North Dakota State University: The Gibbs laboratory has determined that a conjugative plasmid appears to be responsible for the high multi-drug resistance in hundreds of *E. coli* isolates from calf scours; none of the isolates studied are related using Pulsed-Field Gel Electrophoresis. The chicken embryo lethality assay has only been performed on a handful of these isolates; preliminary data suggests this assay may not be suitable for determining virulence in bovine *E. coli*. However, more trials need to be performed to ascertain whether this is consistent for all virulent bovine *E. coli* isolates. None of these isolates were determined to be O157:H7, further supporting that this notorious human strain of *E. coli* does not cause disease in bovine.

Ohio: Ohio State University: The results of the laboratory study indicate that circulating cardiac troponin I can be measured reliably in cattle using the Bayer Centaur Immunoassay developed for use in people. It may help to identify cattle with suspected cardiotoxin intake, cardiomyopathy, and pericardial disease and may make, in many cases, other more expensive and invasive diagnostic modalities such as endomyocardial biopsy, chest radiography, or echocardiography superfluous. As the test is simple to perform and repeatable, longitudinal data will be easy to acquire allowing for long-term observation of cattle with myocardial injury.

Oklahoma: Oklahoma State University: Research is designed to examine the role of goats in the natural bovine viral diarrhea viruse transmission in cattle herds. These in turn may add insight on the role of bovine viral diarrhea viruses and other viruses on infertility.

Oregon: Oregon State University: As a result of research, managers of ruminant livestock consuming high-alkaloid fescue have a management tool that can help minimize the potential toxic effects of ergovaline, the alkaloid most often associated with fescue toxicosis. The product tested, a yeast derived cell wall preparation, seemed to perform effectively when provided at the daily dose of 20 grams per head or greater. This dosage reversed the depression in prolactin normally seen with consumption of high levels of ergovaline, suggesting that the yeast derived cell wall is effective against fescue toxicosis. Feeding the yeast derived cell wall, along with previously established management practices such as dilution with non-alkaloid feedstuffs, can allow ruminant livestock producers to use high-alkaloid fescue while minimizing the potential for fescue toxicosis. Feed industry companies are currently marketing the product to managers whose cattle are consuming high-alkaloid tall fescue throughout the United States and Canada.

Pennsylvania: Pennsylvania State University: Research identified genetic factors and other molecular determinants that dictate an individual's capacity to metabolize and detoxify chemical substances. The exposures may occur through the use of agricultural pesticides, ingestion of contaminated

food products, or through the use of pharmaceutical preparations. Extrapolation of toxicant effects to humans, from results obtained in animals or using in vitro approaches, can be problematic and may result in erroneous conclusions with respect to safety and risk profiling of environmental chemicals. Evaluation of toxicant-induced changes in gene expression profiles across species and experimental platforms, using powerful tools such as DNA microarray analysis, offers the promise to identify responses that are conserved among species and lessen the risks associated with extrapolation. Therefore, these studies help identify the pathways that determine the toxic fate in different tissues and contribute to the identification of specific biomarkers that may be predictive and risk modifiers of interindividual differences in susceptibility of toxic outcomes arising from chemical exposures.

University of Pennsylvania: Corneal ulcers in horses are common and can be very painful. Research is underway to look at ways to accelerate the rate of corneal wound healing. Researchers seek to determine whether amniotic fluid therapy facilitates re-epithelialization in equine cornea in organ culture. It also seeks to identify the microscopic structure of amniotic membrane transplants into corneal tissue.

Rhode Island: University of Rhode Island: The goal of this research is to study the role of host matrix metalloproteinases on innate immune defenses and host-pathogen interactions in oysters. The particular aim of this Animal Health Project is to map the position of the metalloproteinases genes isolated in previous research on available oyster genetic linkage maps. Researchers are currently evaluating the distribution of single nucleotide polymorphisms in several hatchery strains of oysters with varying levels of disease resistance, as well as in wild populations of oysters. Researchers will also be mapping these metalloproteinases genes into existing oyster linkage maps.

South Carolina: Clemson University: University researchers investigated and gathered information on the unique expression of genes in chicken thrombocytes from different genetic lines in order to make connections between classical innate and adaptive mediators of immunity. Further studies will reveal that thrombocytes are a dynamic component of the chicken immune system that respond to various pathogens through signal transduction pathways leading to modulation of immunity in the fowl by expression and release of regulatory mediators

South Dakota: South Dakota State University: The major viral scourge of the cattle industry in the United States is bovine viral diarrhea virus. Bovine viral diarrhea virus infections are responsible for the largest number of respiratory and reproductive viral disease cases in cattle in the US. University researchers investigated the diverse responses of immunosuppression of bovine viral diarrhea virus in animals. University researchers now understand that Linoleic acid levels from corn oil sources can influence immune responsiveness and vaccine responses in the lactating cow. This project will have significant effects on bovine health and well-being because application of the new knowledge is expected to allow the development of new diagnostic tests, vaccines and therapeutic agents.

Tennessee: University of Tennessee: The educational phase of the Tennessee Quality Milk Producer program was launched. The Tennessee Quality Milk Producer Program is a fee-based comprehensive program designed to motivate and educate dairy producers on aspects of production that affect milk quality. The goal of the Tennessee Quality Milk Producer Program is to deliver available knowledge and recent research findings on reducing mastitis and bacteria levels to maintain high bulk tank milk quality. Educational

materials are developed by Extension, research and industry experts and presented in a module format. Extension agents have used learning modules and the internet to disseminate information regarding improving milk quality to dairy producers. Poor quality milk in Tennessee and in the Southern Region continues to be of concern. Lost premiums and/or penalties due to poor quality milk have a significant financial impact on dairy producers. As regulations and industry restrictions concerning milk quality are becoming more stringent, producers are concerned about difficulties of sustaining competitive milk production. It is very clear that milk quality in Tennessee and in the Southern Region must improve if the dairy industry is to survive.

Texas: Texas A&M University: The Rift Valley Fever virus is a potential weapon of agricultural bioterorism which could have a devastating effect on livestock industries. Laboratory rats provide an opportunity to identify a gene that makes some mammals resistant to the virus. Identification of this gene can lead to production of resistant livestock and help to understand the mechanism of host resistance. Texas A&M University researchers have successfully identified the congenic region of the rat genome that conveys resistance to the Rift Valley Fever Virus. The identification of the congenic region and the characterization of strains previously tested for Rift Valley Fever resistance are the major first step in finding the specific gene underlying this biologically important trait.

Utah: Utah State University: Enteric septicemia of channel catfish (ESC), caused by *Edwardsiella ictaluri*, is the most economically significant bacterial disease of farmed catfish. Annual losses of millions of dollars occur due to the inability of efficient disease control. Identification and understanding of specific bacterial communication systems associated with virulence expression will provide a target for disease control. This type of control will minimize economic losses to catfish producers without the use of antibiotics in a food animal species.

Vermont: University of Vermont: Research has the long-term goal to identify key genes of the host and pathogen involved in mastitis resistance in dairy cattle. This disease is the most costly infectious disease of dairy cattle, affecting both the quality and quantity of milk produced. Efforts to control mastitis with vaccination programs have had only moderate success, leading to investigations of the innate immune system with the goal of enhancing this system through breeding or delivery of exogenous factors.

Virginia: Virginia Polytechnic Institute and State University: Researchers examined a new technology in Food Science that uses high hydrostatic pressure processing to improve the shelf life of food and to non-thermally kill microorganisms. Hydrostatic pressure processing is currently used in industry. Results determined that a protozoan parasite that causes abortions and congenital infections in humans could be killed at conditions that are commonly used in hydrostatic pressure processing studies. Researchers used a raspberry model because raspberries are often the source of coccidian parasites for humans. Researchers determined that a highly resistant stage, the oocyst, could be killed using hydrostatic pressure processing. Researchers have demonstrated that hydrostatic pressure processing is a viable way to protect food.

Washington: Washington State University: Identification of farm agents that can cause human disease potentially has significant impact on human health. Studies at Washington State University continue to define the on farm epidemiology of zoonotic agents such as *E. coli O157:H7*, *Salmonella spp*, and *Listeria monocytogenes*. With this knowledge intervention strategies can be developed to control resistance. Researchers expect that this project will

demonstrate that community based anaerobic digesters can have the primary water quality advantage of improved surface water quality via reduced transport of nutrients and pathogens to surface water. In addition, it is expected that information gained from the individual herds will demonstrate herd to herd transmission of pathogen is of limited risk, therefore eliminating any adoption barriers.

West Virginia: West Virginia University: An experiment was conducted using the research sheep model developed under previous funding. In this experiment, the effects of high dosage peptidoglycan polysaccharide on the acute phase response was examined in early pregnant sheep. Data were collected, serum samples were analyzed, and statistical analysis of the data were performed. Knowledge gained from this study emphasized the dose-response characteristics of the acute phase responses of transforming growth factor beta, serum amyloid A and haptoglobin. These factors appear responsible for the early embryonic loss associated with the challenge.

Wisconsin: University of Wisconsin: Brucellosis is a disease caused by the brucella bacterium. Researchers have determined that Brucella contains a photoreceptor that possesses a domain sensitive to light, oxygen and voltage. This light, oxygen, voltage sensing protein is critical for Brucella replication in macrophages and for in vivo survival in mice. Not knowing the bacterial proteins that are associated with intracellular survival has hampered an understanding of the mechanisms of Brucella persistence. This research is increasing the understanding of the brucella bacteria.

Wyoming: University of Wyoming: Researchers evaluated occurrences of disease in domestic animals and wildlife due to tularemia, or rabbit fever. Outbreaks of tularemia occur fairly commonly in wildlife in Wyoming. Occasionally disease spreads to domestic livestock and pets. A better awareness of the potential for spread of zoonotic pathogens between wildlife and domestic livestock will lessen the chance of illness in animal workers and diagnosticians and increase the likelihood of accurate diagnosis. Researchers at the University of Wyoming investigated two outbreaks of tularemia in livestock and correlated these finding with a previous outbreak that occurred on one of the ranches. A better awareness of the potential for spread of zoonotic pathogens between wildlife and domestic livestock will lessen the chance of illness in animal workers and diagnosticians and increase the likelihood of accurate diagnosis.

AQUACULTURE CENTERS

Ms. DeLauro: In table format, please describe how the fiscal year 2007 and 2008 funds were used at each of these centers and their anticipated use in fiscal year 2009.

Response: The information is submitted for the record.

[The information follows:]

Projects supported with fiscal year 2009 funds will be identified and prioritized by industry representatives and will address critical issues and problems through peer-reviewed multistate research and extension projects in each of the respective regions. Some projects cover multiple years and will be funded in part this fiscal year with 2009 funds.

Table 1. Fiscal years 2007 and 2008 projects at each of the Regional Aquaculture Centers.

Western Regional Aquaculture Center projects for fiscal year 2007

- Development and Evaluation of Starter Diets and Culture Conditions for Three Subspecies of Cutthroat Trout and Gila Trout: Year 3
- Physiological Changes Associated With Live Haul: Maintaining Healthy Fish: Year 3
- Economic Impacts of Private Sector Aquaculture-based Recreational Fishing in the Western United States: Year 1
- Determining Ripeness in White Sturgeon Females to Maximize Yield and Quality of Caviar: Year 1
- Coldwater Disease Prevention and Control Through Vaccine Development and Diagnostic Improvements: Year 1
- Western Regional Aquaculture Center Publications

Western Regional Aquaculture Center projects for fiscal year 2008

- Development and Evaluation of Starter Diets and Culture Conditions for Three Subspecies of Cutthroat Trout and Gila Trout: Year 4
- Physiological Changes Associated With Live Haul: Maintaining Healthy Fish: Year 4
- Economic Impacts of Private Sector Aquaculture-based Recreational Fishing in the Western USA: Year 2
- Determining Ripeness in White Sturgeon Females to Maximize Yield and Quality of Caviar: Year 2
- Coldwater Disease Prevention and Control Through Vaccine Development and Diagnostic Improvements: Year 2
- Western Regional Aquaculture Center Publications

North Central Regional Aquaculture Center projects for fiscal year 2007

- Management of Snails for Grub Control: Years 1 and 2
- North Central Regional Aquaculture Center Extension Project and Addendum: Years 1 and 2
- National Coordination for Aquaculture New Animal Drug Applications

North Central Regional Aquaculture Center projects for fiscal year 2008

- Effectiveness Research Leading to Approvals for Controlling Mortality in Coolwater and Warmwater Finfish Due to Aeromonad Infections with Terramycin 200 for Fish, Oxytetracycline Dihydrate; and Aquaflor, Florfenicol
- Viral Hemorrhagic Septicemia
- North Central Regional Aquaculture Center Extension Project

Southern Regional Aquaculture Center projects for fiscal year 2007

- Publications, Videos, and Computer Software
- Development and Evaluation of Pond Inventory Methods: Year 2
- Economic Forecasting and Policy Analysis for Catfish and Trout
- Improving Reproductive Efficiency to Produce Channel X Blue Hybrid Catfish Fry
- Innovative Technologies and Methodologies for Commercial-Scale Pond Aquaculture
- Feed Formulation and Feeding Strategies for Bait and Ornamental Fish

Southern Regional Aquaculture Center projects for fiscal year 2008

- Publications, Videos, and Computer Software
- Other projects funded by fiscal year 2008 funds are currently in development or are currently undergoing scientific peer-review

Northeastern Regional Aquaculture Center projects for fiscal year 2007

- Targeted Biosecurity Education and Best Management Practices Development Program for Aquaculturists, Extension Agents, and Regulators
- Investigations into the Potential Health and Economic Benefits of Bivalve/Finfish Co-Culture
- Creation of a Tetraploid Broodstock for the Bay Scallop, Aropecten irradians
- Northeast Aquaculture Extension Regional Network
- The Infection Cycle of Viral Hemorrhagic Septicemia Virus
- Northeastern Regional Aquaculture Center Program Planning and Publications

Northeastern Regional Aquaculture Center projects funded with fiscal year 2008 funds are currently undergoing scientific peer-review for final selection.

Center for Tropical and Subtropical Aquaculture projects for fiscal year 2007

- Alternative Methods for Marine Copepod Production in Hawaii: Years 1 and 2
- Pacific Regional Aquaculture Information Service for Education and Publications: Year 3
- Sea Cucumber Hatchery Production Technology Transfer in Pohnpei, the Federated States of Micronesia: Years 1 and 2
- Promoting Health Management of Shrimp Aquaculture on Guam and the Commonwealth of the Northern Mariana Islands
- Improving the Hatchery Output of the Hawaiian Pink Snapper (*Pristipomoides filamentosus*): Years 1 and 2
- Improving Outputs in Commercial-Scale Production of Swordtails in Hawaii: Year 3
- Determining Aquaculture Bottlenecks of Pacific Threadfin (*Polydactylus sexfilis*): Increasing Fry Survival, Growth, and Quality: Years 1 and 2

Projects submitted to the Center for Tropical and Subtropical Aquaculture Center to be funded with fiscal year 2008 funds are currently undergoing scientific peer-review for final selection.

Regional Aquaculture Center projects funded by the fiscal year 2009 appropriation will be identified and prioritized by industry advisory representatives in each of the five Centers. These projects will focus on issues critical to the sustainable growth of diverse industry sectors. Individual projects will be selected through a scientific peer-review process and involve collaborative multi-state research and extension teams to take full advantage of the expertise and facilities in each region.

Ms. DeLauro: Please provide a table for the record showing the location and amount of funding received by each center for fiscal years 2007, 2008, and 2009.

Response: The information is submitted for the record.

[The information follows:]

Regional Aquaculture Center	FY 2007 Actual	FY 2008 Actual	FY 2009 Budget
Western	$735,378	$735,379	$759,552
Northeastern	735,378	735,380	759,552
North Central	735,378	735,380	759,552
Southern	735,378	735,379	759,552
Tropical and Subtropical	735,377	735,379	759,552
Total, Awards to Regional Centers	3,676,889	3,676,897	3,797,760

Ms. DeLauro: Provide a few specific recent examples of the projects funded with these grants.

Response: With the recent introduction of Viral Hemorrhagic Septicemia into the Great Lakes region resulting in massive die-offs of different fish species, including economically important sport fish, the North Central Regional Aquaculture Center accelerated their funding process and procedures to support timely projects on this critical problem in research, education, and extension. One project addresses control options to combat the spread of this virulent viral disease. The research addresses the efficacy of using iodine to disinfect walleye and northern pike eggs infected with Viral Hemorrhagic Septicemia. An education project will develop and disseminate educational materials on Viral Hemorrhagic Septicemia for fish farmers to become more aware of the clinical signs of the disease and take preventative measures to minimize introduction into their facilities and reduce its spread. Additionally, six biosecurity workshops will be held across the region targeting different aquatic animal production systems. These workshops will utilize an existing Aquatic Invasive Species Hazard Analysis Critical Control Point training curriculum to develop specific fish-disease prevention plans for each of the six commercial facilities hosting the workshops. Six fish farm biosecurity videos will also be produced that incorporate disease-management plans for different aquaculture system types. The North Central Regional Aquaculture Center is also collaborating with two other Regional Centers and the USDA Animal and Plant Health Inspection Service to form the Viral Hemorrhagic Septicemia Educational Alliance. This collaborative partnership will develop a website, hosted by the Center, to serve as a clearinghouse for information germane to the needs of the industry, state departments of natural resources, state departments of agriculture, and other stakeholders impacted by this disease. Due to the links and involvement of this Regional Aquaculture Center with the state Cooperative Extension and Sea Grant extension programs and their educational networks in the region, the Animal and Plant Health Inspection Service will use this Educational Alliance approach as a model for future regional or national educational programs related to introduced aquatic-animal diseases in the United States.

The Western Regional Aquaculture Center, also a collaborator in the Viral Hemorrhagic Septicemia Educational Alliance, has recently funded a project addressing research needs to control the spread of the virus in the region. The project, "Potential Threat of Great Lakes VHS Virus in the Western United States," will assemble and distribute biosecurity information currently available on Viral Hemorrhagic Septicemia; develop diagnostic assays to differentiate the Great Lakes Viral Hemorrhagic Septicemia strain from the endemic West coast Viral Hemorrhagic Septicemia strain; test the susceptibility of yellow perch, rainbow trout, herring, and Chinook salmon to disease and mortality caused by the Great Lakes strain, the West coast Viral Hemorrhagic Septicemia strain, and the European strain; test the ability of relevant host species to act as carriers and/or reservoirs of different Viral Hemorrhagic Septicemia genotypes; and develop educational materials to communicate the results of the project.

The Northeast Regional Aquaculture Center has also recently funded a research project entitled "The Infection Cycle of Viral Hemorrhagic Septicemia Virus" that addresses the needs of the region relating to Viral Hemorrhagic Septicemia. This project will determine the fate of key cultured fish species including Atlantic salmon, hybrid striped bass, and walleye when exposed to standard challenge doses of the Great Lakes strain of Viral Hemorrhagic Septicemia to identify those most susceptible to development of disease signs and/or development of a carrier state of the infection. This project will generate the data required to support the validation of a quantitative RT-PCR assay for Viral Hemorrhagic Septicemia and provide effective and timely distribution of new information to the aquaculture community. A related education and extension project was recently funded by the Center entitled, "Targeted Biosecurity Education and Best Management Practices Development Program for Aquaculturists, Extension Agents, and Regulators". This project will provide regionally focused, practical training in aquaculture biosecurity and Best Management Practices for industry, extension agents, researchers, and regulators in the Northeast region to reduce disease incidence and lower production costs. The project will develop and conduct five two-day interactive biosecurity/Best Management Practices training workshops for the aquaculture industry in Maine, Rhode Island, West Virginia, New York, and Pennsylvania. The project will also produce a Biosecurity/Best Management Practices Resource Manual adaptable to specific species and/or facility designs for distribution at workshops and through the Center's website. As a member of the Viral Hemorrhagic Septicemia Educational Alliance, the project will create and maintain a public-access, web-based database with information resources relevant to aquaculture stakeholders and including current disease research, fish health resources, state/federal/international testing requirements and other regulatory information, as well as updates on recommendations for biosecurity and best management practices.

The Center for Tropical and Subtropical Aquaculture has recently funded two projects that directly address the needs of the offshore marine aquaculture industry for growing native marine fish species. The Center has funded a project entitled, "Alternative Methods for Marine Copepod

Production in Hawaii". The project expects to develop alternative protocols for the production of small marine copepods used for feeding larval marine fish that will ultimately be stocked into offshore marine sea cages. Since the feeding of the larval stages is one of the primary bottlenecks to economically viable marine finfish production systems, new methods of larval feeds production ultimately enhances the opportunities for reducing production costs. The project will evaluate alternative methods that can make copepod culture available for businesses lacking access to flowing seawater and cultured microalgae necessary to produce marine copepods. A second project entitled, "Improving the Hatchery Output of the Hawaiian Pink Snapper, Pristipomoides filamentosus", will develop new hatchery technologies and protocols that have the potential to increase output and production of juvenile pink snapper, known as *opakapaka* in Hawaii for commercial-scale, open-ocean culture. The goals of the project are to improve live feeds production and increase larval survivorship, growth, and general hatchery output by improving tank and water quality conditions.

A project funded by the Southern Regional Aquaculture Center and entitled, "Economic Forecasting and Policy Analysis Models for Catfish and Trout", involves a multi-state and multi-investigator project team from the University of Arkansas at Pine Bluff, Louisiana State University, and Mississippi State University. This project addresses the many economic issues faced by the channel catfish industry in this region. The project will obtain input from the channel catfish industry and utilize priority problems and needs identified by industry representatives at the joint Agricultural Research Service and Cooperative State Research, Education, and Extension Service National Aquaculture Stakeholder Workshop held in April 2008. Specific objectives of the project are to identify, develop, and validate economic forecasting models for the channel catfish and trout industries in the United States; identify the data needs required to refine the models for these species and to potentially apply the approach to other species; and identify an industry-input framework to ensure model applicability.

BIOTECHNOLOGY RISK ASSESSMENT

Ms. DeLauro: Section 7210 of the 2002 Farm Bill required that two percent of the biotech funds be set-aside for risk assessment. Please provide a table listing all USDA biotech funds, by agency, for fiscal year 2007.

Response: The information is submitted for the record.

[The information follows:]

U.S. DEPARTMENT OF AGRICULTURE
FUNDS AVAILABLE FOR BIOTECHNOLOGY RESEARCH
($000)

Agency	FY 2007
Agricultural Research Service	$187,393
Animal and Plant Health Inspection Service	12,618
Cooperative State Research, Education, and Extension Service	111,390
Economic Research Service	750
Foreign Agricultural Service	3,189
Forest Service	3,519
Grain Inspection, Packers, and Stockyards Administration	2,550
Office of the Chief Economist	125
Office of the Secretary	1,611
TOTAL	323,145

BIOTECHNOLOGY RISK ASSESSMENT

Ms. DeLauro: Describe how CSREES has used these funds in 2007 and provide a few specific examples of grants and their accomplishments.

Response: In fiscal year 2007, the USDA Biotechnology Risk Assessment competitive grants program funded a total of 11 new projects. These included projects on natural gene flow, techniques for gene containment, effects on non-target organisms, pest resistance management, and use of recombinant organisms in biocontrol of pests and disease in plants.

A significant opportunity exists for the development of improved varieties of crops using only the plant's own genetic material rather than foreign genes derived from viral, bacterial, fungal, or animal sources. One grant entitled "Intragenic Tools for Improved Rice Biotechnology and Biosafety" was awarded to a researcher from the Agricultural Research Service in Albany, California. The goal of the project is to develop molecular tools to genetically engineer rice plants using only native rice nucleic acid sequences thereby creating intragenic rice. The research team constructed plasmid vectors capable of generating intragenic rice plants via Agrobacterium transformation and confirmed their genetic sequence. These vectors are new biotechnology tools which will allow the development of a novel method of crop improvement that can generate modified rice plants containing only native rice genes.

Researchers at Iowa State University received a 2007 research grant to study the "Meteorological Influences on Escape of Transgenes" with a mathematical modeling approach. The goal was to develop a simulation model for dispersion of pollen in regions of complex terrain at distances up to a few tens of kilometers, and to verify the model predictions using data from an actual study of pollen escape from transgenic plants in Oregon. The researchers have successfully adapted a numerical model used for operational weather prediction in the United States to the Oregon location where the original empirical pollen study took place. Coupling of a particle dispersion model with the weather prediction model is in progress. The impact of the study is that the combined atmospheric and pollen modeling approach can be used by many more investigators on many more transgenic or conventional plant species for operational use in the future, and that users of the model can take advantage of periodic improvements in the weather prediction model by the atmospheric research community.

BIOTECHNOLOGY RISK ASSESSMENT

Ms. DeLauro: Provide a list of grant recipients and amounts for these funds for fiscal years 2006 and 2007. When will the fiscal year 2008 grants be announced?

Response: A total of $3,883,909 was awarded for Biotechnology Risk Assessment in fiscal year 2006, $3,663,942 in fiscal year 2007 and $3,829,533 in fiscal year 2008.

The grant recipients and award amounts are as follows:

Recipient	FY 2006 Award Amount	FY 2007 Award Amount	FY 2008 Award Amount
Applied Biotechnology Institute Inc., CA	$199,000	0	0
Clemson University, SC	0	$389,083	0
Colorado State University	0	388,221	0
Cornell University,NY	0	0	$385,000
Iowa State University	0	228,314	585,550
North Carolina State Unversity	265,400	228,234	0
Oregon State University	0	0	759,000
Rutgers University, NJ	0	0	360,000
The Research Foundation of State University of New York, NY	0	0	380,000
The Ohio State University	396,725	0	0
University of Arkansas, Fayetteville	324,137	0	0
University of California, Davis	0	0	55,595
University of California, Riverside	10,000	0	0
University of Connecticut	0	399,940	300,000
University of Georgia	245,562	0	180,000
University of Hawaii	0	0	375,000
University of Idaho	0	250,875	0
University of Kentucky	711,446	0	0
University of Maryland, College Park	390,808	0	0
University of Minnesota	0	0	10,000
University of Nebraska	346,845	0	0
University of Tennessee	393,957	280,368	179,388
University of Washington	0	0	260,000
USDA-ARS Midwest Area	299,933	393,582	0
USDA-ARS North Atlanta Area	300,096	326,565	0
USDA-ARS Pacific West Area	0	778,760	0
Total	$3,883,909	$3,663,942	$3,829,533

CAPACITY BUILDING PROGRAM

Ms DeLauro: Provide a breakout for fiscal years 2007 and 2008 of how much was spent on direct support of students and how much was spent on scientific instrumentation purchases.

Response: Fiscal year 2008 data is not yet available as institutions have not reported on their progress in use of funds. In fiscal year 2007, direct support of students via the Capacity Building Grants Program was approximately $476,533, and scientific instrumentations purchases were approximately $235,985.

Ms. DeLauro: Please update your response in last year's hearing record on the number of students that have gone from this program into food and agriculture science and business. What is the status of the Food and Agricultural Education Information System?

Response: The number of degrees reported by the 1890 Institutions to the Integrated Postsecondary Education Data System (IPEDS) through the Department of Education for 2005-2006 within agriculture, natural resources, food and nutritional sciences and human sciences is as follows: 14 associate degrees, 735 bachelor degrees, 240 master degrees, 15 doctoral degrees and 50 first professional (DVM) degrees for a total of 1,054.

The Food and Agricultural Education Information System (FAEIS) continues to collect data at land grant institutions in the areas of agriculture, natural resources, food sciences, family and consumer sciences and veterinary medicine.

Every attempt is made to encourage institutions to report their data. In the last reporting year, thirteen of the land grant institutions reported data into the system. Additional sources of data regarding the degrees awarded can be found through the Department of Education, National Center for Educational Statistics.

Utilizing data from the Department of Education's, National Center for Educational Statistics (NCES) CSREES augments and updates data from FAEIS. NCES data usually runs one year behind the reporting cycle of FAEIS so we are currently able to report information from the 2005-2006 Completion Report. A total of 1,054 degrees were awarded at 18 institutions in the fields of Agriculture, Natural Resources, Food and Human Sciences, Veterinary Medicine and other closely related fields of study at 1890 Land Grant Institutions. Of these degrees 1 percent were Associate degrees, 70 percent were Bachelor degrees, 23 percent were Master degrees, 1 percent were Doctoral degrees and 5 percent were First Professional degrees (veterinary medicine).

NCES also reports for 2004-2005 a total of 994 degrees were awarded at 18 institutions in the fields of Agriculture, Natural Resources, Food and Human Sciences, Veterinary Medicine and other closely related fields of study at 1890 Land Grant Institutions. Of these degrees 2 percent were Associate degrees, 72 percent were Bachelor degrees, 20 percent were Master degrees, less than 1 percent were Doctoral degrees, and 5 percent were First Professional degrees (veterinary medicine).

In addition, information from the Survey of Earned Doctorates, in which the Department of Agriculture is a sponsor, reported 47 total Doctoral degrees at all Historically Black Institutions in the US during the 2004-2005 academic year in similar fields as those selected for the NCES data. Of those graduates with research doctorates, 32 percent were planning on working at a US college or university, 13 percent were planning on working for the Federal government and 2 percent for State government. Two percent of the students were planning on being employed at a foreign educational institution. It is unclear where the remaining 51 percent of students will be employed, though due to the nature of the survey they could have obtained employment offers after completion of the survey. Of those which information was gathered 34 percent were primarily anticipating involvement in research and development, 4 percent in teaching, 9 percent in administrative duties and 2 percent in other activities. Frequently students continue on post doctoral studies. It appears students at the research doctoral level are, at least at the point of graduation, preparing to enter the workforce.

The Food and Agricultural Education Information System continues to be a reliable resource of information regarding enrollment and placement of students at land grant institutions across the U.S.

1890 CAPACITY BUILDING GRANTS

Ms. DeLauro: Please record the capacity building grants that were awarded in fiscal years 2006 through 2008.

Response: The information is submitted for the record.

[The information follows:]

Research Capacity Building Grants	Fiscal Year 2006 Actual	Fiscal Year 2007 Actual	Fiscal Year 2008 Actual
Alabama A&M University.	$299,520	- -	- -
Tuskegee University	599,151	$579,871	- -
University of Arkansas, Pine Bluff. . .	500,000	- -	- -
Delaware State University	- -	874,480	$299,901
Florida A&M University	- -	576,140	599,778
Fort Valley State University.	299,857	460,867	934,224
Kentucky State University	297,791	299,951	- -
Southern University, Louisiana.	- -	- -	1,168,562
University of Maryland, Eastern Shore .	390,185	575,306	82,191
Lincoln University.	- -	- -	467,435
Alcorn State University, Mississippi. .	782,041	747,040	292,076
North Carolina A&T State University . .	480,314	254,276	499,272
Langston University, Oklahoma	- -	283,589	600,000
South Carolina State University	294,818	- -	- -
Tennessee State University.	579,213	- -	791,990
Prairie View A&M University	298,691	- -	- -
Virginia State University	665,681	313,618	498,886
West Virginia State University.	- -	759,444	- -
Subtotal, Research Grants.	5,487,262	5,724,582	6,234,315

Teaching Capacity Building Grants	Fiscal Year 2006 Actual	Fiscal Year 2007 Actual	Fiscal Year 2008 Actual
Alabama A&M University.	$193,648	- -	$792,466
Tuskegee University, Alabama.	370,000	$494,182	400,000
University of Arkansas, Pine Bluff. . .	399,017	399,543	441,942
Delaware State University	761,486	200,000	483,898
Florida A&M University.	199,118	199,805	398,503
Fort Valley State University.	199,334	392,730	- -
Kentucky State University	379,941	372,054	599,293
Southern University, Louisiana.	395,656	399,919	199,650
University of Maryland, Eastern Shore..	699,231	392,428	249,926
Alcorn State University, Mississippi. .	- -	179,016	- -
Lincoln University, Missouri.	299,639	100,989	393,161
North Carolina A&T State University . .	487,883	334,690	455,068
Langston University	190,100	494,867	- -
South Carolina State University	- -	- -	199,653
Tennessee State University.	366,987	695,875	200,000
Prairie View A&M University	- -	459,619	357,694
Virginia State University	552,677	552,980	- -
West Virginia State University.	299,897	199,936	- -
Subtotal, Teaching Grants.	5,794,614	5,868,633	5,171,254
Total, Research/Teaching Grants. .	11,281,876	11,593,215	11,405,569
TOTAL, Capacity Building Grants. .	11,281,876	11,593,215	11,405,569

CRITICAL AGRICULTURAL MATERIALS

Ms. DeLauro: For fiscal years 2007 and 2008, please describe how the funds for commercializing alternative crops were used. Who was the recipient of the funds?

Response: In fiscal years 2007 and 2008, the Critical Agricultural Materials program was administered as a competitive grant program. The request for applications for each year focused on research and development of biobased paints, protective surface coatings and adhesives that have low volatile organic compound (voc) emissions, which have been shown to negatively impact human health and the environment. In fiscal year 2007, an award was made to the University of Southern Mississippi to continue research, development and marketing of vegetable oil-based emulsions and thickeners that improve the functional and environmental performance of paints, coatings and adhesives. A second award was made to North Dakota State University to generate materials from crop-based raw materials that are superior to conventional polymer binders used in coatings, and to explore the effect of incorporating naturally-occurring nanoparticles as a reinforcing filler in coating formulations.

In fiscal year 2008, four awards were made. Kansas State University is developing cost effective soy protein-based latex adhesives to replace or partially replace petroleum-based adhesives for wood veneer applications; Mississippi State University is evaluating the feasibility of using distillers dried grains, which is a coproduct of the dry grind corn process to produce ethanol, for wood polymer composites. Fibers separated from the distillers dried grains will be tested as a replacement for wood fiber in the composites that are commonly used in decking and furniture components. This new application of a coproduct would add value to the dry grind processors and wood composite manufacturers; Eastern Michigan University is developing an innovative chemical modification of vegetable oils that can serve as low cost alternative sources for development of a variety of environmentally friendly coatings; and the Agricultural Research Service National Center for Agricultural Utilization, Peoria, Illinois, is developing biobased coatings, additives and adhesives that inhibit corrosion of metals. The overall objective of this project is to design and evaluate new environmentally friendly polymeric coating systems derived from agricultural commodities to protect metal substrates from corrosion or retard corrosion, thereby extending the life of the product.

All four projects funded in 2008 are required to perform a life cycle analysis concurrently with the development of the products. The analysis takes into consideration environmental and human health impacts at each stage of the life of the product, from growing the crop to disposal of the end product.

Ms. DeLauro: Have the results of this research been used in the marketplace?

Response: The University of Southern Mississippi has commercialized a number of environmentally friendly paints, coatings, and additives with low or no volatile organic compounds. The additives are used by the paint industry.

FOOD AND AGRICULTURAL DEFENSE INITIATIVE

Ms. DeLauro: Please update your response in last year's hearing record, as necessary, with respect to the description, function, and costs for both the Federal-State Diagnostic Network and the Extension Disaster Education Network. Explain how these systems work. Provide the cost of both systems by breaking out funding according to base and requested increases for four years. Include actuals for fiscal years 2006 through 2008 and estimates for fiscal year 2009.

Response: The National Plant Diagnostic Network (NPDN) and National Animal Health Laboratory Network (NAHLN) are parallel networks of geographically distributed diagnostic laboratories under the leadership of the Cooperative State Research, Education, and Extension Service and the Animal and Plant Health Inspection Service (APHIS). They are complemented by the Extension Disaster Education Network (EDEN).

The primary objective of the NPDN is to establish a functional national network of existing diagnostic laboratories to rapidly and accurately detect and report plant diseases and other pests of national interest, particularly those pathogens that have the potential to be intentionally introduced through bio-terrorism. This network works closely with APHIS' Plant Protection and Quarantine Unit in the development of a system of expert and triage laboratories for ten priority plant diseases. This network provides geographically distributed diagnostic support and decreases the time between the first observation of an anomaly by first detectors and a regulatory response, increases the nation's plant diagnostic capabilities through improved equipment and training, provides diagnostic surge capacity in case of a concentrated or deliberately distributed agro-terrorist incident, and develops a base of first detector trainers to enhance the nation's ability to detect incidents before they become widely distributed. The NPDN is led by five regional laboratories located at Cornell University (New York), the University of Florida, Michigan State University, Kansas State University, and the University of California at Davis. These five diagnostic centers receive direct federal assistance from our agency and subcontract a small amount of funding to every state and many United States territories, creating an interconnected national network. The NPDN was allocated $4.8 million per year for fiscal years 2006, 2007, and 2008. The network is requesting $5.6 million for fiscal year 2009. Additional funds will bolster equipment and personnel in non-center states, enable national plant epidemiological analysis of laboratory results, and increase outreach efforts undertaken in cooperation with the EDEN.

The overall objective of the NAHLN is to rapidly and accurately detect and report pathogens of national interest through establishment of a functional national network of existing state and university diagnostic laboratories. The network provides geographically distributed diagnostic support to APHIS' Veterinary Services Unit by training diagnostic personnel to improve service capabilities, expanding standardized rapid and sensitive testing capabilities, improving the nation's Bio-Safety Level 3 capabilities, and assuring quality

standards and proficiency testing, and improving communications to share data. The NAHLN is led by twelve laboratories located at the University of Georgia, Texas A&M University, the University of California at Davis, the University of Wisconsin, Colorado State University, Cornell University (New York), Rollins Laboratory in North Carolina with the Department of Agriculture and Consumer Protection, Louisiana State University, the Florida Diagnostic Laboratory with the Department of Agriculture and Consumer Protection, the University of Arizona, Washington State University, and Iowa State University. Additionally, sixteen laboratories each received a small amount of fiscal year 2006 funding in preparation for future full inclusion into the network. The NAHLN was allocated $4.8 million per year for fiscal years 2006, 2007, and 2008. The network is requesting $5.6 million for fiscal year 2009. Additional funds will bolster the triage capabilities of currently funded network, allow additional states to participate, and increase outreach efforts undertaken in cooperation with the EDEN.

EDEN is a collaborative multi-state effort led by state extension services across the country to improve the delivery of services to citizens affected by disasters. The EDEN serves Extension agents and educators by providing them with access to resources on disaster preparedness, recovery, and mitigation. This enhances their short- and long-term programming efforts. Participants in the network accomplish success by building working relationships with their local and State emergency management networks, providing education programs on disaster preparation and mitigation, and by taking on locally appropriate roles during disaster and recovery efforts. Since these educators are already trained to deal with emergency situations, the Plant and Animal Diagnostic Networks are using EDEN as an outreach arm; particularly to help educate first detectors and to execute inter and intra network projects. During 2007 and 2008, EDEN provided animal biosecurity educational programming that helped to coordinate Federal, State, and local governments; private; and academic disaster resources. The network plans to continue this success in the food biosecurity arena during 2009 and 2010. EDEN received $280,000 in 2006, $346,000 in 2007, and $350,000 in 2008. In 2009, EDEN is budgeting for an allocation of $700,000. The increase will bolster national educational efforts to improve county based agrosecurity planning and agricultural producer disaster resiliency, as well as improving the ability of extension educators to provide science based information in response to post-harvest biosecurity threats.

The Pest Information Platform for Extension and Education (PIPEE) provides timely information to legume growers on the national disease management picture, along with recommendations from local experts. Asian soybean rust of soybeans was the first crop-disease combination addressed by this system and remains its primary focus. In 2008, $2,277,000 for PIPEE was devoted to Asian soybean rust. USDA's Economic Research Service estimated that this system saved United States soybean growers up to $300,000,000 in its initial year of operation through prevention of unnecessary fungicide applications. This platform consists of the user interface at www.sbrusa.net, a network of sentinel plots that provides information to the user

interface, expert commentary, and modeling support. Federal funds support planting and monitoring sentinel plots, incremental costs of Asian soybean rust sample diagnostics, disease modeling, and ongoing content and maintenance of the user interface. These components inform growers of the level of disease pressure they can expect. North Carolina State University serves as the managing hub of the system and provides subcontracts to 37 other soybean producing States. In 2006 and 2007, USDA's Risk Management Agency provided $2,277,000 to the Asian soybean rust portion of this effort.

HATCH ACT

Ms. DeLauro: Please list the allocations of Hatch Act funding per university for fiscal years 2007 and 2008 and estimates for fiscal year 2009 reflecting the changes proposed in the budget.

Response: This information is submitted for the record.

[The information follows:]

	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009
Competitively Awarded Multistate Grants. .	--	--	$91,803,000
Auburn University.	$6,877,000	$4,131,000	881,000
University of Alaska	1,706,000	1,028,000	240,000
American Samoa Community College	1,222,000	753,000	197,000
University of Arizona	3,498,000	2,021,000	346,000
University of Arkansas	5,777,000	3,520,000	737,000
University of California	9,274,000	5,471,000	1,067,000
Colorado State University.	4,816,000	2,764,000	496,000
Connecticut Agricultural Experiment Station . . .	1,282,000	819,000	171,000
University of Connecticut	1,698,000	1,053,000	171,000
University of Delaware	2,207,000	1,337,000	252,000
University of District of Columbia	1,241,000	722,000	174,000
University of Florida	5,396,000	3,173,000	694,000
University of Georgia	8,123,000	5,023,000	1,001,000
University of Guam	1,479,000	890,000	208,000
University of Hawaii	2,202,000	1,335,000	247,000
University of Idaho	3,771,000	2,196,000	442,000
University of Illinois	9,177,000	5,722,000	1,201,000
Purdue University	8,604,000	5,172,000	1,168,000
Iowa State University	10,116,000	6,397,000	1,226,000
Kansas State University	5,993,000	3,541,000	753,000
University of Kentucky	8,647,000	5,206,000	1,177,000
Louisiana State University	5,219,000	3,252,000	656,000
University of Maine	3,292,000	1,912,000	388,000
University of Maryland	4,147,000	2,534,000	489,000
University of Massachusetts	3,571,000	2,260,000	397,000
Michigan State University	8,811,000	5,285,000	1,180,000
College of Micronesia	1,300,000	779,000	217,000
University of Minnesota	8,681,000	5,150,000	1,168,000
Mississippi State University	6,507,000	4,113,000	823,000
University of Missouri	8,453,000	4,935,000	1,160,000
Montana State University	3,830,000	2,195,000	429,000
University of Nebraska	5,890,000	3,478,000	697,000
University of Nevada	2,126,000	1,258,000	240,000
University of New Hampshire	2,556,000	1,502,000	310,000
Rutgers University	4,280,000	2,846,000	399,000
New Mexico State University	2,858,000	1,681,000	351,000
Cornell University	7,774,000	4,938,000	961,000
Geneva Agricultural Experiment Station	1,364,000	812,000	107,000
North Carolina State University	10,624,000	6,643,000	1,401,000
North Dakota State University	4,010,000	2,458,000	480,000
Northern Marianas College	1,176,000	719,000	197,000
Ohio Agricultural Research and Development Center	10,359,000	6,136,000	1,424,000

Oklahoma State University	5,638,000	3,244,000	754,000
Oregon State University	5,283,000	2,991,000	584,000
Pennsylvania State University	10,154,000	6,303,000	1,306,000
University of Puerto Rico	5,190,000	3,979,000	635,000
University of Rhode Island	2,078,000	1,268,000	226,000
Clemson University	5,746,000	3,506,000	745,000
South Dakota State University	4,316,000	2,553,000	529,000
University of Tennessee	8,154,000	4,941,000	1,095,000
Texas A&M University	12,175,000	6,823,000	1,646,000
Utah State University	3,144,000	1,869,000	301,000
University of Vermont	2,524,000	1,504,000	319,000
College of the Virgin Islands	1,433,000	868,000	202,000
Virginia Polytechnic Institute	7,046,000	4,276,000	933,000
Washington State University	5,836,000	3,675,000	620,000
West Virginia University	4,356,000	2,724,000	558,000
University of Wisconsin	8,743,000	5,272,000	1,173,000
University of Wyoming	2,728,000	1,600,000	288,000
Subtotal	304,478,000	184,556,000	130,040,000
Biotechnology Risk Assessment	577,000	571,000	639,000
Current Research Information System	271,000	292,000	271,000
Federal Administration	9,442,000	5,639,000	4,900,000
Small Business Innovation Research	7,829,000	4,754,000	3,358,000
TOTAL	322,597,000	195,812,000	139,208,000

HATCH ACT

Ms. DeLauro: Please provide a table showing the number of personnel per university that this funding supported in each of fiscal years 2007 and 2008.

Response: Recipients of Hatch Act funds have the flexibility to distribute funds among research projects, infrastructure, and personnel as they wish to meet the needs of their university. The distribution of these dollars varies from state to state. The latest data on personnel supported with Hatch funds as reported into the Current Research Information System (CRIS) by recipient is for fiscal year 2007. The recipient institutions do not assemble the data until the close of the fiscal year and then the reporting process requires approximately six months. The fiscal year 2008 data is being collected now but not all institutions have made their reports available yet. Therefore, we do not have complete data for fiscal year 2008 at this point.

The information is submitted for the record.

[The information follows:]

Summary of Personnel Supported with Hatch Act Funds in fiscal Year 2007

University/Recipient	Station	Hatch Funds	Scientist Support	Professional Support	Technical Support	Clerical Support	Total Support
AUBURN UNIVERSITY	ALA	$3,610,806	60.8	101.6	1.0	24.6	188.0
UNIVERSITY OF ALASKA	ALK	1,076,656	9.8	4.3	7.2	1.2	22.5
UNIVERSITY OF ARKANSAS	ARK	5,776,680	100.0	267.7	55.0	55.1	477.8
UNIVERSITY OF ARIZONA	ARZT	2,396,937	127.1	254.9	90.7	41.1	513.8
UNIVERSITY OF CALIFORNIA	CALB	3,615,162	341.2	1,319.5	195.8	377.6	2,234.1
COLORADO STATE UNIVERSITY	COL	4,816,426	45.0	207.6	32.5	39.1	324.2
CONNECTICUT AGRICULTURAL EXPERIMENT STATIONH		806,696	28.8	0.0	23.0	0.0	51.8
UNIVERSITY OF CONNECTICUT	CONS	941,758	7.9	45.0	3.4	14.1	70.4
UNIVERSITY OF THE DISTRICT OF COLUMBIA	DC.	747,484	2.5	1.7	1.3	0.1	5.6
UNIVERSITY OF DELAWARE	DEL	2,206,771	22.8	0.0	0.0	0.0	22.8
UNIVERSITY OF FLORIDA	FLA	2,947,353	94.9	86.1	138.6	87.9	407.5
UNIVERSITY OF GEORGIA	GEO	4,875,941	154.7	147.6	139.1	95.0	536.4
UNIVERSITY OF GUAM UOG STATION	GUA	822,649	11.7	2.6	10.0	0.8	25.1
UNIVERSITY OF HAWAII	HAW	1,464,196	41.5	22.3	4.9	60.4	129.1
UNIVERSITY OF IDAHO	IDA	3,771,007	73.0	49.9	25.1	60.6	208.6
UNIVERSITY OF ILLINOIS	ILLU	5,009,371	124.7	314.4	14.8	56.0	509.9
PURDUE UNIVERSITY	IND	6,754,335	256.8	436.5	41.4	268.4	1,003.1
IOWA STATE UNIVERSITY	IOW	5,921,740	115.4	228.5	8.6	215.6	568.1
KANSAS STATE UNIVERSITY	KAN	3,589,560	140.3	260.8	79.9	51.4	532.4
UNIVERSITY OF KENTUCKY	KY.	5,086,990	83.9	121.2	117.5	106.8	429.4
LOUISIANA STATE UNIVERSITY	LA.B	2,684,921	83.6	90.3	9.9	39.2	223.0
UNIVERSITY OF MASSACHUSETTS	MAS	2,954,067	15.4	1.7	1.8	7.8	26.7
UNIVERSITY OF MARYLAND	MD.	4,146,931	12.4	21.0	14.7	10.9	59.0
UNIVERSITY OF MAINE	ME.	1,723,178	33.9	37.6	21.2	0.2	92.9
MICHIGAN STATE UNIVERSITY	MICL	4,567,995	101.1	233.3	28.4	165.9	528.7
UNIVERSITY OF MINNESOTA	MIN	5,352,826	103.2	198.0	40.9	111.5	453.6
MISSISSIPPI STATE UNIVERSITY	MIS	5,151,500	64.1	133.7	52.6	135.5	385.9
UNIVERSITY OF MISSOURI	MO.	4,322,939	89.4	303.1	44.5	127.1	564.1
MONTANA STATE UNIVERSITY	MONB	1,987,698	48.9	96.1	23.7	19.1	187.8
NORTH CAROLINA STATE UNIVERSITY	NC.	10,624,011	191.4	289.4	332.9	107.3	921.0
NORTH DAKOTA STATE UNIVERSITY	ND.	2,148,762	61.6	140.9	20.8	13.2	236.5
UNIVERSITY OF NEBRASKA	NEB	3,373,453	119.4	234.2	199.2	51.8	604.6
UNIVERSITY OF NEVADA	NEV	1,454,627	7.4	11.4	0.7	4.7	24.2
UNIVERSITY OF NEW HAMPSHIRE	NH.	1,637,616	12.9	5.4	0.0	0.0	18.3
RUTGERS UNIVERSITY	NJ.	2,543,786	70.2	56.3	28.9	0.0	155.4
NEW MEXICO STATE UNIVERSITY	NM.	2,858,497	29.3	23.0	12.0	5.9	70.2
CORNELL UNIVERSITY	NY.C	4,265,309	79.7	74.7	20.6	161.8	336.8
N Y AGRICULTURAL EXPT STATION	NY.G	877,136	43.6	43.7	30.1	93.3	210.7
OHIO STATE UNIVERSITY	OHO	6,019,770	93.3	187.8	79.4	99.0	459.5
OKLAHOMA STATE UNIVERSITY	OKL	3,949,445	68.1	156.2	8.9	2.5	235.7
OREGON STATE UNIVERSITY	ORE	2,536,700	217.0	123.5	50.4	38.6	429.5
PENNSYLVANIA STATE UNIVERSITY	PEN	6,897,915	193.1	254.7	48.7	109.9	606.4
UNIVERSITY OF PUERTO RICO	PR.	4,233,469	34.9	5.8	46.2	241.1	328.0
UNIVERSITY OF RHODE ISLAND	RI.	1,913,160	5.5	2.1	0.0	1.0	8.6
CLEMSON UNIVERSITY	SC.	3,180,120	59.7	36.7	50.4	25.2	172.0
SOUTH DAKOTA STATE UNIVERSITY	SD.	3,788,054	52.5	52.3	21.4	53.2	179.4
UNIVERSITY OF TENNESSEE	TEN	6,981,346	76.8	154.8	35.2	69.7	336.5
TEXAS A&M UNIVERSITY	TEX	6,360,935	233.6	723.2	100.1	172.3	1,229.2
UTAH STATE UNIVERSITY	UTA	1,948,697	31.4	33.3	10.2	3.7	78.6
VIRGINIA POLYTECHNIC INSITTUTE	VA.	5,268,093	95.3	238.9	166.1	38.0	538.3
UNIVERSITY OF THE VIRGIN ISLANDS	VI.	1,066,178	2.2	8.5	13.2	1.8	25.7
UNIVERSITY OF WISCONSIN	WIS	4,417,931	23.2	78.3	6.0	16.9	124.4
WASHINGTON STATE UNIVERSITY	WN.P	4,563,438	92.7	139.5	54.1	127.6	413.9
WEST VIRGINIA UNIVERSITY	WVA	2,630,036	19.7	35.2	1.0	15.2	71.1
UNIVERSITY OF WYOMING	WYO	2,728,023	8.3	6.9	2.3	1.3	18.8
TOTAL		197,397,080	4,317.6	8,103.7	2,566.3	3,628.0	18,615.6

NOTE: Totals may not add due to rounding.

HATCH ACT

Ms. DeLauro: Please describe at least one accomplishment each for fiscal year 2007 and 2008 for each university or entity that received funding under the Hatch Act.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007

Alabama: Auburn University: Researchers are determining the effects of cultural and biological controls of plant-parasitic nematodes on nematode community ecology dynamics. The results will determine if winter grain crops under conventional tillage in southern Alabama reduces nematode infestations levels prior to planting of subsequent crops. Scientists at Auburn University are also evaluating pesticide tolerance and efficacy on high value nursery and landscape crops in order to provide management tools for weed control that reduces production costs. They are exploring both new registrations and expanding of existing labels.

Alaska: University of Alaska: Scientists have provided a means to reduce feeding costs and evaluate cost-benefits of using pasture to supplement reindeer feeding in intensive management situations without compromising meat quality. Results of this research enable reindeer producers to turn out a high-quality product at a reasonable production cost while enhancing existing agricultural production systems and opening new areas to agricultural development in the State of Alaska.

American Samoa: American Samoa Community College: Researchers developed a survey to evaluate overweight children in American Samoa in grades Kindergarten through ninth. Their research found that 40 percent of their students were "overweight", and as a result of this alarming discovery, the researchers presented a well-attended 30-minute talk on childhood obesity to the community and an update of their study was forwarded to partners at the American Samoa Department of Education and American Samoa Dept of Public Health.

Arizona: University of Arizona: Researchers are determining the salinity tolerance of herbaceous and woody species of plants used in southwestern landscapes. This will allow the design of irrigation strategies that minimize the potential damage to salt sensitive plants. Projects at University of Arizona have also demonstrated that nitrogen fertilizer applications can be reduced for irrigated cotton with no loss in yield, and with benefits to the environment from reduced nitrates in the soil. Researchers have conservatively estimated that annual savings would be $15-$25 per acre. Three to four million dollars would be saved by growers if recommendations are adopted statewide for the 200,000 acres of cotton.

Arkansas: University of Arkansas: Researchers developed economical feeding programs for poultry chicks that optimize growth and yields of deboned breast meat while minimizing losses and fecal excretion of nitrogen and phosphorus into the environment. As concern increases about environmental impact of the poultry industry, the results of this research with organic forms of trace minerals will allow producers to feed lower levels of these more highly biologically available minerals and reduce the excretion of excess levels into the environment.

California: University of California: The emergence and spread of transnational diseases such as SARS and mad cow disease are becoming a serious economic and political problem worldwide. The research examines and compares the different ways countries and international organizations perceive and respond to these transboundary diseases. The researcher will accomplish this goal by focusing on linking health, environment and agriculture aspects of global governance in a way that demonstrates the links between all three areas, and provides useful direction for moving forward.

Research has been undertaken to characterize the function of several genes involved in the production of milk fat in transgenic mice with the long-term applied objective of translating this research in a model organism to improve the nutritional composition of ruminant milk fat. Increasing the n-3 polyunsaturated fatty acids and/or altering the triacylglyceride structure of beef and dairy products offers a way to improve the nutritional content of an important component of the American diet within the realm of existing food preferences.

Colorado: Colorado State University: Researchers are studying the effectiveness of pre-emergent herbicides for weed control in container-grown ornamental crops. This work will reduce environmental impact of production container-grown ornamental crops and reduce labor costs associated with manual weeding. Scientists are also studying the genetics and ecology of the introduction of diffuse and spotted knapweeds, two important invasive weeds in western North America. They have determined that long-distance dispersal is a key means by which new infestations are started which suggest that new construction of roads or facilities should be watched closely to suppress new emergence of these weeds before they grow dense and become difficult to eradicate.

Connecticut: University of Connecticut: Scientists examined reservoirs of infectious avian respiratory disease agents in wild birds and poultry and developed improved diagnostic capabilities, including rapid on-farm tests for economically important respiratory diseases. Results of this research include the development of new prevention and control strategies for poultry respiratory diseases.

New Haven Agricultural Experiment Station: Expanding beyond traditional reproductive-control research, researchers have identified a cost-effective method to control reproduction in white-tailed deer, which have significant negative impacts on woody and herbaceous plants and cost the agriculture and nursery industry several million dollars per year in damage caused by these animals. Reducing deer populations by non-lethal dual sex sterilization reduces economic damage to crops and ornamental plantings and decreases potential public health threats from Lyme disease as the result of fewer black-legged ticks.

Delaware: University of Delaware: This project seeks to document land use issues, measure public support for farmland preservation, estimate willingness to pay for preservation and economic costs of farmland loss, and analyze land use conflicts. The primary strategies involve the continued documentation of farmland loss; professional surveys measuring public support for farmland preservation and willingness to pay; and evaluation of the effectiveness of current state policies.

District of Columbia: University of the District of Columbia (UDC): Researchers are developing effective assessment techniques and intervention strategies to improve the intake of fruit, vegetables, and whole grains by older adults. They have field tested a UDC survey and interview protocol

assessing motivation for nutritional choices and intake, and nutritional knowledge.

Florida: University of Florida: Researchers developed new dairy-farm waste-treatment processes that result in fewer nutrients escaping into surface and ground water by examining the economic feasibility of anaerobic digestion on Florida dairy farms and constructing a full-scale chemical nutrient removal system on a commercial dairy farm. Dairy farmers are using results of the research to assess the use of anaerobic digestion on their own farms and they are evaluating chemical nutrient removal as a way to reduce environmental impacts on air and water resources.

Georgia: University of Georgia: The objective of the study is to demonstrate the advantage of electrolyzed water for enhancing the safety and quality of food related applications. The pathogenic bacteria, *Listeria monocytogenes* and *Escherichia Coli* were not detected in electrolyzed water after soaking treatments. In addition, electrolyzed water effectively disinfected the platform of fish retailers in traditional fish markets.

Guam: University of Guam Station: Researchers are developing techniques and management practices that will help to improve the soil quality in the island of Guam. They have determined that using compost can help build good soil structure, and help control erosion that otherwise would wash topsoil into waterways. Scientists are also evaluating ornamental plants in order to select the best material for use on the island. In addition, they are developing techniques necessary to propagate and grow the material locally to reduce the importation of material.

Hawaii: University of Hawaii: Scientists developed recommendations for Hawaii's unique production systems for managing agricultural acreage that is being removed from sugar and pineapple production and being put into pasture and forage production systems. These recommendations are being successfully utilized by producers for efficient, economical, and ecologically sound range and pasture improvements to convert former sugarcane and pineapple lands into sustainable forage production systems, control weeds and invasive species, increase nutritional quality of forages, and develop grazing management practices that improve animal distribution, grazing efficiency, and protect native ecosystems.

Idaho: University of Idaho: The initial research indicated very few traditional foods such as fish, berries, and camus roots, were consumed in the Kalispel tribe's primary diet. This project has directed its efforts at developing a nutrition education program for children in the local grade school that provided students with instruction on good nutrition, the Food Guide Pyramid, nutrition labels, serving sizes, and the importance of fruits and vegetables.

Illinois: University of Illinois: Researchers are conducting studies to characterize co-products and processing streams in the creation of ethanol from corn. They are evaluating production processes to improve co-product composition and value for the production of biofuels and biobased products. In another project, the scientists have surveyed and sampled soybean fields in two counties of Illinois to determine the presence and abundance of western corn rootworm over time. They have advised growers where costly insecticides and rootworm-resistant transgenic corn varieties are not needed.

Indiana: Purdue University: Researchers are identifying molecular determinants of quality and postharvest shelf life of fruit. They have determined, for the first time, that polyamines influence levels of a myriad of metabolite by influencing gene expression. This information will help

develop interventions to improve both the nutritional and shelf life attributes of ripened fruit.

Iowa: Iowa State University: Scientists at Iowa State University developed a centralized database to store results from quantitative trait loci experiments in cattle, chickens, and pigs. The database will link chromosomal DNA information to expression profiles, phenotypes, and functions of specific genes and proteins in relevant models of food animal production. This resource is freely available to the public on the internet and will facilitate the pursuit of identifying causal mutations underlying quantitative trait loci in food animals.

Kansas: Kansas State University: The objective of this program is for the Kansas food processing industry to adopt technologies and intervention strategies that will result in a safer food supply. To date, the researchers have found the use of a lactate formulation in frankfurters results in lower bacterial counts of both natural microflora and inoculated *L. monocytogenes* in frankfurters after prolonged frozen storage.

Kentucky: University of Kentucky: Researchers are investigating the biology and management of insect pests of urban landscapes and turf including grubs, caterpillars, cutworm, borers, scale insects, and Japanese beetles. They have developed a synthetic sex lure that will enable growers to pinpoint the timing of preventative control methods for the maple shoot borer. This will reduce the need for, and costs of, training a new central leader in nursery grown maples. Maples comprise approximately 25 percent of the total landscape sales in Kentucky. In another project, the scientists at the University of Kentucky are working to better understanding plant-fungal interactions and the response of plants to pathogens. The NCR-173 committee is facilitating communication between individuals from several diverse disciplines and fungal systems. Input from the committee allowed researchers to discover that maize stalk rot fungus is not a vascular wilt, as it was widely believed, and that it moves through stalks via fibers.

Louisiana: Louisiana State University: Scientists at Louisiana State University are developing new assisted reproductive technologies to improve reproductive and production efficiency in food animals. They have isolated and cultured stem cell-like cells from porcine subcutaneous fat cells also known as adipocytes. Viable stem cell populations from swine could serve as a model for stem cell research in farm animals and in humans.

Maine: University of Maine: One of the objectives of this research was to focus on the development of rapid sample preparation and enrichment methods followed by rapid detection methods to achieve truly rapid, sensitive, and reliable detection of foodborne pathogens. These researchers have developed a new enrichment protocol that improved traditional enrichment procedures (primary and secondary enrichments) by the use of a Pathatrix system. Rapid, sensitive, and reliable detection of *Listeria monocytogenes* was achieved by following with polymerase chain reaction detection.

Maryland: University of Maryland: Scientists are incorporating resistance to scab into adapted soft red winter wheat germplasm for use in the Mid-Atlantic region. Both seeds and seedlings were screened for resistant markers. Advanced wheat lines and check varieties were screened under field conditions. Independent evaluation determined that Salisbury, MD was one of the best locations in 2006 for scab screening. In another project, the researchers are also determining the bioaccumulation of total mercury and monomethylmercury in earthworms exposed to mercury contaminated soils. The data will be used in a screening level ecological risk assessment using the robin and shrew as a "representative" bird and mammal.

Massachusetts: University of Massachusetts: Gene targeting in bovine somatic cells remains an extremely laborious process. Scientists at the University of Massachusetts are developing strategies to interrupt cellular pathways that inhibit homologous recombination to move genetic polymorphisms that affect production between breeds of cattle. They have generated tools to screen cells to select individuals that support the highest rates of gene targeting.

Michigan: Michigan State University: *Campylobacter jejuni* is a bacterium that causes diarrhea and other serious diseases especially in children and older people. Researchers at Michigan State have developed a new murine model to act as a surrogate for study of *Campylobacter jejuni* virulence in the host. C557BL/6 mice and their IL-10 knockout develop colonization and enteritis, respectively, when they are infected with *Campylobacter jejuni* strain 11168. This work will serve as the basis for virotyping campylobacters to determine which have genetic attributes capable of causing severe disease.

Micronesia: College of Micronesia: Researchers are screening 17 sweet potato varieties for field resistance and susceptibility to scab fungus, an important disease in Palau. They have identified four varieties that show the absence of scab infection on petioles and leaves. These varieties will be planted adjacent to the susceptible variety Hawaiian for further screening. The resultant scab-resistant varieties will be micro-propagated for distribution to farmers. Researchers are also developing food products from fish, coconuts, and bananas which are abundant locally. In 2006, six processed foods were standardized. Twenty participants attended a workshop on Business Opportunities from Product Development of Local Foods, and 68 participants attended Food Technology classes.

Minnesota: University of Minnesota: Scientists at the University of Minnesota developed two short estrous synchronization systems with exceptional pregnancy rates for use in beef cattle. Methods of concentrating the calving season and developing more uniform calf crops enhance the income generated for calves and also increase marketing opportunities of those calves. Altering the calving season through estrous synchronization has the potential to impact 90 percent of beef producers that do not utilize artificial insemination to alter their calving distribution.

Mississippi: Mississippi State University: Scientists at Mississippi State University are defining the molecular signature of ribonucleic acid and proteins in bovine preimplantation embryos. They identified an array of genes playing key molecular, cellular, and biological functions. Their results identified novel genes and confirmed expression of previously known genes during embryonic genome activation in cattle.

Missouri: University of Missouri: Researchers evaluated the effects of lignan compounds in a flaxseed and corn meal blend using variable parameters including, moisture content, and screw speed, on the extrudate's chemical and physical properties. The lignan compounds in the flaxseed meal and corn meal were found to be considerably low and meal concentrations must be modified to favor increased lignan concentration in the extrudate

Montana: Montana State University: Researchers at Montana State University are quantifying the factors that affect postharvest issues such as milling, processing, and marketing of cereals and oilseeds. They have developed methods to analyze all lines of wheat to detect novel gene expression related to postharvest resistance to insect infestation.

Nebraska: University of Nebraska: Research has shown that the use of dried distillers grain (DDG), obtained from ethanol production, can be used

effectively in yearling cattle diets. As ethanol production from corn increases in the Midwest, additional DDG will be available to beef cattle producers. Feeding DDG to yearling cattle on pasture may offer a means to increase carrying capacity of pastures, reduce time in the feedlot and increase profitability of beef operations.

Nevada: University of Nevada, Reno: The objective of the research is to compare meat traits and fatty acid profiles of Wagyu crossbred and Angus beef cattle fed conventional feedlot rations. The genetic component of the research has proven to be quite interesting as there was substantial variation in the conjugated linoleic acid content in the Wagyu high concentrate group. A grass finished group had an even higher conjugated linoleic acid concentration. There is considerable variation in both the omega-3 and the omega-6 fatty acid content.

New Hampshire: University of New Hampshire: Scientists are developing better production systems and overwintering techniques for New England in order to lower production costs and assure better availability of locally grown landscape plants for residential and commercial landscapes. They have determined that the lack of response to phosphorus supports reducing or eliminating the recommendation for phosphorus on landscape plants on all but very low soil test levels. Researchers working on squash project have identified specific types of squash that reach acceptable soluble solid content (a reliable estimate of sugar content) within two weeks after harvest. This germplasm can be used to breed new cultivars having fruit that reach acceptable eating quality by or shortly after harvest.

New Jersey: Rutgers University: Research has shown that the growth of the food pathogen, *Listeria monocytogenes*, can be significantly retarded when the antibiotic, nisin, is used in conjunction with a modified CO_2 atmosphere.

New Mexico: New Mexico State University: The 'Eat Smart, Play Hard' curriculum was investigated in a third grade elementary school class in the Las Cruces Public Schools District, New Mexico. Overall, nutrition knowledge scores increased by 11 percent after the curriculum were taught. After curriculum completion, the number of participants reporting daily exercise increased by 110 percent and eating breakfast increased by 65 percent. No significant differences were seen pre-test to post-test in fruit and vegetable intake as snacks.

New York: New York Agricultural Experiment Station: A broad based interdisciplinary group of researchers are investigating improved techniques and new solutions in viticulture and enology in order to improve the New York wine industry. 255 lots of juices and wines were prepared to characterize the flavors of selected grape varieties and the effect of viticultural and winemaking practices. Three new wine grape varieties were released which offer choices for production of high quality red wines in cool climates with high fungal disease pressure and for production of high quality Muscat type wines in climates with cold winters that prevent cultivation of traditional vinifera Muscat varieties. Also, at New York Agricultural Experiment Station, researchers found that vegetable juice is a favorable substrate for production of probiotic beverages by a variety of lactic starter cultures. Specifically, *Lactobacillus plantarum* C3 was found to be the most suitable lactic acid culture for production of probiotic cabbage juice.

North Carolina: North Carolina State University: Research has shown that it is possible to isolate pure populations of primordial chicken germ cells that can contribute to the germline, which can aid in both modification of the germline and preservation of avian genetic resources.

North Dakota: North Dakota State University: Researchers are developing alternative and conventional control technologies for management of economically important sugarbeet insect pests while investigating key aspects of the sugarbeet root maggot and tarnished plant bug biology. Researchers are also screening potential new crops for consideration in the Northern Great Plains in order to increase cropping diversity. Fourteen crops were screened, nine exhibited agronomic deficiencies, while five produced moderate yields with fewer agronomic concerns.

Northern Marianas: College of Northern Marianas: Research is in progress on the use of high protein commercial feed in the production of grouper in intensive recirculating aquaculture systems. This effort will result in additional agriculture opportunities in the Northern Marianas.

Ohio: Ohio State University: Researchers are exploring the pollinating behavior of two different bee species in male-sterile soybean plots and the bee's foraging effects on seed set. They have determined that leafcutter bees are better pollinators of hybrid seed soybeans than honey bees. Scientists are also developing cost effective, ecologically sound, environmentally friendly and socially acceptable management systems for the production of Ohio ornamentals and vegetables grown in controlled environments. They have identified two chemical compounds that can be helpful in controlling thrips which would give growers more options and also reduce the chances of thrips resistance to appear.

Oklahoma: Oklahoma State University: Research has shown that chickens that have better gait scores produce more meat. The positive associations between behaviors and feed conversion and effective caloric value indicate that good animal husbandry will be rewarded with better efficiency.

Oregon: Oregon State University: Researches are seeking alternative crops and alternative cropping systems to sustain wheat production in Oregon. Over two dozen growers in three counties are experimenting with winter pea, chickpea, mustard, and safflower as alternative crops. Scientists are also examining the agronomic requirements of promising, but poorly understood renewable, domestically grown, alternative crops that may be suitable for high elevation, semi-arid climates such as the Klamath Basin. They evaluated six cultivars and screened 367 accessions of the new warm season annual forage grass teff. The nationwide interest in teff helped a local seed company increase their seed sales from about 5 tons in 2005 to over 8 tones in 2006, enough to plant over 3000 acres.

Pennsylvania: Pennsylvania State University: The research is the first to quantify, in a significant number of samples, the compositional changes that occur in milk as a result of mastitis in sows. The negative effect on growth of baby pigs nursing the inflamed mammary glands was demonstrated, and a compelling case is made that mastitis leads to a significant decrease in profits in the pork industry, including baby pig mortality. They provided a comprehensive description of changes in milk proteins with lactogenesis, and the physiological response to intramammary challenge with endotoxin.

Puerto Rico: University of Puerto Rico, Mayaguez: Bifidobacterium will be added at two levels to a fermented milk-acid whey beverage. Survival and shelf life studies will be carried out, to determine viability of probiotic bacteria in the fermented milk-acid whey beverages, thus to assure nutraceutical properties. Researchers have completed work on a fermented milk-acid whey beverage and found that acid whey could be added up to 25 percent without significantly affecting organoleptical qualities as compared to the control beverage.

Rhode Island: University of Rhode Island: Researchers are collecting and evaluating ornamental plants for potential use in southern New England by determining environmental tolerance, ornamental potential and invasiveness. In particular, efforts to locate and increase germplasm of cold-hardy and salt-tolerant conifers will aid in the struggle to replace existing populations threatened by insect and disease problems. Scientists are also working to bring key invasive species under biological control while advancing the science that underlays the Classical Biological Control process. One example of their work has led to the reduced use of herbicides and increased grazing on pastures previously infested with leaf spurge.

South Carolina: Clemson University: Proper mammary gland development is critical to profitability in domestic livestock through control of growth of offspring and dairy milk production. Researchers are evaluating specific mammary gland cell populations that control development. Experimental methods have been developed and validated for the analysis of tissue samples containing putative mammary stem cell populations. The goal is to identify and manipulate bovine mammary stem cells to improve mammary development and milk yield, and thus profitability for producers of dairy, beef, swine and sheep.

South Dakota: South Dakota State University: Physical and sensory characteristics of yogurt containing partially hydrolyzed whey protein isolates and whey protein isolates were studied. The resulting yogurts were compared among each other and control sample without supplementation. Addition of whey protein isolates and hydrolyzed whey protein isolates to yogurt caused an improvement in almost all the physical characteristics and also has been shown to store well under ideal conditions.

Tennessee: University of Tennessee: Researchers are investigating ways to control plant disease and weeds in greenhouse, nursery, and container plant production with plants containing bioactive natural products. They have discovered that Monarda herbage used as a greenhouse growing media is an effective means of controlling damping-off disease, a major pathogen in tomato transplant production. This provides an organic alternative for pathogen control. Researchers are also facilitating the production of vegetables that have been identified as feasible for production in Tennessee and that increase profits for growers. Studies of blueberry, hydroponic tomato, and mushroom production have been undertaken.

Texas: Texas A & M University: The greatest challenges to sustainable cattle ranching in western Texas are loss of carrying capacity and low profits. Brush encroachment (juniper is the primary problem) is a major factor contributing to this problem. This infestation of rangelands adversely affects livestock production, water yield and quality, and wildlife habitats. The research shows the potential for selectively breeding goats as a biological control agent for juniper. Fecal near infra-red reflectance spectography was used with free grazing goats to select high and low juniper consuming individuals, which are considered an effective and economical alternative brush control option.

Utah: Utah State University: Researchers are examining how shifts from native shrub and perennial grass vegetation to either introduced perennial grass or exotic annual grasses influences nitrogen and carbon cycling in soils which effects productivity of Utah rangelands and has implications. They showed that the invasive annual cheatgrass modifies soil nigtrogen cycles to be substantially different than those associated with crested wheatgrass and sagebrush. Scientists are also investigating nursery production and water use of drought-adapted Intermountain West native woody and herbaceous perennial species for use in low water landscapes. This information can encourage

nursery production in more rural areas of the state that benefits from the economic boost of a nursery business and increases the availability of plants that can be used in water conserving landscapes.

Vermont: University of Vermont: Researchers are studying the quantities of phosphorus lost in dissolved and particulate forms from agricultural fields. Degradation of surface water quality by phosphorus is a major problem in Vermont. This project examines runoff from small plots to better understand phosphorus losses and the effects of selected Best Management Practices. Investigators are also examining the impacts of integrating dairy manure compost into horticultural crop production with a special emphasis on vegetable production. Initial results show that banding compost (overall lower rate of field application) does not significantly reduce yield for sweet corn as compared to blanket application and incorporation.

Virgin Islands: University of the Virgin Islands: The Dorper breed of sheep is becoming popular in the Virgin Islands which currently uses the St. Croix White as the hair sheep of choice. A comparison was made between a cross of Dorper x St. Croix White versus St. Croix White managed under extensive conditions. Each breed type had advantages with the result being that the crossbred ewes could be used in an accelerated (lambing at 8 month intervals) lambing system under tropical conditions.

Virginia: Virginia Polytechnic Institute and State University: The researcher's objective was to determine if lutein, functioning as an antioxidant, was able to reduce formation of volatile off-flavors from photo-oxidation in a functional citrus beverage. Lutein fortification helped control lipid oxidation, as demonstrated by a lower concentration of hexanal in the lutein-fortified samples exposed to light.

Washington: Washington State University: Researchers are examining human responses, such as stress, alertness, and reaction time, to plants and plant components, including color and form. They have published the results of a study that showed how people respond to different tree forms. There are potential benefits for human health and well-being, through a greater understanding of the numerous effects of plants on people and a greater use of plants in our surroundings. Researchers are also examining the current condition of local food system viability and the potential for enhancing farm sustainability and consumer choice. They are working in three counties. In King County, groups have developed as a result of an initial forum. A local food system coalition formed in Chelan County after a forum present by the researchers. In Skagit County, a regional collaborative of farmers has continued to expand a farm-to-school distribution program involving about 30 farmers.

West Virginia: West Virginia University: Pasture based livestock production systems were characterized as having low margins of returns. This research evaluated options of lowering production costs and increasing product value. Over-seed legumes were considered as an alternative to nitrogen fertilization. They evaluated supplementation at 1.25 percent of body weight of pasture finished beef. Researchers concluded that there was little statistical difference in overall quality of carcasses from both treatments and that pasture finished beef will allow a greater economic return to producers, and better utilize resources and reduce production costs.

Wisconsin: University of Wisconsin: Their current research is exploring techniques to drive quercetin into the membrane fraction of muscle foods and increase antioxidant efficacy, thereby limiting lipid oxidation. So far, the research has found that increasing the amount of quercetin in the cranberry

press cake increases the ability of these extracts to inhibit lipid oxidation in mechanically separated turkeys.

Wyoming: University of Wyoming: Researchers are studying ways to enhance laboratory diagnosis of unusual animal disease events so that immediate field investigation can be conducted and samples collected. They have demonstrated that sensitivity and specificity of two laboratory methods to diagnose Q fever are comparable which reduces the risk of infection to laboratory personnel. In addition, the researchers have presented the first peer-reviewed documentation that plague in deer may present as blindness. Researchers are also evaluating the impacts of the changing structure of the meat industry. They have found that more information does not necessarily improve market performance in private negotiation trading. Increased market concentration alone may not result in the use of market power by firms purchasing agricultural commodities/products.

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Alabama: Auburn University: Researchers are developing Raman and Fluorescence Biosensing technology for the detection of foodborne pathogens such as *Salmonella spp*. Successful implementation of the developed technology could rapidly and unambiguously detect/identify food-borne bacterial pathogens. The food industry in the state of Alabama has been greatly benefited. A statewide warning system through the rapid detection of bio-pathogens is being established.

Alaska: University of Alaska: Reindeer producers are interested in marketing this high quality lean meat which has a ready market. Farmed reindeer can't survive on pasture grass alone and a high quality feed was needed to keep deer in enclosures during caribou herd migrations and to increase profitability. The biomass production and nutritional profile of two pasture grasses were evaluated. Researchers at the University of Alaska found that Kentucky bluegrass has a better nutritional profile and is palatable to reindeer. However, smooth bromegrass may be more profitable since it can be used for pasture and hay production. They previously determined that use of local feed can save as much as 50% in the cost of reindeer rations when the deer are ranched.

American Samoa: American Samoa Community College: Because of research at American Samoa Community College, taro and banana producers now have greater diversity of disease-resistant varieties to choose from. Researchers conducted laboratory and field trial tests on 34 taro varieties and 21 banana varieties. Taste tests have also been conducted to identify the better tasting varieties. Thirty taro varietes performed well against taro leaf blight disease. Of these, 17 varieties were eventually accepted by local taro producers. Of the 21 banana varieties tested for resistance/tolerance to banana leaf streak disease, 3 varieties were popular with producers.

Arizona: University of Arizona: Researchers are evaluating potential new crops for arid and semiarid regions for biomass ethanol production. They found the highest potential ethanol-yielding varieties of sweet sorghum. Of the six lines planted they found that the M81E variety had perhaps the best combination of potential production characteristics.

Arkansas: University of Arkansas: Current research is establishing the quantity, quality, and value of ecosystem services such as water quality, wildlife habitat/populations, and carbon sequestration. Research is taking place in the application of fertilizers and herbicides to enhance productivity while protecting water and soil quality monitors and improves application methods. Biofuel feedstock production from in-forest, agriculture, and urban forest residues has been determined. New guidelines for herbicide and fertilization application have been developed in Arkansas. Markets for carbon sequestration for working forests in Arkansas have been established and landowners are receiving payments. Biomass feedstock estimates have determined that forest residues can supply biomass in sufficient amounts to displace between 20-30 percent of Arkansas' gasoline consumption. Urban-wildland interface issues have been identified and are being addressed by university-driven public policy discussions. Dynamics of habitat and wildlife populations continue to result in improved management guidelines resulting in sustained biological diversity and increased recreational opportunities throughout the state.

California: University of California (UC): The olive fruit fly is an exotic pest in California that directly infests the fruit limiting its value for both processed fruit and for olive oil. UC investigators have conducted research programs addressing phenology models, varietal susceptibility, monitoring, pest dynamics, integrated control, classical biological control, non-target impacts of bait sprays, sterile insect technique, spray materials evaluation and mass trapping. Researchers have found mass trapping can be used to reduce overall fly numbers, which will likely reduce the number of spray treatments, making control more efficient and less expensive. In small-scale commercial orchards that are somewhat isolated, growers can use kaolin clay, or spinosad bait sprays or various combinations. Any of the treatment methods combined with early harvest and prompt processing to avoid fruit breakdown can easily achieve adequate control with minimal cost or environmental contamination, and still produce excellent quality olive oil.

Colorado: Colorado State University: Scientists conducted research addressing current red meat safety, quality, and marketing issues. Efforts to restore beef export trade continued following the 2003 detection of Bovine Spongiform Encephalopathy in the U.S. The best mechanisms by which meat processors may better control prevalence of *Listeria monocytogenes* on ready-to-eat meats and *E. coli O157:H7* on non-intact beef products was determined; such technologies are rapidly being implemented by industry. We also continued efforts to better characterize cattle that do, versus cattle that do not, persistently shed *E. coli O157:H7* using molecular and cell-culture techniques. These research efforts have resulted in adoption and implementation of beef carcass instrument grading by USDA and industry by the end 2008, improved marketing opportunities for non-conforming beef carcasses, greater trade access for U.S. beef, reduced distortion in policies associated with control of BSE, and safer meat products.

Connecticut: University of Connecticut: Dietary intervention studies are actively underway that are addressing the extent to which specific antioxidants or antioxidant-rich foods, such as vitamin E or green tea extract, can regulate the deleterious processes that contribute towards the development of fatty liver disease. Specifically, the scope of these studies are targeted at using these dietary antioxidants to: 1) reduce the accumulation of fat in the liver and define the regulatory activities for this favorable outcome, 2) decrease the magnitude of obesity-induced liver injury which could contribute to the unfavorable enhancement in liver inflammation, and 3) attenuate free radical-mediated damage to the liver which would otherwise exacerbate the severity of fatty liver disease.

Findings suggest that antioxidant interventions can be targeted successfully to a fatty liver which, in turn, may be protective against free radical mediated damage that could otherwise contribute to the development of obesity-induced fatty liver disease. Collectively, the outcomes of these studies may potentially result in the development of novel dietary strategies that could complement other lifestyle factors known to contribute to the development of this tragic and debilitating disease that currently has no well-established therapeutic options.

New Haven Agricultural Experiment Station: Homeowners, including farmers, rely on New Haven Agricultural Experiment Station diagnostic services to solve plant pest problems. Diagnoses of insect and plant disease problems were performed on 9,738 samples submitted by stakeholders in person or by mail. Results and suggestions for control were forwarded back to the stakeholders along with written information on the pest. In about 30% of the inquiries, stakeholders visited the diagnostic laboratories to see a staff member for advice. Diagnostic test results provided immediate new knowledge on what was causing the decline or premature death of plants. Treatments of pesticides were applied as remedies. During these activities, an extensive powdery mildew problem of pumpkins was discovered. Growers requested biological controls and other options to reduce pesticide use and costs. In field and laboratory experiments, a 50% by volume aqueous solution of milk-based foliar sprays was used to reduce crop damage. There was a savings of about $68.00 per acre in fungicide costs. Application of this method statewide on 1,559 acres of pumpkins would save growers about $106,000. These results have application to powdery mildew infections of other plants as well. Expected long-term benefits include less human exposure to pesticides, thereby reducing health risks, and a cleaner environment.

Delaware: University of Delaware: Research evaluated breeding crosses involving exotic and elite Corn Belt germplasm for their utility for maize improvement in the U.S. Emphasis was placed on evaluation and breeding for resistance to important maize pathogens including gray leaf spot, anthracnose stalk rot, and the European corn borer. The University of Delaware Corn Breeding Program utilizes a broad diversity of maize germplasm available through USDA and other sources to develop inbred lines with improved agronomic performance, enhanced disease and pest resistance, and improved grain quality traits. High yielding lines derived were identified through multiple year testing and were evaluated for agronomic and disease performance. A number of doubled haploid lines generated from three breeding crosses have shown a higher yield/moisture performance in hybrids compared to hybrids developed through conventional breeding methods. Mass selection was effective in developing hybrids with lower grain moisture, a trait important to corn growers because of reduced drying costs.

District of Columbia: University of the District of Columbia: Researchers are identifying genes to be associated with diabetes. An innovative fuzzy-theory-based methodology, Multi-dimensional Cluster Misclassification test was developed to identify gene pathways that play significant roles in diabetes. Researchers conducted differential analysis with this new methodology on published gene microarray data and pathways. The experimental results proved that the test works effectively and can be successfully used in pathway level differential analysis of gene expression datasets. This approach also provides a new solution to the general problem of measuring the difference between two groups of data, which is one of the most essential problems in most areas of research.

Florida: University of Florida: Scientists have developed new technologies to reduce phosphorus runoff from phosphate mining in Florida. These filter strip technologies are included in new mine reclamation regulations.

University of Florida scientists and extension faculty, working with growers in the Everglades Agriculture Area to balance crop needs with the needs of the fragile ecosystem downstream, developed practices that reduced phosphorus runoff into the Everglades by 70 percent. Also, in response to a steady decline in one of the nation's largest freshwater lakes, researchers have partnered with state and federal agencies to protect Lake Okeechobee. Researchers discovered ways to reduce the phosphorus entering the lake, reducing the cost of residue removal, estimated at $3,213 per acre.

Georgia: University of Georgia: Research was conducted by the University of Georgia across the southern states and Kansas to innovate and improve insect and mite control strategies in pecan orchards by integration of cultural, chemical and biological controls. New insect and mite control techniques for pecan growers that are applicable to native, seedling and improved pecan culture in the southern U.S. were tested. Preliminary results of sampling improve understanding of the movement of ladybeetles from the ground to the tree in commercial orchards where aphids are controlled with predators. The lacewing trapping experiments may lead to a method for attracting golden eye lacewing in the orchard to improve biological control of aphids. Attraction to and retention of lacewings in pecan orchards may be possible before aphid populations reach the economic injury level.

Guam: University of Guam (UOG) Agricultural Experiment Station: An integrated approach was designed to evaluate the effect of conservation tillage, crop rotation with leguminous plant for organic matter build up, and residue management for soil re-habilitation and restoration of the badlands in Southern Guam. In a companion study they used composted organic waste not only as organic amendments for enhancement and maintenance of soil quality and productivity, but also for reducing the erodability of these degraded soils. Considering that, this is a long term project and the effect of various conservation tillage treatment specially with no-till management will become evident only after at least 5 years of continuous no-till management, researchers anticipate that the results of these two companion studies will not only provide a good database for assessing the extent of soil erosion, but the data will provide information on effectiveness of the restoration techniques being applied for soil conservation on these and other similar soil conditions in the Western Pacific islands. The educational impact of these projects already have proven to be of a great value since some farmers started to consider rotating their corn crop with sunnhemp as green manure and cover crop during the rainy season. Also some farmers have started using compost as soil amendments and are pleased with the results. The educational impact of this investigation will prove to be of great value not only to farmers but also to ranchers and the other members of the communities of the pacific islanders whom are concerned about the degradation of soils and the natural resources of these islands.

Hawaii: University of Hawaii: In support of the increased plantings and production of specialty tropical fruit crops such as litchi and rambutan, researchers and extension workers are cataloging the insect and disease problems that are being found on the crop and educating growers. Work is progressing on nutrient requirements of these crops and relating to flowering and production. Rambutan is native to Southeast Asia, where it fruits only once a year. Research has shown that alternating wet and dry conditions trigger flowering. Rambutan in Hawaii, therefore, fruits two and even three times a year depending on rainfall. This knowledge helps growers plan for their field and marketing operations.

Idaho: University of Idaho: The bean industry in the United States faces challenges in production as well as in competition in international markets. To remain competitive, new varieties with improved qualities are needed. The

University of Idaho has an internationally recognized bean breeding program located at the Kimberly Research and Extension Center. The bean breeding program focused on variety testing of pinto and great northern varieties as requested by the Idaho Bean Commission. Varieties were screened and tested for agronomic properties, disease resistance and seed quality. Two new high quality slow darkening pinto cultivars, namely Kimberly and Shoshone, and two high quality great northern cultivars, namely Hungerford and Sawtooth, were released for production in Idaho and other western states. In addition to resistance to bean common mosaic virus and rust, the two pinto cultivars are the first slow darkening bean ever developed in the USA. Similarly, the two great northern cultivars possess excellent seed qualities unmatched thus far by any private and public cultivars in that market class.

Illinois: University of Illinois: Research determined responses of adipose, or fat, tissues and liver to overfeeding versus slight underfeeding and feeding to requirements during late pregnancy that may be associated with increased incidence of disease. Such knowledge allows better feeding recommendations to farmers to improve animal well-being and profitability of dairy farming. Research findings demonstrate that allowing cows to consume an excess of dietary energy during the 6-8 week period of late gestation before calving (the dry period) leads to inflammatory responses in liver and adipose tissue that may contribute to disease around calving. These inflammatory changes are prevented by feeding a lower-energy high-bulk diet rich in straw or other slowly digestible roughages. The applied aspects of this project have led to adoption of these practices in dairy producers and their advisors. The dietary changes are being widely implemented around the United States and worldwide. By lessening disease around and after calving, dairy producer incomes have been positively affected. Well-being of the cows has also been improved.

Indiana: Purdue University: Osteoporosis is a disease of increased risk of fracture due to low bone mineral density that is estimated to cost billions each year to treat and convalesce patients. Purdue and collaborating researchers have demonstrated a new paradigm for reducing bone diseases, associated with growth, aging and osteoporosis, where diet and phytochemicals can be used to improve muscle strength and bone health. Studies with animal models show that nutrients and phytochemicals from plant-based foods can modulate metabolism in muscle to improve bone formation and lessen muscle and bone loss in disease.

Iowa: Iowa State University: Research has found the addition of small amounts of forage, or chopped hay, to textured calf starters enhances digestibility of the diet by stabilizing rumen environment, as indicated by rumen pH. In the immediate post-weaning period, the addition of forage at low levels is especially beneficial to the rumen environment. The findings from these studies have increased the knowledge base for scientists, veterinarians, producers and other professionals in the areas of delivery techniques, birth stress, improving passive immunity, and calf nutrition specifically as related to rumen development. As a result, several key management practices have been altered on many operations, reducing losses associated with abnormal deliveries and shortening the time needed for milk feeding, thus reducing costs associated with calf rearing.

Kansas: Kansas State University: As a result of research, two new soybean lines were released. At the same time, Kansas Agricultural Experiment Station (KAES) varieties and germplasm has been used by many crop breeders to develop new varieties for the producers in Kansas and other states. The wheat breeding program is adding focus on developing resistance to abiotic stresses. Disease resistance will remain an emphasis. The sorghum breeding program is in the process of commercializing herbicide-resistant varieties

that have been released to seed companies. The majority of the wheat grown in Kansas is either Kansas varieties or has used Kansas varieties or germplasm in the development of new varieties. The sorghum breeders, that develop sorghum hybrids for use in Kansas, use Kansas germplasm to enhance the pest resistance.The majority of the wheat grown in Kansas is either KAES varieties or has used Kansas varieties or germplasm in the development of new varieties. The sorghum breeders, that develop sorghum hybrids for use in Kansas, use Kansas germplasm to enhance the pest resistance. One Kansas State University wheat variety release, Overly, was planted on more acres than any other variety available in the state this year. Herbicide-resistant sorghum genetic materials were released to seed companies in 2007 and commercially available varieties may be available to growers as early as 2011.

Kentucky: University of Kentucky: Maple shoot borer is a major pest of nursery-grown maples which comprise about 30 percent of total wholesale landscape plant sales in Kentucky or nearly $5 million annually. Research confirmed that infestation occurs in April soon after planting. A synthetic sex attractant was developed from analysis of secretions from virgin female borers. That lure was used in traps to reveal the borer's flight period which will enable growers to pinpoint the timing of preventive control measures. Left unmanaged, maple shoot borer typically kills the terminal leader of 30 to 40 percent of the trees requiring costly retraining and loss in tree value. A protocol was developed whereby nursery producers can obtain 99 percent control with a single timed application. Research also greatly extended the window for management providing growers flexibility during the busy spring planting season. Research on pest-resistant maples will reduce production costs and chemical inputs while supporting recommendations regarding the best-adapted trees to use for Kentucky landscapes.

Louisiana: Louisiana State University: Research has completed the carbon assessment on Louisiana's forests, helping resource managers in developing long-term carbon sequestration strategies. Hurricane Katrina was found to damage 60 percent of the total forest land in the Lower Pearl River Valley. Beyond assessment of Katrina's damage, this study elucidates the usefulness of remote sensing in the assessment of large-scale risks of hurricanes to coastal forests. Several native species of plants have shown bioactivity. For example, sweetgum fruit is active against human prostate cancer, and Louisiana coastal plants sea rocket and American beauty bush both have anti-tumor activities. Two Louisiana-focused forest-sector websites were developed that promote economic development. TOPSAW, which stands for training and optimization for sawing logs, is a real-time sawing optimization software developed in the school. Also research has generated industrial interest in wood plastic composites, leading to a new manufacturing plant in Louisiana.

Maine: University of Maine: Honeycrisp is a new variety of apple that is highly profitable for Maine apple growers selling at a wholesale price of $35 per bushel, $10 to $15 more than for most other varieties. It also has great consumer appeal being highly prized by people who eat apples. However, it is prone to a storage disorder, soft scald, which makes it unmarketable and can cause economic losses for apple growers. University of Maine researchers, in cooperation with researchers in other states, tested the technique of delayed cooling to prevent soft scald development in Honeycrisp apples. They found that delayed cooling or holding fruit at temperatures in the range between 50 to 70 degrees Fahrenheit for a period of up to ten days prevents soft scald but can be detrimental to fruit quality. Typically, a minimum of seven days is needed to effectively prevent soft scald, but in some cases only two days was sufficient. Last year an estimated 5000 bushels were stored for wholesale marketing in fall and winter. Maine apple growers were informed about the technique through a newsletter, at grower meetings and during

on-site visits to farms. Most growers have adopted this technique and prevented the loss of apples or $175,000 in a year when soft scald was severe. Production of this variety will continue to increase in the next several years.

Maryland: University of Maryland: Researchers are studying Lyme disease, which is the most prevalent tick-borne disease in the United States and is a public health threat worldwide. The infectious agent is a microbe that cycles in nature between ticks and a mammalian host, usually wild rodent. A wide range of veterinary animals and humans became the incidental host, when infected ticks bite and transmit the pathogen, which results in a multi-system disorder including arthritis, carditis and neurological disorders. This research seeks to understand the molecular basis for the induction of Lyme arthritis in an animal model of Lyme disease, and will add to the understanding of pathogenesis of Lyme arthritis and contribute towards development of preventive measures against joint inflammation.

Massachusetts: University of Massachusetts: Research focused on the effect of flooding practices on carbohydrate status and yield in cranberry vines. Because of recommendations by this research growers are moving harvest later into the fall, holding floods for shorter times and monitoring temperature in flood waters. As a result, detrimental effects are minimized and crop potential is maximized without change in material inputs to the bogs.

Michigan: Michigan State University: Research was undertaken to: determine the resource value of various organic and inorganic waste residuals as amendments to cropland; investigate changes in chemical and physical properties of soils receiving waste residual applications and evaluate potential negative impacts of waste constituents on the soil-plant system and/or water resources; and update existing and develop new written materials on the utilization of animal manure and other organic residuals on agricultural soils and on plant nutrient management/soil fertility. Based on research findings, a computer program was developed and released to assist crop and livestock producers in accomplishing fertilizer and manure nutrient management, as well as pesticide application recordkeeping and assisting with development of nutrient management plans.

Micronesia: College of Micronesia: Research has established on farm trials for staple food crop production, including new varieties of taro and banana that were imported and mass propagated by way of tissue culture. The distribution of planting materials continued to be made to farmers in the communities. Other demonstrations were established for the dry litter waste management and pig feed projects. And backyard gardens for the imported sweet potato varieties continued in many of the low-lying coral atolls for food security purposes with the assistance of agriculture staff. There is a decreasing dependent of imported food products as farmers, students and government and private sector officials established new farms and started relying on their own produce. Several new farmers markets have sprung up and farmers now have found places where they can sale their surplus produces.

Minnesota: University of Minnesota: Research has focused on the common carp, an extremely damaging invasive fish previously thought to be uncontrollable. Research has determined however, that this fish can be controlled. Research showed that this species commonly experiences recruitment failure, its young fail to survive to adulthood, after severe winters, suggesting that carnivorous game fish might be used to control this species. Researchers have also found that the carp can be trained to swim to specific regions of the lake using chemical attractants where they might be netted. Researchers have found clear evidence that the species uses species-specific pheromones that can be isolated and concentrated. All of this progress has stimulated

new applied research and public interest. In particular, the Mississippi River Basin chapter of the Aquatic Nuisance Species Task Force is instituting policy changes as a result of the dissemination of this research.

Mississippi: Mississippi State University: Research utilizing and comparing commercial strains of broilers used in Mississippi was conducted with the emphasis of better understanding growth rate, feed conversion, and carcass yields to diets with increased amino acid density. Least cost formulated diets were formulated using digestible amino acids at levels near industry norms and then increased. In addition to measuring growth performance and yields, economic models were assessed to measure monetary income for commercial operations. Increasing amino acid regimes increased broiler live performance and carcass yields. Much of this response was due to the fact that modern commercial strains are consuming less and yielding more, and therefore feeding programs need to be adjusted. Increasing amino acid minimums 10 percent across all diets fed resulted in a 0.50 percent increase in breast meat yield. This resulted in an income over feed costs increase of $0.051 per bird. However, increasing amino acids only to 35 days of age increased income over feed costs $0.052 per bird. These results point to the importance of feeding modern commercial broilers levels of amino acids needed to overcome reduced feed intake, especially early in life

Missouri: University of Missouri: Plants are exposed to a wide variety of pathogens including viruses, bacteria, fungi, nematodes and protozoa but have evolved multiple defense mechanisms to restrict pathogen growth. Researchers focus on characterizing resistant genes and manipulating plant disease resistance signaling pathways in order to engineer durable pathogen resistance in crop plants. Gene-for-gene disease resistance is a highly specific plant defense mechanism in which a particular plant resistance gene governs the resistance response against only those pathogen strains expressing a corresponding avirulence gene. Scientists use an Arabidopsis resistance gene called RPS4 to understand the protein action and identify additional proteins that trigger a plant defense response. Researchers have ascertained the biological relevance of splice variants of RPS4 encoding truncated RPS4 proteins and identified a second resistance gene related to RPS4. Understanding the way plant resistance proteins work can be used to improve engineering of durable innate pathogen resistance in crop plants, with significant benefits to sustainable agricultural production and the environment.

Montana: Montana State University: The development and distribution of improved barley varieties is a priority of the barley breeding program. Montana State University Agricultural Experiment Station recently released four new feed, forage, and malt barley varieties for Montana's production environments that will provide added-value to growers throughout the Northern Plains. The replacement of older barley varieties with new ones --Haxby, Hays, Charles, Craft, and Eslick-- should generate a yield improvement of about 15 percent with a net of about $45 million per year in added revenue to dryland barley growers; three malting barley varieties --Craft, Geraldine, and Hockett-- should result in about $80 million in added revenue.

Nebraska: University of Nebraska: Research on genetic and functional genomic approaches to improve production and quality of pork has produced a line selected for reproduction, known in the industry as the Nebraska Index Line, which was released to the industry. It is a significant component of the maternal line products of Monsanto Choice Genetics and Newsham Genetics, two major U.S. swine breeding companies, and is used widely in crossbreeding programs of certain extensive production systems. Genetic parameters from this project provide inputs to breeding companies and producers worldwide for development of applied breeding programs in which reproduction is one of the

selection objectives. The reearch also provides an economic basis for improved reproductive traits including litter size, ovulation rate, embryonic survival, age at puberty, rebreeding performance, and sow longevity.

Nevada: University of Nevada, Reno: Researchers have recently identified 16 single nucleotide polymorphisms (SNPs), changes in DNA's building blocks, from the DAZL gene in cattle. For the very first time, researchers have associated DAZL SNPs as well as their haplotypes with bull fertility traits and demonstrated that the SNPs are linked with the level of fertility. Researchers have indicated that this is an excellent means of selecting animals for high levels of fertility. The study has now turned towards developing a diagnostic kit that allows producers to cull bull at an early age -- that is, as early as newborn. This, in turn, will significantly reduce breeding costs, as bulls with sub-fertility or infertility are usually not identified until the age when they are expected to breed --18 to 24 months. This work also paves the way to find SNPs from other farm animals, such as pig, horse, sheep, etc., for male fertility selection.

New Hampshire: University of New Hampshire: Research seeks to enhance knowledge about lobsters, improve management, and educate the community. Using Geographic Information Systems, electronic tagging, scuba surveys and underwater video photography, the behavior, habitat use and home range of American lobsters were studied. Findings were presented via a variety of methods including publication, website, television appearance, scientific meetings, radio interviews, newspapers and museum exhibits. Prior to the study, the home range and behavior of lobsters were poorly understood. Scientist, resource managers and lobsterman now have a much better understanding what triggers on shore and off shore movements of lobsters and the behavior of lobsters in lobster traps, and changes in home range. The results have altered people's views of lobster behavior and provided a window into the behavior of lobsters in their natural habitat. The data is currently being used when marine fisheries managers debate ways to assess the health of the stocks and the lobster industry.

New Jersey: Rutgers University: Research has assisted in the development and commercialization of the herbicide flumioxazon -Broadstar and SureGuard-- for use in field and container grown ornamentals. Comprehensive field and container studies were conducted over seven years and recommendations delivered to the New Jersey ornamental production industry. This research has demonstrated that flumioxazon provides equal and in many cases superior weed control of broadleaf weeds then currently used products. In field ornamental production, the price for flumioxazon will average approximately $75 per treated acre, while currently used broadleaf weed herbicides average approximately $100 per treated acre. Additionally, The effective use rate of flumioxazon is approximately 20-25 percent of existing herbicides resulting in a significant decrease in the total pounds of active herbicide used in field and container ornamental production.

New Mexico: New Mexico State University: Because of the increasing pressure to conserve water in this country, it is imperative that efforts be made to determine the most efficient method of irrigation and available and cost effective soil amendments to produce high quality turfgrass with as little irrigation water consumption as possible. Researchers have found use of subsurface drip technology to be efficient and effective. Subsurface drip technology in combination with saline water has been used to irrigate two multi-purpose fields --used for overflow parking during big events at the Aggie Memorial Stadium and for intramural soccer-- on New Mexico State University's campus. Master Gardeners have reported that homeowners across the state have expressed interest in applying this water conservation technology in their home lawn. Three athletic fields at the Rio Rancho high

school are currently under construction and will receive subsurface irrigation technology.

New York: Cornell University: A project found that queen bees' propensity to mate with multiple males produces colonies with genetic diversity that improve resistance to microbial diseases in their colonies. These colonies can then more effectively survive the winter and produce swarms the following season because of improved fitness. This investigation also has practical importance, for it demonstrates to breeders of queen bees the tremendous need to provide virgin queens with a large and genetically diverse population of drones for mating. Queens that cannot find numerous and diverse mates will produce colonies vulnerable to microbial diseases.

New York Agricultural Experiment Station: Scientists developed and tested a new apple integrated fruit production protocol for New York which details eco-friendly pest, disease, and weed management; fertilization and fruit thinning; best spray, packing and storage practices to assure apple buyers that New York apples are safe and are produced in an environmentally sound manner. It will help New York apple growers and marketers maintain access to European markets that require an integrated fruit production system. This protocol can be used by growers and marketers to satisfy foreign buyers that New York apples are safe and are grown in an environmentally sound manner. The protocol will also help the New York apple industry become the premier supplier of high quality apples to domestic and foreign customers in a manner that is in harmony with the environment.

North Carolina: North Carolina State University: Research has been conducted which focuses on optimum fertilizer timing, nutrient management planning, and the use of decision support systems to determine the need for and target fertilizer applications. On-farm tests and grower meetings, along with printed and web-based materials have been used to disseminate this information to growers. A corn fertilization decision support model was shown to reduce fertilizer prices compared to standard grower practices, due to lower phosphorus, and frequently lower nitrogen. In spite of increased costs of soil test analysis net returns where the model was used were greater than the farmers' standard fertilization practices. Use of best management practices was shown to reduce nitrogen runoff by about 25 percent. If growers in the Albemarle-Pamlico Estuarine System reduced nitrogen use by 10 percent with best management practices, farmers would save about 6.6 million pounds of nitrogen and $3.3 million.

North Dakota: North Dakota State University: The Experiment Station released the new varieties Faller Wheat, Lariat and Stampede pinto beans, Sheyenne non-transgenic soybean, RG7008RR soybean, and Pinnacle two-row barley. The estimated dollar value to producers, seedsmen, grain merchandisers, processors, crop consultants, and plant breeders in North Dakota on these new varieties is $290,600,000 for 2007. Moreover, because of best management practiced developed, North Dakota wheat and barley producers reduced economic losses by $40,000,000 through use of better varieties of wheat and through use of fungicides.

Northern Marianas: College of Northern Marianas: Researchers have been developing control methods for Cuban Slug --Veronicella cubensis. Tests were conducted with Bug-Getta, Metarex, Deadline MP, Durham Granules, Slug Fest, Orcal Bait, Sluggo-Fe to see which molluscicides really did the best job. Any of those that gave high mortality rates, greater than 80 percent mortality in the field trials, especially at the 48 hour time interval, would be the best to suggest using in recommendations to land owners. A preliminary report has been sent to extension agents that should be able to be incorporated into an extension document.

Ohio: Ohio State University: Scientists have conducted research into the effects of three types of vermicomposts on the growth and yields of peppers, strawberries and petunias. They have accumulated further evidence that interactions between earthworms and microorganisms in the production of vermicomposts produced plant growth hormones, which become adsorbed on to humates, and released into soil relatively slowly so as to continuously promote plant growth. The continued application of solid cattle, paper, and food waste vermicomposts, in the main field experiment, continued to increase the rates of growth, flowering and yields of the three experimental field crops: strawberries, peppers and petunias. The significantly increased yields have been achieved at relatively low costs and with considerable increases in potential economic returns to the grower. Overall, over the period that the field experiment has been running there were very significant and consistent increases in flowering and yields of the crops in response to all three types of low vermicomposts at both of the low application rates used. In regard to the incidence of plant diseases and pest arthropods in response to vermicomposts on the three crops, data illustrated significant suppression of bacterial wilt, early blight, powdery mildew and verticillium wilt by all of the vermicomposts, compared to that of crops in plots receiving only inorganic fertilizers. There was also significant suppression of attacks by caterpillars, red spider mites and aphids, in response to the vermicomposts, compared with the attacks on plants receiving only inorganic fertilizers. The suppression of aphids by vermicomposts has positive implications for suppression of viruses which they transmit.

Oklahoma: Oklahoma State University: Researchers at Oklahoma State University developed "Green Seeker" hardware and software for measuring plant health and based on measurements the system either automatically make application of fertilizer to correct deficiencies or provide the information to a human applicator to make manual application. Green Seeker systems for use on tractors or hand carried have been developed for use in large or small production field situations. The systems are now available through the private market. Green Seeker sensors were used in 586 fields to take readings on plant health and measures used to make decisions as to fertilizer application and rate. Producers using the system were found to apply approximately 25 percent less nitrogen at a savings of approximately $15 per acre.

Oregon: Oregon State University: Marine resources subprogram researchers have demonstrated that there is growing interest in the potential application of market-based limited access privilege programs and other sustainable programs to a broader set of fishery interests, including fishery associations, fishing communities and the recreational sector. Analysis of policy recommendations for fishery management and of the science supporting marine protected areas is providing information for more effective fishery management decisions. Research into the design of economic tools for ecosystem-based fishery management is promoting fishery management more compatible with the economic incentives of fishery participants. Commercial oyster hatcheries have used pacific oyster broodstock, developed by the aquaculture subprogram, to produce large numbers of seed for the West Coast industry and foreign markets. Results in the living marine resources subprogram have successfully applied the computer modeling tool to resolve conflicts between fishery, management and conservation interests. Fishery management agencies have demonstrated strong interest in applying improved understanding of the relation between stock distribution and environmental conditions to avoid shutting down entire regions to protect a single run of fish.

Pennsylvania: Pennsylvania State University: Research and extension faculty have developed numerous insect, weed, and disease prediction models to provide information on the timing of key pest events to help target the period for scouting/monitoring and implementation of management strategies, such as biological control or pesticides. In addition, decision support tools, such as the Bt Economic Tool, have been developed to help farmers understand the economics of using the technology on their farm. Four hundred and three field crop producers indicated an increased understanding of how to use predictive models in their pest management systems to improve sustainability. Forty-three field crop producers indicated they had increased their knowledge about scouting methods and 1,034 indicated that they increased their knowledge on selection of management tactics. In tree fruits, 747 growers indicated increased knowledge about integrated pest management.

Puerto Rico: University of Puerto Rico, Mayaguez: Current research and specialist training has allowed scientists to identify new pests and diseases affecting important tropical crops. In pumpkin and watermelon a new vector-transmitted viral disease causing vine decline has been identified. The finding has clarified the erroneous identification of the disease as a fungus, and has allowed producers to stop using ineffective fungicides to control the disease. New and important invasive insect pests have been identified this past year in several crops due effective taxonomy and identification training. The use of biological pest control methods is now being tried on a large scale to control key pests of coffee by means of mass rearing and augmentation. Success of this initiative may result in savings of over a million dollars per year to producers. Another activity, now underway, is identifying natural enemies associated with key fruit crops which should result in the preparation of a field guide.

Rhode Island: University of Rhode Island: Many Rhode Islanders are at risk for tick borne diseases (e.g., Lyme disease, babesiosis, erlichiosis.) These diseases have, and continue, to cause sickness and death. Researchers have mapped and identified areas of high tick density in Rhode Island and have developed strategies to eliminate tick habitats. The high tick density maps are viewable at http://www.tickencounter.org/.

South Carolina: Clemson University: The rapid detection of toxic food agents and the development of strategies to reduce their presence in food are problems that need to be addressed to improve the safety of the food and water supply. Researchers are utilizing nanotechnolgy to develop rapid and simple biosensors to detect the presence of intentional and ubiquitous toxic agents in food and water. Additionally, active antimicrobial and antioxidant packaging films are being developed to reduce the risk from these toxic agents by using natural materials.

South Dakota: South Dakota State University: Small grain, corn, and soybean producers have many choices when considering which varieties or hybrids to plant every year. Annually, scientists conduct a number of crop performance trials, analyze the data, and the results published. Thereafter, a number of presentations are made at extension meetings by specialists and agronomy educators that assist growers to identify varieties or hybrids that exhibit superior agronomic performance. On average the superior varieties -hybrids-- out yielded the other entries in the test by 5 bushels for spring and winter wheat, 8 bushel for barley, and 10 bushels per acre for oats. In soybeans, the superior varieties out yielded other entries in the test by 5 bushels per acre; while in corn the superior hybrids out yielded the other entries by 18 bushels per acre. On average crop producers increased their gross profits by $51.10 per acre for winter wheat; by $61.85 for spring wheat; $31.50 for

oats; $34.64 for barley; $61.30 for soybeans; and $98.64 per acre for corn by planting superior varieties compared to other entries they could have selected because of the performance trial information.

Tennessee: University of Tennessee: Tennessee cotton producers have indicated that variety test results are the single most valuable University of Tennessee cotton research product to them. Researchers identified several new cotton varieties broadly adapted to West Tennessee. Seed companies showcased new commercial cultivars in head-to-head comparisons under farm management and growing conditions. The top-10 yielding varieties in the cotton Official Variety Trials last year averaged 19 percent higher yield or $47.8 million.

Texas: Texas A & M University: Food safety and quality issues related to the meat industry impact the global competitiveness of products produced in the United States. Researchers examined the scientific and economic areas of red meat production. The scientists will use the data collected to improve meat quality, safety and value at all levels of the supply chain to enhance competitiveness and to evaluate economic impacts of new food safety approaches. Also data will be used to evaluate the impacts of the changing structure of the meat industry including price discovery under alternative pricing systems and methods of delivery.

Utah: Utah State University: Bluetongue virus is a worldwide disease in domestic animal and wild ruminant and recently being considered as a bio-terrorist agent. DNA vaccine and the use of Bluetongue virus NS-2 protein against this disease are being developed. Also being studies is the development of a rapid and more accurate test and a potential commercial diagnostic kit that will can easily determine and distinguish whether animal is infected by Bluetongue virus or vaccinated with Bluetongue virus vaccines. Once it is developed into the high throughput system, it will also provide more accurate results for global import and export of livestock as well as to trace the spread of Bluetongue virus due to global warming as reported in northern and central Europe in the last two years. The two potential anti-Bluetongue virus drugs that have been identified might have potential future uses to inhibit infection in domestic cattle and wild ruminants in the near future.

Vermont: University of Vermont: Researchers conducted a regional study of the effects of global change on the maple sugaring industry. Scientists asked sugarmakers for production records over the last four decades. They mapped hardwoods in the lower elevations of Camel's Hump and conifers in the higher ones. Sap returns from tapping maples at earlier dates were examined via survey. Early thaws in recent years have caused sugarmakers to have fewer than normal freeze-thaw cycles, resulting in reduced syrup production for some producers. Tests of whether earlier tapping resulted in lost production found that yields may actually improve with earlier tapping when multiple mid-winter thaws occur. Further studies comparing gravity sap collection with vacuum collection showed that gravity collection had similar yields for taps in February and March, while vacuum collection could yield sap over a full 12 weeks from some tapholes. Results reported at eight conferences and workshops to more than 200 maple sugar-makers.

Virgin Islands: University of the Virgin Islands: As the land values increase on the island, more efficient utilization of the land is needed to increase efficiency. Double-row spacing regimes were established. The double-row system for papaya reduces the irrigation need by one line. This concentrates the roots to more efficiently make use of the drip irrigation water. A critical factor in planting papayas closer together is the tendency to have

elongated stem growths which is more susceptible to wind damage as well as fruit set higher on the stem. Researchers found that a plant spacing of 1 meter by 2 meters proved to be the most efficient.

Virginia: Virginia Polytechnic Institute and State University: Researchers are studying identification, genetic characterization, mapping of chromosome location, and development of DNA markers for genes governing resistance to diseases including leaf rust in barley, powdery mildew, and fusarium head blight in wheat provide researchers worldwide with knowledge and tools to accelerate variety development. Production of such varieties can provide growers, end users, and consumers with a sustainable, economical, and safe food supply. Production of hulled barley cultivars Price and Thoroughbred, with improved grain quality, has revitalized barley markets in the eastern U.S. Hulled barley grain was exported from the eastern U.S. to foreign markets for the first time in many years. Thoroughbred barley is being used as the base commodity in a new market to produce malt-derived beverages. The new hulless barley varieties Doyce and Eve, are being evaluated in at least six states for use in feed and ethanol markets. Recently released wheat varieties Tribute and Jamestown have resistance to fusarium head blight, and are widely adapted. Use of these varieties will prevent the use of one or more fungicide applications, at a savings of $2.4 million per year in Virginia. The 15 wheat varieties released during the past five years are grown in more than 12 states in the eastern U.S. and in Canada, with 1.78 million units of certified seed of these varieties sown on over 890,000 acres.

Washington: Washington State University: Research has resulted in a cost-effective fiberboard product from wheat straw; new preservation technology for Washington's fruits and berries; a mechanical harvester for Washington sweet cherries; cost-effective production of Omega-3 fatty acids from cull potatoes; development of a new class of Hard White Wheat to produce bread and noodles for the Asian market; new tests for measuring safety of food products and for *E. coli* contamination; and high-pressure thermally sterilized vegetables. Research has also resulted in breeding and development of potato varieties that are more efficient in nitrogen use which has reduced the use of nitrogen, resulting in less nitrate contamination of ground water. The potential economic savings to northwest potato growers was estimated to be $1.3 million or $72 per acre. Varieties released by this collaborative program accounted for 26 percent and 32 percent of potato acreage in the Pacific Northwest and Washington respectively. Farm-gate value of these new varieties in Washington last year is estimated to be $160 million. It is estimated that the potato varieties developed by this program have returned $39 for every dollar invested.

West Virginia: West Virginia University: Research was done to improve production efficiency of both plants and animals with emphasis on economic activities for which state producers have competitive advantage. Specific findings in the past year included development of a low-cost alternative to concrete raceways for fish production, implementation of alternative systems for fish waste removal from raceway effluent and its use as a nutrient in producing greenhouse plants, devising methods for producing organic poultry without synthetic methionine, and organic lamb with internal parasites controlled by pasture rotation based on the life cycle of parasites. Additionally, station scientists developed a new "paper pad" method for fumigating honey bee hives with 50 percent formic acid which costs $1.35 per hive, takes five minutes to apply, in complete within 24 hours and has average control of varroa mites in capped brood cells of approximately 96 percent.

Wisconsin: University of Wisconsin: Researchers gathered corn varieties from around the world that display multiple-gene resistance to common rust. Because these exotic strains are not adapted to temperate climates, the researchers crossed them with Wisconsin sweet corn varieties, and selected for increased disease resistance and important quality factors, such as flavor and texture. Already, they have isolated several new hybrids resistant to common rust, and agricultural companies are testing their marketability to consumers. In another research vein, the scientists are breeding for sweet corn with fewer juvenile leaves, which are more susceptible to common rust than adult leaves. They have already developed sweet corn plants with 20 percent fewer juvenile leaves. The new sweet corn varieties developed through this research project are expected to exhibit long-lasting protection against common rust and save farmers between $25 and $75 per acre each year on fungicides. Reduced fungicide use will also benefit the environment.

Wyoming: University of Wyoming: Sugarbeets are the number one cash crop in Wyoming with a production value of over $45 million. Weed competition is considered to be the major obstacle that prevents the achievement of maximum yield. Weeds not only compete with sugarbeets for light nutrients and water but also interfere with harvest through increased harvest losses. Studies have been conducted around the state to evaluate weed control and sugarbeet response with glyphosate applied alone or in combination with other pesticides in Roundup Ready sugarbeets. Trials include glyphosate rate, application timing, and number of applications in all with or without cultivation. Since glyphosate is applied broadcast no cultivation was required. The total number of applications required varied from 2 to 3 and as needed or weed species present. Application needs to start at the two pound stage for maximum effectiveness. Total income was increased over $200 per pound with this system.

HIGHER EDUCATION CHALLENGE GRANTS

Ms. DeLauro: How many applications for the higher education challenge grants did you receive in fiscal year 2008 and how does that compare with 2007? How were these funds awarded? What is the estimate for 2009?

Response: A total of 71 applications were received for the Higher Education Challenge Grants program in 2008, down from 80 proposals received in 2007. Applications are awarded competitively after evaluation by an external peer panel. This program has averaged approximately 84 applications each year for the past five-year period.

HISPANIC EDUCATION PARTNERSHIP GRANTS PROGRAM

Ms. DeLauro: Please provide a list showing which universities received funds for the Hispanic Education Partnership Grants Program and how much each received in fiscal years 2007 and 2008 and how much each would receive under the 2009 budget.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007

Institution	Award Amount
South Mountain Community College	$203,126
California State University, Long Beach	295,000
California State University, San Bernardino	275,000
Allan Hancock College	275,000
California State University, Los Angeles	240,000
California State University, Stanislaus	240,000
Santa Ana College	275,000
College of the Sequoias	251,559
Trinidad State Junior College	275,000
Urban College of Boston	240,000
New Mexico State University	240,000
University of Puerto Rico, Mayaguez	240,000
Universidad del Turabo	230,000
University of Puerto Rico, Mayaguez	275,000
Southwest Texas Junior College	240,000
St. Philip's College	275,000
Texas A&M University, Kingsville	245,000
Del Mar College	230,000
Laredo Community College	440,000
Houston Community College, Northwest	240,000
Sul Ross State University	440,000
Total:	$5,664,685

Fiscal Year 2008

Institution	Award Amount
Maricopa Community College	$290,000
College of the Desert	290,000
California State University, San Bernardino	250,000
California State University, Fresno	250,000
University of California, Riverside	250,000
West Hills Community College District	250,000
Florida International University	290,000
University of Florida	21,744
City University of New York, Lehman College	290,000
University of Puerto Rico, Arecibo	223,783
University of Puerto Rico, Rio Piedras	290,000
University of Puerto Rico, Mayaguez	740,000
Sistema Universitario Ana G. Mendez, Inc	250,000
Houston Community College System	492,500
University of the Incarnate Word	283,819
University of Texas, San Antonio	495,000
Sul Ross State University	280,459
San Antonio College	290,000
Yakima Valley Community College	250,000
Total:	$5,777,305

Fiscal Year 2009

The Fiscal Year 2009 funds will be awarded competitively in June 2009. Current grantees and all Hispanic-Serving Institutions will be able to apply and compete for this funding.

HISPANIC EDUCATION PARTNERSHIP GRANTS PROGRAM

Ms. DeLauro: Please describe at least one accomplishment for fiscal year 2007 and 2008 for each university, or entity that received funding under the Hispanic-Serving Institutions Education Grants Program.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007:

Arizona. South Mountain Community College. A project is increasing the number of underrepresented minorities pursuing bioscience careers in Arizona's rapidly growing biotechnology field. The project brings together a community college, three public high schools, and scientists from the Agricultural Research Service's Arid Climate Laboratory. It is providing high school students with coursework and laboratory training typically reserved for upper-division or graduate level college students so its students can successfully compete in the bioscience workforce or in a university pursuing advanced bioscience studies.

California. Allan Hancock College. This project builds on the collaboration between with California State Polytechnic University to create associates and bachelors degrees in the new field of culinology, which blends food science and nutrition. This project focuses on student recruitment and retention, prepares faculty to support student success, brings a multicultural perspective to the industry, and promotes healthier eating habits and lifestyles.

California State University, Long Beach. This project is advancing the quality of human nutrition education by preparing first generation-educated Latino students in nutrition and health sciences, through experiential learning opportunities with the University's Department of Health and Human Services' Women, Infants, and Children Program. This project is helping participants reduce risk for maternal/infant/child obesity by enhancing cultural and scientific knowledge related to the genetic, social, and behavioral determinants of childhood overweight and obesity for pregnant and postpartum Latinas.

California State University, Los Angeles. This project is recruiting students into a newly developed food science and technology Bachelor of Science degree program, as well as recruiting Spanish-speaking students to pursue a nutritional science degree to become registered dietitians. The project is developing curriculum for a fundamental food science/agricultural course to increase interest in the food science and technology and nutritional science programs, and a food safety certificate program. These recruiting activities and new programs should result in the increased graduation of Spanish-speaking nutritional science, food science and technology, and food safety experts.

California State University, San Bernardino. San Bernardino's Water Resources Institute is preparing to provide up to 30 multidisciplinary internships, mentoring, and instruction on watershed management-related projects. The Water Resources Institute is collaborating with the Redlands Office of the Natural Resource Conservation Service, the Santa Ana Watershed Project Authority, local resource conservation districts, and other watershed groups to the offer the program, which is a result of increasing population, changing land use patterns, and expanding urbanization. Students in this program are participating in scientific research and training in the latest Internet-based information sharing systems.

California State University, Stanislaus. The Agriculture Studies program is providing assistance to underrepresented students, who often begin their education at community colleges but never complete a bachelor's degree. This project is attracting and retaining underrepresented students from partner community colleges, and engaging them in real-life applications and experiences that will prepare them for transferring to four-year institutions and agricultural careers. The project provides a variety of activities, including new student scholarships, improved transfer coordination, experiential learning through internships with USDA partners, and the creation of a sustainable garden that will offer a variety of instructional opportunities.

College of the Sequoias. This project is addressing the significant shortage of veterinary technicians in the Central Valley of California, one of the largest dairy regions in the nation, by adding about forty students annually. The institution will purchase equipment, train faculty, hire staff, and expand the program to include nine new courses for a total of 26.5 additional credits to meet the accreditation standards of the American Veterinary Medical Association. The project will also provide hands-on experience at the College's 500-acre farm at the University Training and Research Center. Finally, the project will also facilitate student transfer to the University of California, Davis School of Veterinary Medicine, one of their main collaborators in this project.

Rancho Santiago Community College District/Santa. Santa Ana College is raising awareness among diverse students of career options available in USDA-related fields and preparing them to transfer to a university and major in these fields. The project builds on collaborations with California State University at Pomona, University of California at Irvine, and the local food industry. Activities include guest speakers, a research in food/nutrition course, intensive academic and counseling support, internship/research experiences, and financial support for students.

Colorado. Trinidad State Junior College. The Associate of Science Transfer Program is updating biology laboratories, chemistry laboratories, and greenhouses with state-of-the-art scientific equipment. It is also updating biology classrooms with technology-based delivery methods; training science instructors to effectively and efficiently utilize the laboratory and technology based equipment; and increasing enrollment through scholarship incentives. The project will enhance the biology and chemistry programs for historically underserved students.

Massachusetts. Urban College of Boston. The Food Science Capacity-Building project is developing a higher education program in the food sciences and to produce graduates capable of entering or advancing within the nation's food sciences and nutrition field. The development of this 21-credit certificate program in health, nutrition, and food safety is the college's first program of study in the hard sciences and the precursor to the development of an associate degree in food sciences.

New Mexico. New Mexico State University. The College of Agriculture and Home Economics is collaborating with regional community college culinary programs to prepare well-educated professionals cross-trained in food science/nutrition and culinary arts. These individuals are highly valued by food manufacturing and processing companies. The 3-year project will result in the development of a culinology option at New Mexico State University, a significant update of the food science teaching laboratory at New Mexico State University, and a targeted recruitment and retention plan.

Puerto Rico. Universidad del Turabo. The project is planning, developing, and implementing retention activities for disadvantaged Hispanics in the baccalaureate in sciences in nutrition and dietetics program. This educational program will increase the pool of motivated Hispanic students entering Universidad del Turabo's baccalaureate in sciences in nutrition and dietetics program, identify senior-year students' academic and personal needs, and provide them with skills and knowledge to successfully complete their supervised practice.

University of Puerto Rico, Mayaguez. This is a joint cooperative initiative with the University of Puerto Rico at Humacao to train a new generation of students who are more competitive in functional genomics, bioprospecting, geomicrobiology, and natural resources conservation. Students will participate in exchange programs with the University of Wisconsin-Madison, and the Center for Integrative Geosciences at the University of Connecticut. The project is enriching the curriculum through the development and implementation of the first metagenomic course and providing participating students the opportunity to visit schools in Puerto Rico to share what they have learned.

University of Puerto Rico, Mayaguez. This project is addressing the problem of English proficiency for well-qualified Food and Agricultural Sciences majors. Through the utilization of a technology-enhanced classroom to deliver a revised curriculum for a three-course Basic English track, with content geared specifically to the needs and interests of agriculture majors, the project is improving the communications skills of students in the agricultural fields. The curriculum, developed with experts in agriculture, builds the students' vocabulary and develops the reading, writing, speaking, and listening skills needed to be successful in the university and in the workplace.

Texas. Del Mar College. This project involves a collaboration among three Hispanic-Serving Institutions in Texas and the Texas Agricultural Research, and Cooperative Extension: Del Mar College, Texas A&M University-Corpus Christi, Texas A&M University Kingsville. The funds from this award are increasing the number of students earning degrees in agricultural science, improving recruitment and retention of under-represented students, strengthening curriculum, and improving the delivery for different learning styles. This project is also attracting and supporting undergraduate students from underrepresented minorities as well as facilitating cooperative linkages.

Houston Community College. This project is creating a dynamic approach to science education and demonstrating to students that the science/math pipeline is multifaceted and offers exciting career opportunities. The project engages students' interests by allowing them to explore methods to solve a significant real-life problem, such as the hypoxic dead zone in the Gulf of Mexico. The premise of this project is to engage students in the process of finding a solution through a team-based approach.

Laredo Community College. Laredo Community College, Southwest Texas Junior College, and Texas State University are creating a solid path for Hispanic and other underrepresented students to transfer to a four-year institution and complete degrees in agriculture science and business. Students will be admitted jointly, take two teleconferenced courses, attend summer academies, participate in USDA agency internships, and will be encouraged to participate on employment opportunities available at United States Department of Agriculture.

Southwest Texas Junior College. Southwest Texas Junior College is coordinating a geospatial ecosystem management program. The geospatial ecosystem management program is enhancing undergraduate education application of geospatial technologies and analysis methods in rangeland and wildlife ecosystem management, which includes range, livestock, natural resources, and habitat assessment and management. This multidisciplinary focus addresses multiple emerging areas of regional, state, and national workforce needs.

Saint Philip's College. Proyecto Alimento II: Success in Food and Nutrition, is a 2-year project developed to address the underrepresentation of Hispanics in science and nutrition programs, and the high incidence of obesity that cuts across ethnic and economic boundaries. Saint Philip's College and the University of the Incarnate Word are in a unique position to address these issues. They are creating student successes in the classroom by increasing the number of Hispanic students who enroll at Saint Phillip's College as culinary arts majors, retained each year, and then transfer to University of the Incarnate Word to complete a degree in nutrition.

Sul Ross State University. The Texas Pre-Freshman Engineering Program Collaboration is expanding the delivery of science, technology, engineering, and math curriculum and strengthens underrepresented Hispanic, minority, and female college student recruitment, retention, and performance at Sul Ross State University and another five institutions. Undergraduate student program assistant classroom mentors, who assist teachers, support students, and serve as role models, are critical to the success of the program. As a result, participants have higher rates of college entry and degree achievement, pursue advanced science, technology, engineering, and math degrees, and can ultimately help increase the agricultural scientific workforce.

Texas A&M University, Kingsville. Collaboration with the Weslaco Independent School District are collaborating to establish a hands-on science summer camp to teach molecular biology to forty-five high school students and science teachers. Furthermore, the project is extending the benefit of the grant to other students by creating a small learning community in agricultural science-related disciplines. New science labs are being built, and this grant is providing the funds to equip some of them. Additionally, teaching materials, such as DVDs and biological models, will make learning in the small leaning communities more attractive to the students.

Fiscal Year 2008:

Arizona. South Mountain Community College. South Mountain Community College (SMCC), a two-year institution in Arizona, will increase minority student access to biosciences in high schools and increase the number of underrepresented minorities entering university bioscience programs. Expanding the Undergraduate Biotechnology Engagement Track (eUBET) will provide access to college-level bioscience education, including integrated laboratory training in urban high schools where high minority populations and lower socioeconomic status students predominate. Students will interact with bioscience earlier in their academic careers in order to build their bioscience skills and interest. As a partnership between high schools, community college, a USDA-Agricultural Research Service research lab, and a university, eUBET provides a critical avenue for recruitment into degree programs, internships, and careers in biotechnology. More than 500 high school students are expected to complete at least one college bioscience course and more than 100 students to complete multiple bioscience courses. At least 300 eUBET students will transfer to a university following graduation from SMCC and at least fifty will major in a bioscience or agricultural related field.

California. College of the Desert. College of the Desert (COD), a two-year institution in California, and the University of California at Riverside, a four-year institution, in partnership with the USDA's Natural Resources Conservation Service and the University of California Agricultural Research Station, will increase underrepresented student enrollment and retention in natural and agricultural sciences, as well as provide agricultural career counseling to high school students. It will encourage students to begin an academic path at COD and matriculate to four-year colleges. Students will also hone the skills needed to handle cutting-edge scientific equipment in the field. This project will develop a course with exploratory field experiences in research activities and a survey of career opportunities in agricultural, environmental, natural science, and turf grass research. Internships at local research centers, businesses, and public agencies are available, as well as five scholarships of $10,000 for natural and agricultural science majors.

West Hills College, Coalinga. West Hills College, a two-year institution in California, will create an agricultural engineering technology program. Project staff will work with the local Natural Resources and Conservation Service office to create a pipeline for students entering agricultural engineering careers. An estimated sixty college students will enroll in the agriculture engineering technology program. The project staff will also enroll over sixty students in pre-engineering courses that will prepare the students for the transition to higher education. New equipment will be purchased for the program to expand the capabilities of faculty to diversify coursework within the Agricultural Engineering Technology program. Project staff will also lead career mentoring efforts for approximately 200 students. Fifteen college students will participate in internships with local agricultural industry leaders to provide them with practical experience.

California State University, Fresno. California State University at Fresno, a four-year institution, in collaboration with the USDA's Agricultural Research Service will support the establishment of a Sustainable Agroecosystem and Efficient Research Management Research and Education Program at the College of Agricultural Sciences and Technology. This project will strengthen students' hands-on learning experience and understanding of various aspects of sustainable agriculture, including organic farming; conservation tillage; efficient management of soil, water, and nutrients; preserving biodiversity; integrated pest management; composting; farm marketing; culinary arts; and consumer relations. The project staff will create a living classroom with collaborative support from local organic farmers, alumni, and non-profit organizations. A key outcome of this project will be enhanced services to the community through the sale of organic produce from student projects conducted at the university farm and the student-operated Community Support Agriculture program. The project staff anticipates hiring a total of twenty to thirty student assistants, educating over 150 students, and offering at least two courses in organic agriculture. They will also create an outreach program to attract underrepresented student groups interested in working with the local community in order to focus on healthy farming.

Riverside Community College. Riverside Community College, a two-year institution in California, in collaboration with the University of California at Riverside, will develop three online soil science courses that will facilitate the qualification of a diverse body of students for federal employment, as well as provide soil science courses for current USDA employees who require additional training. Courses will cost students a low fee of $20 per unit through Riverside Community College (as a lower-division course) and at approximately $450 for the upper-division courses through University of California at Riverside. Formal interactions and career

mentoring from USDA (Natural Resources and Conservation Service, Forest Service, and/or Agriculture Research Service Laboratory) personnel is required for online students. Thirteen outstanding students who complete an online course will be offered a one week paid internship ($1,000 stipend) with a USDA agency to provide them an experiential learning opportunity and formal mentoring.

California State University, San Bernardino. California State University at San Bernardino (CSUSB), a four-year institution, will improve the recruitment, training, and retention of students from underrepresented groups for careers in restoration ecology and vegetation management in San Bernardino, CA, and its local environment. The project increases the capacity of CSUSB to provide training in restoration ecology and related biological sciences and boosts student success in attaining a bachelor of science degree. It also provides opportunities for students at CSUSB and two nearby Hispanic-Serving community colleges (Victor Valley College and Chaffey College) to work on projects with the USDA's Forest Service, the Rancho Santa Ana Botanic Garden, and researchers at the University of California at Riverside. A restoration research site for student use on the CSUSB campus will be established with project funds. The development of workshops for 100 beginning biology students will be funded to broaden their understanding of potential careers in USDA-related fields and improve overall academic success. Thirty-two students in restoration will receive funds for assistantships and internships in related to the biology field.

Florida. Florida International University. Florida International University, a four-year institution, in collaboration with Miami Dade College, several high schools, the MacArthur Agro-Ecology Research Center, and the USDA Horticultural Research Station at Miami, will enrich its Agroecology Program by infusing scientific instrumentation into the curriculum, establishing an organic garden, and recruiting and retaining minority students in the agricultural sciences. This project will recruit a sizable number of Hispanic and other underrepresented students into the Agroecology Certificate and Environmental Studies Masters program. Students will gain access to two soil-chemical testing instruments for their class and field research activities. The project will benefit more than fifty students through training opportunities in agroecology theory and practice and the development of for fourteen agroecology internships. The project staff will also produce one graduate research assistantship, ten high school internships, and thirty high school agroecology teacher-trainees, as well as one scholarship for a student to transition from a two-year institution to four-year college.

New York. City University of New York, Lehman College. The City College of New York, Lehman College, a four-year institution, in collaboration with Hostos Community College (HCC), the New York Botanical Garden (NYBG), and the USDA's Animal and Plant Health Inspection Service (APHIS), will strengthen education opportunities in the plant sciences for underserved students. Specifically, this project will improve curriculum and equipment so students will receive enhanced training in plant sciences. Lehman College will also enhance its curriculum in the biological, environmental, geographic, and geological sciences by developing new courses, expanding lessons in plant sciences, and using the expertise at NYBG and the local APHIS office. The project staff will also purchase equipment and software to improve the geographic information system (GIS) computer facility at Lehman College and NYBG. Several internships will be developed at NYBG, APHIS, and Lehman College, as well as a fellowship in GIS at NYBG for students at both Lehman College and HCC.

Puerto Rico. University of Puerto Rico, Mayaguez. The University of Puerto Rico at Mayaguez, a four-year institution, in collaboration with Centro Residencial de Oportunidades Educativas en Mayaguez High School, the University of Puerto Rico at Aguadilla, and the University of Texas at El Paso, will provide experiential learning opportunities in agricultural and environmental sciences to high school and college students. Project staff will join with the USDA's Agricultural Research Service and Natural Resources and Conservation Service to strengthen food, agricultural, and environmental sciences curricula through the involvement of students and faculty in research projects. The program will enhance the research skills of undergraduate and graduate students and minority student participation will increase through the completion of the objectives of this project. It will be particularly important for the staff to develop a technical multi-institution collaboration to help create a pipeline of talented students and promote faculty development.

University of Puerto Rico, Arecibo. The University of Puerto Rico at Arecibo, a four-year institution, in collaboration with the USDA's Agricultural Research Service, will enhance the laboratory component and support revision of the curriculum in the veterinary technology program. The project staff will revise the curriculum and apply for accreditation through the American Association of Veterinary Medicine. The curriculum will be strengthened through the purchase of clinical laboratory equipment, which will offer students practical training in scientific skills essential to modern veterinary hospital work. This action will help restructure the curriculum to recruit and retain students, update their knowledge and expertise, and stimulate their desire to pursue further studies in animal sciences. This project will increase the retention of students enrolled in the veterinary technology program to twenty-three students; offer six students a summer internship experience; promote a yearly animal health fair and four annual diagnostic clinics in low-income rural communities; increase the graduation rate by at least 5 percent; increase the number of students pursuing bachelor of science degrees and other post-graduate education; and the create three high school animal science clubs.

University of Puerto Rico, Rio Piedras. The University of Puerto Rico at Rio Piedras, a four-year institution, in collaboration with Texas A&M University and the USDA's Forest Service (FS), will enhance the geospatial education and experiential learning capacities by advancing the recruitment and retention of Hispanic students in natural resources management and conservation. This project will affect at least fifty students and faculty by improving the quality of their educational experiences and building the institution's capacity to attract and retain outstanding underrepresented students. A geospatial analysis in natural resource management and conservation curriculum will be reshaped and offered each year. Each year, ten students and two faculty members will participate in a training program at Texas A&M University, while five other students will take part in summer internships at FS and the University of Puerto Rico at Rio Piedras. In addition, one graduate student will be supported through a research assistantship.

University of Puerto Rico, Mayaguez. The University of Puerto Rico at Mayaguez, a four-year institution, in collaboration with the USDA's Animal and Plant Health Inspection Service, will improve the quality of animal science education by providing students with a teaching facility for molecular biology. This laboratory will facilitate student recruitment and retention by modernizing the department image, creating new courses, and increasing the hand-on experiential learning techniques that will grow a dynamic curriculum within the animal sciences. This laboratory will enable project staff to develop the course "Animal Biotechnology," in which more

than thirty students per year will be exposed to molecular biology research techniques. A recruitment campaign will also publicize the proposed facilities and changes in the animal science curriculum to more than 8,000 local high school students. Eight students from these high schools will train in molecular biology during a summer program.

Universidad del Este. Universidad del Este, a four-year institution in Puerto Rico, in collaboration with the USDA's Food Safety and Inspection Service, will develop its faculty's capacity to improve the quality of undergraduate student preparation for continued studies in graduate programs in food safety. This project will focus on curricula design, faculty preparation, and student experiential learning to enhance undergraduate research activities. The impact of this project's is based on the professional development of the students' ability to assume positions in food and agricultural related organizations. The project staff will develop ten undergraduate courses that encompass issues related to food safety and, eventually, lead to a minor in food safety. This project will have two faculty members trained to facilitate food safety research who will ensure that student preparation is complete and sound. The food safety minor will enroll fifteen undergraduate students annually; twenty of these undergraduate students will conduct food safety research and present their results at professional meetings.

Texas. University of Texas, San Antonio. University of Texas at San Antonio, a four-year institution, addresses the demonstrated need of training and preparing Hispanic scientists to fill key science positions in the agricultural and environmental fields. The Faculty and Student Team (FaST) program represents a concerted effort to bring the country's best researchers together with students and faculty from underrepresented groups to address current USDA research concerns while fostering the goal of an increased pool of Hispanics who pursue careers in these areas. The project will place research teams from Hispanic-Serving Institutions (HSIs) in selected facilities around the country to conduct research related to key objectives of the USDA. Teams will consist of one faculty mentor and two graduate level students from HSIs. Graduate students will receive vital training and mentorship as well as professional networking opportunities. Faculty mentors will enhance their own research by working with state-of-the-art equipment and resources not available at their home institutions. The research programs and training capacity of the participating HSIs will be strengthened upon return of teams to these universalities.

University of Texas, San Antonio. The University of Texas at San Antonio, a four-year institution, in collaboration with USDA's Forest Service, will implement an education model that will increase the number of underrepresented students who graduate in conservation and natural resources. The program may affect other communities by developing underrepresented students in conservation and renewable natural resources through integrated mentoring by community entities. Specifically, this project will develop a tool for student recruitment, retention, and experiential learning. Three graduate students, three undergraduate students, and three undergraduate students from Alamo Community College District will participate in career development courses and research activities. All participants will take part in a leadership workshop, a technical writing workshop, and a summer research "boot camp."

Sul Ross State University. Sul Ross State University, a four-year institution in Texas, in collaboration with the USDA's Agricultural Marketing Service and Odessa College, will address the lack of educated people within the agricultural workforce, especially Hispanic and other underrepresented

laborers, who understand all aspects of the beef production industry. Project staff will develop a novel experiential beef production program, create ten distance delivery courses, financial assistance for thirty-nine undergraduates and one graduate student, student internship opportunities, and purchase scientific equipment for "hands-on" learning. The program will prepare approximately 300 Hispanic and other underrepresented agricultural students for employment in industry, government, and education through the duration of the grant.

San Antonio College. San Antonio College, a two-year institution in Texas, in collaboration with USDA's Agricultural Research Service, The University of the Incarnate Word (UIW), and Texas State University (TSU), will address the rate at which minority students enroll into and graduate from college, as well as the increased prevalence of obesity. The project staff will create a learning community for students that will progress through the education pipeline. These actions will increase the number of students who declare nutrition as a major; the percentage of students retained as nutrition majors at the college level; the number of students that transfer to UIW or TSU to complete their degrees; and the percentage of students who retain nutrition majors at UIW and TSU. Students will receive support services through financial assistance, academic advising, and a learning community environment that include participation in professional conferences, field trips, and attendance at monthly lecture series.

University of the Incarnate Word. The University of the Incarnate Word (UIW) is a four-year institution in Texas. UIW's Department of Mathematics, in collaboration with USDA's National Agricultural Statistics Service, will implement the Research Scholars Program (RSP). RSP will expand and improve the master of science degree program in research statistics, with particular emphasis on agricultural careers in the mathematical sciences. RSP will fulfill this need area by providing resources to recruit and enroll underrepresented and low-income students in the research statistics graduate degree program at UIW. Student support will be provided to retain 80 percent of RSP scholars through to graduation, and will place 60 percent of the research scholars in an internship with local businesses or government agencies. It will also create opportunities to gain the knowledge and skills necessary to equip these students with enhanced research skills in a wide array of areas, including business, agriculture, and government.

Houston Community College, System. Houston Community College (HCC), a two-year institution in Texas, collaborated with the USDA's Natural Resources and Conservation Service, Spring Branch Independent School District (SBISD), and the Conrad N. Hilton College of Hotel and Restaurant Management at the University of Houston (CNHC), to recruit and retain underrepresented students, specifically Hispanic students, for careers in the food industry. This project presents a variety of active learning experiences and retention strategies to attract students to follow an articulated career track from high school-to a community college-to baccalaureate degree in food and/or hotel restaurant management. Project staff will recruit and retain Hispanic high school and college students into studies that lead to dynamic careers in the broad food, agriculture, and natural resource systems of the nation. Specifically, this project will reach at least 250 high school, 200 community college, and fifty university students.

Houston Community College, System. Houston Community College (HCC) District, a two-year institution in Texas, in collaboration with Texas A&M University and the USDA-Agricultural Research Service's Children's Nutritional Research Center, will strengthen institutional educational capacities in biological sciences through student experiential learning opportunities, faculty development, and the purchase of scientific

instrumentation. Through the Empowering the Next Generation in Agriscience with Genomics Education (ENGAGE) program, HCC's biology students will train in increasingly sophisticated lab techniques and scientific thinking, which will culminate in the contribution of sequencing data to genomic DNA databases. The project staff will place four students in research internships. ENGAGE will add sophisticated equipment to HCC's growing infrastructure, allow the establishment of an equipment lending library, and provide hands-on training in new techniques to thirty-six biology faculty. Other student enrichment activities, such as field trips, research seminars, and serving as student ambassadors at a USDA Career Day and hands-on "DNA Days" for friends and family, will reach an additional 212 students, which will increase student self-esteem, interest, and agriscience awareness.

Washington. Yakima Valley Community College. Yakima Valley Community College, a two-year institution in Washington, in collaboration with the USDA's Agricultural Research Service, will attract and support undergraduate students from underrepresented groups in the disciplines of food science technology, plant sciences, and horticulture. This project will focus on increasing enrollment through a variety of strategies, including outreach to high school and adult basic education students to promote agriculture-related careers and post-secondary education opportunities in collaboration with the USDA Yakima Agricultural Research Laboratory in Wapato, Washington. Through the funding of this project, project staff will enhance the agriculture labs and materials at the college's Grandview Campus. This project will also perform outreach activities, such as short-term seminars and trainings to gain access to agriculture industries. The development of partnerships with Wenatchee Valley Community College and Washington State University will be essential for project staff to foster the creation and facilitation of articulation agreements with similar agricultural programs and support for the Latino Agriculture Program.

INTEGRATED RESEARCH, EDUCATION, AND EXTENSION ACTIVITIES

Ms. DeLauro: Section 406 of the Agricultural Research, Extension and Education Reform Act of 1998 enables an integrated approach to research, education and extension activities. For comparability purposes, please provide a table that shows the fiscal year 2002 through 2008 funding by activity.

Response: The information is submitted for the record.

[The information follows:]

Cooperative State Research, Education, and Extension Service
Fiscal Years 2002 through 2008 Funding For Integrated Activities under Section 406 of the Agricultural Research, Extension and Education Reform Act of 1998
($000)

Integrated Authority	FY 2002 Approp.	FY 2003 Approp.	FY 2004 Approp.	FY 2005 Approp.	FY 2006 Approp.	FY 2007 Approp.	FY 2008 Approp.
Water Quality	$12,971	$12,887	$11,530	$12,867	$12,738	$12,738	$12,649
Food Safety	14,967	14,870	13,305	14,847	14,699	14,699	14,596
Regional Pest Management Centers	4,531	4,501	4,028	4,167	4,125	4,125	4,096
Crops at Risk from FQPA Implementation	1,497	1,487	1,330	1,389	1,375	1,375	1,365
FQPA Risk Mitigation Program for Major Food Crop Systems	4,889	4,857	4,345	4,464	4,419	4,419	4,388
Methyl Bromide Transition Program	2,498	3,229	3,131	3,106	3,075	3,075	3,054
Organic Transition Program	1,500	2,111	1,889	1,874	1,855	1,855	1,842
Total, Sec. 406 Activities	42,853	43,942	39,558	42,714	42,286	42,286	41,990

IR-4 AND PESTICIDE CLEARANCE

Ms. DeLauro: Please update the table in last year's hearing record on total USDA funding for Interregional Research Project No. 4 Program (IR-4) work for fiscal years 2004 through 2009.

Response: The information is submitted for the record.

[The information follows:]

USDA IR-4 Program
($000)

USDA Agency	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Cooperative State Research, Education, and Extension Service (CSREES):						
Hatch Act	$478	$478	$481	$481	$481	$481
Special Research Grants, IR-4 Minor Crop Pest Mgmt.	9,549	11,145	10,677	10,677	11,368	10,380
Subtotal, CSREES	10,027	11,623	11,158	11,158	11,849	10,861
Agricultural Research Service	3,860	3,920	3,920	3,920	3,833	3,833
TOTAL USDA	13,887	15,543	15,078	15,078	15,682	14,694

IR-4 AND PESTICIDE CLEARANCES

Ms. DeLauro: How many registrations were completed in 2007 and 2008, and what is the goal for fiscal year 2009?

Response: IR-4 developed data supporting 647 new registrations for food crops and IR-4 data impacted over 3,631 ornamental species in 2007. For 2008, new registrations for food crops exceeded 1,000 and impacts on ornamental species will be more than 3,000. For 2009, it is predicted that productivity will remain the same as in 2008.

Ms. DeLauro: What is the current backlog of pesticide clearance requests? Is the backlog decreasing or increasing? Please explain the reason for such backlogs. What is being done to reduce the backlogs?

Response: IR-4 has a backlog of approximately 600 potential projects in the research queue. The backlog number is increasing. The reason for backlog increases is due to less IR-4 funding going to research projects and more funding going into salary and benefits and other mandated fixed expenses. IR-4 continues to examine ways to increase efficiency to allow more research to be completed on limited appropriations.

Ms. DeLauro: What financial assistance did you receive from private industry in fiscal years 2007 and 2008 and what do you anticipate for fiscal year 2009?

Response: IR-4 received approximately $1.4 million from private industry in each of the years 2007 and 2008. It is anticipated that in 2009 industry assistance will be reduced due to decreasing grants by fewer companies.

Ms. DeLauro: Does CSREES have any control over how industry funds are expended?

Response: Yes, all IR-4 funds are managed by the IR-4 Project Management Committee, which includes a CSREES representative. This allows opportunities in decision-making on how industry funds are expended.

MCINTIRE-STENNIS FORESTRY GRANTS

Ms. DeLauro: Please list the allocation of McIntire-Stennis funding per university for fiscal years 2007 and 2008 and estimates for fiscal year 2009, under the budget request.

Response: The information is submitted for the record.

[The information follows:]

	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009
Auburn University	$1,004,000	$822,000	$216,000
University of Alaska, Fairbanks	644,000	592,000	155,000
American Samoa Community College	24,000	40,000	5,000
Northern Arizona University, Flagstaff	266,000	219,000	58,000
University of Arizona, Tucson	266,000	219,000	57,000
Agriculture Exper. Station, University of Arkansas	834,000	684,000	180,000
California Polytech State University	134,000	110,000	29,000
California State University, Humboldt	134,000	110,000	29,000
University of California, Berkeley	623,000	511,000	134,000
Colorado State University	457,000	377,000	99,000
Connecticut Agricultural Experiment Station	188,000	156,000	41,000
Storrs Agricultural Experiment Station	63,000	52,000	13,000
University of Delaware, Agricultural Exper. Station	100,000	86,000	22,000
University of Florida Agricultural Experiment Station	778,000	638,000	168,000
University of Georgia School of Forest Resources	1,022,000	837,000	220,000
University of Guam	43,000	40,000	9,000
University of Hawaii	194,000	162,000	42,000
University of Idaho	589,000	485,000	127,000
Southern Illinois University	210,000	173,000	45,000
University of Illinois	210,000	173,000	45,000
Purdue University	476,000	393,000	103,000
Iowa State University, Agriculture and Home Economics Experiment Station	363,000	301,000	78,000
Kansas State University	269,000	224,000	58,000
University of Kentucky Agricultural Exper. Station	608,000	500,000	131,000
Louisiana State University School of Forestry	597,000	490,000	129,000
Louisiana Technological University, School of Forestry	256,000	210,000	55,000
University of Maine	796,000	653,000	172,000
University of Maryland	307,000	254,000	66,000
University of Massachusetts	326,000	270,000	70,000
Michigan State University	291,000	238,000	63,000
Michigan Technological University	291,000	238,000	63,000
University of Michigan	291,000	238,000	62,000
University of Minnesota	683,000	561,000	147,000
Mississippi State University	966,000	791,000	208,000
University of Missouri, School of Forestry	627,000	515,000	135,000
University of Montana , Forestry and Conservation Experiment Station	552,000	454,000	119,000

University of Nebraska	307,000	254,000	66,000
University of Nevada, Mac C. Fleischmann College of Agriculture	156,000	132,000	34,000
University of New Hampshire	439,000	362,000	95,000
Rutgers State University, Agricultural Exper. Station	231,000	193,000	50,000
New Mexico State University, Las Cruces	401,000	331,000	86,000
New York State College of Agriculture and Life Sciences, Cornell University	199,000	163,000	43,000
State University of New York, College of Environmental Science and Forestry	597,000	490,000	129,000
North Carolina State University	985,000	807,000	212,000
North Dakota State University of Agriculture and Applies Sciences	137,000	116,000	30,000
Ohio Agricultural Research and Development Center	495,000	408,000	107,000
Oklahoma State University	514,000	423,000	111,000
Oregon State University	947,000	776,000	204,000
Pennsylvania State University Agricultural Experiment Station	665,000	546,000	143,000
University of Puerto Rico, Agricultural Experiment Station	119,000	101,000	26,000
University of Rhode Island	81,000	70,000	17,000
Clemson University of Forestry and Recreation Resources	759,000	623,000	164,000
South Dakota State University	175,000	147,000	38,000
University of Tennessee	740,000	607,000	159,000
Stephen F. Austin State University, Texas	455,000	373,000	98,000
Texas A&M University Agricultural Experiment Station	455,000	373,000	98,000
Utah State Agricultural Experiment Station	344,000	285,000	74,000
University of Vermont	382,000	316,000	82,000
College of the Virgin Islands	62,000	55,000	13,000
Virginia Polytechnic Institute and State University	815,000	669,000	176,000
University of Washington, Seattle	511,000	342,000	110,000
Washington State University, Pullman	418,000	418,000	90,000
West Virginia University	570,000	469,000	123,000
University of Wisconsin, Agricultural Exper. Station	702,000	577,000	151,000
University of Wyoming, Laramie	213,000	178,000	46,000
Competitively Awarded Multistate Grants	- -	- -	12,249,000
Subtotal	28,356,000	23,420,000	18,377,000
Biotechnology Risk Assessment	24,000	26,000	30,000
Federal Administration	900,000	744,000	584,000
Small Business Innovation Research	728,000	601,000	472,000
TOTAL	30,008,000	24,791,000	19,463,000

MCINTIRE-STENNIS FORESTRY GRANTS

Ms. DeLauro: Please provide a table showing the number of personnel per university that this funding supported in each of fiscal years 2006 through 2008.

Response: Recipients of McIntire-Stennis funds have the flexibility to distribute funds among research projects, infrastructure, and personnel as they wish to meet the needs of their university. The distribution of these dollars varies from state to state. The latest data on personnel supported with McIntire-Stennis funds as reported into the Current Research Information System (CRIS) by recipient institutions is for fiscal year 2006 and 2007. The recipient institutions do not assemble the data until the close of the fiscal year and then the reporting process requires approximately six months. The fiscal year 2008 data is being collected now but not all institutions have made their reports available yet.

The information is submitted for the record.

[The information follows:]

Summary of Personnel Supported with McIntire-Stennis Funds in Fiscal Year 2006

University/Recipient	Station	McIntire-Stennis Funds	Scientist Support	Professional Support	Technical Support	Clerical Support	Total Support
AUBURN UNIVERSITY	ALAZ	$744,372	14.2	30.1	2.0	2.3	48.6
UNIVERSITY OF ALASKA	ALK	523,824	5.0	1.0	5.3	0.0	11.3
UNIVERSITY OF ARKANSAS	ARK	604,819	9.2	14.7	0.4	4.7	29.0
UNIVERSITY OF ARIZONA	ARZT	201,961	8.6	17.8	7.5	4.1	38.0
NORTHERN ARIZONA UNIVERSITY	ARZZ	197,705	1.4	6.3	1.1	0.3	9.1
UNIVERSITY OF CALIFORNIA	CALB	461,171	17.7	56.6	19.7	10.9	104.9
CAL POLYTECHNIC STATE UNIVERSITY	CALY	90,705	1.8	0.9	0.7	1.3	4.7
HUMBOLDT STATE UNIVERSITY	CALZ	95,749	1.1	1.3	0.2	0.1	2.7
COLORADO STATE UNIVERSITY	COL	321,335	4.0	22.2	5.1	2.8	34.1
CONNECTICUT AGRICULTURAL EXPERIMENT STATI	CONH	149,882	6.8	0.0	6.5	0.0	13.3
UNIVERSITY OF CONNECTICUT	CONS	50,497	1.4	0.7	0.0	0.0	2.1
UNIVERSITY OF DELAWARE	DEL	78,349	0.6	0.0	0.0	0.0	0.6
UNIVERSITY OF FLORIDA	FLA	548,882	10.3	14.5	11.3	6.2	42.3
UNIVERSITY OF GEORGIA	GEOZ	726,312	17.6	15.2	13.0	7.2	53.0
UNIVERSITY OF GUAM UOG STATION	GUA	37,004	0.0	0.0	0.3	0.0	0.3
UNIVERSITY OF HAWAII	HAW	164,697	4.5	1.8	0.6	2.2	9.1
UNIVERSITY OF IDAHO	IDAZ	410,893	1.0	0.0	0.0	0.0	1.0
UNIVERSITY OF ILLINOIS	ILLU	153,622	3.4	6.6	0.0	0.2	10.2
SOUTHERN ILLINOIS UNIVERSITY	ILLZ	153,901	2.5	5.5	0.0	0.7	8.7
PURDUE UNIVERSITY	IND	348,334	9.3	16.8	0.0	4.7	30.8
IOWA STATE UNIVERSITY	IOW	256,512	7.0	14.1	0.0	5.8	26.9
KANSAS STATE UNIVERSITY	KAN	177,110	1.5	0.3	0.0	0.0	1.8
UNIVERSITY OF KENTUCKY	KY.	469,828	4.7	4.5	6.2	4.3	19.7
LOUISIANA STATE UNIVERSITY	LA.B	432,823	8.3	2.3	3.1	1.8	15.5
LOUISIANA TECH UNIVERSITY	LA.Z	185,496	2.3	1.1	0.0	0.6	4.0
UNIVERSITY OF MASSACHUSETTS	MAS	231,764	2.4	0.1	0.2	1.1	3.8
UNIVERSITY OF MARYLAND	MD.	253,839	2.4	1.8	0.8	3.4	8.4
UNIVERSITY OF MAINE	ME.	579,219	14.0	25.3	7.3	1.2	47.8
MICHIGAN STATE UNIVERSITY	MICL	210,606	5.9	14.2	1.8	8.5	30.4
UNIVERSITY OF MICHIGAN	MICY	209,273	2.4	4.5	0.0	0.2	7.1
MICHIGAN TECHNOLOGICAL UNIVERSITY	MICZ	210,605	1.1	1.2	1.3	0.0	3.6
UNIVERSITY OF MINNESOTA	MIN	498,641	11.9	25.3	2.8	12.7	52.7
FOREST AND WILDLIFE RES CENTER	MISZ	712,813	17.6	34.1	0.5	19.6	71.8
UNIVERSITY OF MISSOURI	MO.	442,829	3.6	23.9	2.5	8.2	38.2
UNIVERSITY OF MONTANA	MONZ	403,035	0.9	3.7	1.3	0.9	6.8
NORTH CAROLINA STATE UNIVERSITY	NC.Z	701,931	24.7	69.4	7.7	6.8	108.6
NORTH DAKOTA STATE UNIVERSITY	ND.	105,348	1.4	3.5	0.7	0.2	5.8
UNIVERSITY OF NEBRASKA	NEB	213,341	3.8	3.3	2.1	0.4	9.6
UNIVERSITY OF NEVADA	NEV	118,847	1.3	2.0	0.0	0.4	3.7
UNIVERSITY OF NEW HAMPSHIRE	NH.	334,834	2.5	8.5	0.0	0.0	11.0
RUTGERS UNIVERSITY	NJ.	159,345	2.2	1.5	3.3	0.5	7.5
NEW MEXICO STATE UNIVERSITY	NM.	294,337	2.1	1.0	3.2	1.6	7.9
CORNELL UNIVERSITY	NY.C	158,769	4.8	1.6	0.8	2.5	9.7
STATE UNIVERSITY OF NEW YORK	NY.Z	503,229	1.1	5.8	1.3	0.1	8.3
OHIO STATE UNIVERSITY	OHO	375,332	4.7	5.5	1.2	1.8	13.2
OKLAHOMA STATE UNIVERSITY	OKL	361,832	5.4	11.8	0.0	0.0	17.2
OREGON STATE UNIVERSITY	OREZ	699,313	30.4	80.7	4.3	7.8	123.2
PENNSYLVANIA STATE UNIVERSITY	PEN	478,537	21.6	18.8	0.0	14.9	55.3
UNIVERSITY OF PUERTO RICO	PR.	91,848	0.9	0.3	0.1	0.5	1.8
UNIVERSITY OF RHODE ISLAND	RI.	54,088	0.7	0.0	0.0	0.0	0.7
CLEMSON UNIVERSITY	SC.Z	550,822	4.1	3.3	4.1	4.1	15.6
SOUTH DAKOTA STATE UNIVERSITY	SD.	132,346	0.9	5.0	0.0	3.7	9.6
UNIVERSITY OF TENNESSEE	TEN	539,808	14.8	32.6	10.7	8.2	66.3
TEXAS A&M UNIVERSITY	TEX	338,175	5.7	14.5	1.2	1.6	23.0
STEPHEN F. AUSTIN STATE UNIVERSITY	TEXY	319,349	3.2	4.0	0.0	1.0	8.2
UTAH STATE UNIVERSITY	UTA	226,841	2.6	0.4	0.5	1.5	5.0
VIRGINIA POLYTECHNIC INSTITUTE	VA.	591,320	11.7	30.7	7.2	3.7	53.3
UNIVERSITY OF THE VIRGIN ISLANDS	VI.	51,351	0.5	1.0	1.0	0.2	2.7
UNIVERSITY OF VERMONT	VT.Z	280,837	2.1	0.1	5.0	1.4	8.6
UNIVERSITY OF WISCONSIN	WIS	510,324	4.0	12.0	0.0	2.0	18.0
WASHINGTON STATE UNIVERSITY	WN.P	292,655	5.5	10.4	4.4	2.1	22.4
UNIVERSITY OF WASHINGTON	WN.Z	360,351	1.4	0.4	1.6	0.5	3.9
WEST VIRGINIA UNIVERSITY	WVA	424,346	4.9	5.8	1.4	2.3	14.4
UNIVERSITY OF WYOMING	WYO	172,844	1.6	1.1	0.2	0.3	3.2
TOTAL		20,780,707	377.0	703.4	163.5	186.1	1,430.0

NOTE: Totals may not add due to rounding.

Summary of Personnel Supported with McIntire-Stennis Funds in Fiscal Year 2007

University/Recipient	Station	McIntire-Stennis Funds	Scientist Support	Professional Support	Technical Support	Clerical Support	Total Support
AUBURN UNIVERSITY	ALAZ	$989,890	14.5	31.7	2.0	2.1	50.3
UNIVERSITY OF ALASKA	ALK	627,722	4.8	1.0	4.6	0.0	10.4
UNIVERSITY OF ARKANSAS	ARK	834,090	8.4	12.0	1.8	2.2	24.4
UNIVERSITY OF ARIZONA	ARZT	266,504	9.5	23.0	6.3	3.9	42.7
NORTHERN ARIZONA UNIVERSITY	ARZZ	265,328	0.0	7.5	0.0	0.0	7.5
UNIVERSITY OF CALIFORNIA	CALB	440,922	16.3	45.5	11.1	11.1	84.0
CAL POLYTECHNIC STATE UNIVERSITY	CALY	128,180	1.1	0.9	0.0	0.5	2.5
HUMBOLDT STATE UNIVERSITY	CALZ	124,801	0.7	1.1	0.1	0.0	1.9
COLORADO STATE UNIVERSITY	COL	457,499	5.0	31.2	6.4	5.7	48.3
CONNECTICUT AGRICULTURAL EXPERIMENT STATIOCONH		187,781	6.7	0.0	5.4	0.0	12.1
UNIVERSITY OF CONNECTICUT	CONS	62,360	0.3	0.8	0.0	0.2	1.3
UNIVERSITY OF DELAWARE	DEL	99,739	0.6	0.0	0.0	0.0	0.6
UNIVERSITY OF FLORIDA	FLA	699,221	13.5	20.5	9.6	7.6	51.2
UNIVERSITY OF GEORGIA	GEOZ	971,267	17.7	18.1	14.1	7.7	57.6
UNIVERSITY OF GUAM UCG STATION	GUA	42,527	0.0	0.0	0.0	0.0	0.0
UNIVERSITY OF HAWAII	HAW	166,451	4.1	1.1	0.6	3.1	8.9
UNIVERSITY OF IDAHO	IDAZ	602,359	5.2	0.0	0.0	0.0	5.2
UNIVERSITY OF ILLINOIS	ILLU	208,120	3.4	3.4	0.0	0.5	7.3
SOUTHERN ILLINOIS UNIVERSITY	ILLZ	206,592	3.9	5.0	0.0	0.7	9.6
PURDUE UNIVERSITY	IND	475,039	9.9	20.0	0.0	14.8	44.7
IOWA STATE UNIVERSITY	IOW	360,340	6.1	10.4	0.0	6.7	23.2
KANSAS STATE UNIVERSITY	KAN	285,578	1.6	1.1	0.4	0.3	3.4
UNIVERSITY OF KENTUCKY	KY.	608,135	4.7	5.0	3.7	4.1	17.5
LOUISIANA STATE UNIVERSITY	LA.B	571,848	7.3	2.3	3.4	4.4	17.4
LOUISIANA TECH UNIVERSITY	LA.Z	255,875	1.5	2.6	0.0	0.6	4.7
UNIVERSITY OF MASSACHUSETTS	MAS	325,692	3.2	0.1	0.0	1.4	4.7
UNIVERSITY OF MARYLAND	MD.	306,861	2.4	1.8	0.8	2.3	7.3
UNIVERSITY OF MAINE	ME.	796,428	13.0	22.5	5.9	1.3	42.7
MICHIGAN STATE UNIVERSITY	MICL	290,582	6.6	15.4	2.0	11.1	35.1
UNIVERSITY OF MICHIGAN	MICY	277,018	4.0	9.3	0.5	1.1	14.9
MICHIGAN TECHNOLOGICAL UNIVERSITY	MICZ	290,582	0.1	0.4	1.1	0.0	1.6
UNIVERSITY OF MINNESOTA	MIN	654,463	10.5	21.4	3.2	13.7	48.8
FOREST AND WILDLIFE RES CENTER	MISZ	965,895	18.4	51.9	3.0	30.2	103.5
UNIVERSITY OF MISSOURI	MO.	566,323	4.4	2.6	0.0	2.4	9.4
UNIVERSITY OF MONTANA	MONZ	555,605	1.4	2.0	6.9	0.0	10.3
NORTH CAROLINA STATE UNIVERSITY	NC.Z	999,447	21.1	78.3	3.0	8.2	110.6
NORTH DAKOTA STATE UNIVERSITY	ND.	133,113	1.8	7.3	0.0	0.3	9.4
UNIVERSITY OF NEBRASKA	NEB	291,562	3.0	2.9	1.9	0.5	8.3
UNIVERSITY OF NEVADA	NEV	156,228	1.8	1.1	0.0	0.6	3.5
UNIVERSITY OF NEW HAMPSHIRE	NH.	438,667	2.3	0.6	0.0	0.0	2.9
RUTGERS UNIVERSITY	NJ.	219,968	1.5	0.9	0.8	0.0	3.2
NEW MEXICO STATE UNIVERSITY	NM.	401,010	2.2	1.2	2.4	1.3	7.1
CORNELL UNIVERSITY	NY.C	130,867	4.2	1.0	0.7	2.5	8.4
STATE UNIVERSITY OF NEW YORK	NY.Z	582,567	1.0	4.4	0.3	0.0	5.7
OHIO STATE UNIVERSITY	OHO	495,158	5.0	5.1	1.2	1.8	13.1
OKLAHOMA STATE UNIVERSITY	OKL	513,987	6.2	12.7	0.0	0.0	18.9
OREGON STATE UNIVERSITY	OREZ	947,066	27.1	71.5	3.8	6.9	109.3
PENNSYLVANIA STATE UNIVERSITY	PEN	666,679	17.1	23.6	0.0	14.6	55.3
UNIVERSITY OF PUERTO RICO	PR.	75,784	0.9	0.7	0.4	0.3	2.3
UNIVERSITY OF RHODE ISLAND	RI.	65,706	0.3	0.0	0.0	0.0	0.3
CLEMSON UNIVERSITY	SC.	756,717	5.5	3.5	5.0	2.5	16.5
SOUTH DAKOTA STATE UNIVERSITY	SD.	175,057	1.0	1.5	0.0	2.7	5.2
UNIVERSITY OF TENNESSEE	TEN	748,640	8.7	29.8	10.2	6.1	54.8
TEXAS A&M UNIVERSITY	TEX	452,289	6.0	14.4	1.6	2.2	24.2
STEPHEN F. AUSTIN STATE UNIVERSITY	TEXY	454,705	6.7	1.4	0.0	1.6	9.7
UTAH STATE UNIVERSITY	UTA	344,522	3.2	0.0	0.0	0.0	3.2
VIRGINIA POLYTECHNIC INSTITUTE	VA.	772,579	14.7	40.2	7.7	2.8	65.4
UNIVERSITY OF THE VIRGIN ISLANDS	VI.	54,993	0.5	1.0	1.0	0.2	2.7
UNIVERSITY OF VERMONT	VT.Z	382,181	2.2	0.3	2.4	2.4	7.3
UNIVERSITY OF WISCONSIN	WIS	595,382	3.3	10.5	0.0	2.0	15.8
WASHINGTON STATE UNIVERSITY	WN.P	418,455	6.1	7.6	2.9	1.6	18.2
UNIVERSITY OF WASHINGTON	WN.Z	508,902	2.1	0.8	1.3	0.3	4.5
WEST VIRGINIA UNIVERSITY	WVA	556,408	6.5	8.5	0.0	1.3	16.3
UNIVERSITY OF WYOMING	WYO	212,716	1.3	0.8	0.2	0.2	2.5
TOTAL		27,518,972	374.1	703.2	139.7	202.6	1,419.6

NOTE: Totals may not add due to rounding.

MCINTIRE-STENNIS FORESTRY GRANTS

Ms. DeLauro: Please describe at least one accomplishment each for fiscal years 2007 and 2008 for each university or entity that received funding under the McIntire-Stennis Program.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007

Alabama
Auburn University, School of Forestry and Wildlife Sciences, assessed the historical role of southern forest use in southern society. Through the examination of oral history with turpentine and timber workers, participant-observation, and landowner/resident surveys, the role of forestry and natural resources in shaping culture both in the past and present is better understood. This project contributed to a greater understanding of the relationship between labor, land-use, and culture.

Alaska
The University of Alaska, Fairbanks, examined soil carbon balance and nitrogen dynamics following wildfire and logging in the interior Alaskan forests. Boreal forest soils constitute a huge reservoir of carbon and there is a need to better understand the responses following disturbances to assess the likely future role these soils will play in the atmospheric carbon balance.

Research indicates that post-fire responses of carbon emissions are not accelerated in boreal forests due to the disturbances. Fire events slow the rate of carbon release from soil reservoirs relative to unburned forests.

American Samoa
The American Samoa Community College embarked on a campaign of promoting trees-as-a-crop and value-added products to reverse the growing interest in land clearing and development. This information campaign was just presented at a forestry workshop in August, hence, it is still premature to assess its impact. It seems likely, however, that this type of presentation will need to be repeated to get adopted.

Arizona
The University of Arizona examined federal agency land management planning in light of the increasing public participation and complex laws. A general lack of understanding on the part of the public regarding the planning process has contributed to the current state of "analysis paralysis"; often stalling the planning process with litigation.

Through a study of past policies, the policy-making process, and comparative case studies researchers are identifying recent trends in improving public participation while maintaining timely and effective planning decisions.

Northern Arizona University researchers demonstrated the role fire regimes have played across the native range of ponderosa pine in the southwest. By sampling and cross-dating pines from the Centennial Forest, researchers were able to reconstruct the extensive fire regime dating back prior to 1890. This work confirmed earlier studies and provided a more comprehensive understanding of natural management and restoration practices in the region.

Arkansas
The University of Arkansas examined mechanisms to improve regeneration in pine and hardwood stands by identifying species-site interactions that commonly reduce survival. Landowners across the southeastern United States are having difficulty establishing northern red oak reproduction following red oak borer epidemics and establishing loblolly pine on vertic soils.

New techniques to establish northern red oaks have been applied to many borer damaged stands in Arkansas. This regeneration regime is proving to be effective and economically feasible. New pine planting guidelines are helping to increase the current level of 1.2 billion loblolly seedlings planted across the southern United States. These techniques have shown to improve overall growth rates and with strip thinning implemented, a previously unused source of cellulosic feedstocks will soon be available.

California
California Polytechnic State University examined the attitudes, opinions, and values of California residents regarding outdoor recreation opportunities on public lands. Research focused on understanding participation levels and interests in differing activities, including latent and unfilled demand, and focusing on demographic differences between Hispanics, baby-boomers, and youth age 12-17.

This research will enhance the understanding of California's economic, environmental, and social values of forests and parks; assess trends, patterns, and preferences for recreation; and establish a baseline understanding of the economic and personal benefits residents' derive from recreation.

Humboldt State University examined the fire regime in northwestern California forest types by using a standardized format and nomenclature, as well as defining fire intervals, cycles, sizes, and causes. This research will assist land managing agencies better understand the impacts of fire prevention and suppression on forest conditions and assist them in deciding on remedial fuel treatment activities.

The University of California, Berkeley, examined the ecology and life cycle of the threatened Central Valley cottonwood. This riparian species has a suite of life history traits that allow them to establish and thrive under a highly variable stream flow regime but due to dammed rivers the species is in decline.

Research has proven that peak seed dispersion begins on May 15 for cottonwood. Including this information into growth models, managers of regulated rivers in the Central Valley can now consider the ecological impacts of water regulation and the successful establishment of cottonwood species.

Colorado
Colorado State University research focused on developing and expanding the used of spatially explicit landscape-scale probability models of key insect pests to monitor climate change. Research indicates that the greatest impacts of climate change can be detected by its indirect effect on the more localized biotic agents; in this study the focus was on mountain pine beetle outbreaks. This research will predict the areas most prone to damage caused by climate change and allow a manager to proactively implement special management regimes.

Connecticut
The Connecticut Agricultural Experiment Station, examined the effects of precommercial crop-tree releases of oak saplings. Research focused on determining the effects of precommercial releases on growth and survival of saplings and identifying individual tree characteristics that are best correlated with increased growth and survival following release. Preliminary results suggest that a 5-cm tree will require an average 123 years to reach sawtimber size without release, compared with 98 years for trees released once. Tree released multiple times to maintain diameter growth would require only 65 years to reach sawtimber size. Thus, a carefully timed series of crop tree releases could effectively double regional forest productivity by halving rotation periods.

The University of Connecticut, SAES, researchers are examining the effectiveness of northeastern forests in reducing mercury accumulation in the environment. Fluxes of mercury between soils, litter, the atmosphere, and hardwood stands are being modeled to understand the role deciduous species such as red maple can play in the removal of the neurotoxin mercury.

Delaware
The University of Delaware examined human-deer conflicts in the urban, suburban, and rural communities. In the urban and suburban areas, most of the conflict is represented by vehicle collisions and damage to landscape. Rural conflicts manifest themselves in the loss of agricultural crops or seedling failure. Research has developed a spatial and temporal model to assist in reducing deer damage. This information is being used to better plan and conduct controlled hunts to limit population growth.

Florida
The University of Florida worked to improve varieties of southern pines for deployment in the Lower Coastal Plain. Researchers focused on improving quantitative genetics, parameter estimations of height growth, and tree improvements through advanced-generation breeding, testing, and selection strategies. Initial results have provided definitive information concerning the relative contribution of height growth components to annual height increment. Further information concerning the differences among the provenances of loblolly pine for elongation pattern, length of growing season and growth rate per day enables researchers to better understand varying responses of provenances to environments. The information on the non-additive transfer of cold tolerance to Florida source loblolly pine through crossing with other provenances lets tree breeders who are responsible for producing clonal genotypes for screening consider the tactic of combining Florida materials, with their inherent growth advantage, with other provenances to produce clones for testing outside the normal zone of deployment for Florida material.

Georgia
The University of Georgia, Warnell School of Forestry and Natural Resources, examined the influences of forest landscape dynamics on species persistence. Theoretical models were constructed to demonstrate relationships between past landscape changes, current landscape patterns, and forest community composition and habitat structure under human-influenced management. The important theoretical result indicated that patterns of habitat dynamics in both time and space can lead to complex effects; sometimes including counterintuitive results. This information will assist natural resource managers in developing new management regimes to maintain production while supporting diverse populations of plant and animal species.

Guam
The University of Guam used McIntire-Stennis funds for the development of native plant species to be used as more suitable plant material for the local landscape industry. Native tree and shrub species were collected and seed germination programs were initiated in an effort to reduce the risk of establishing invasive exotic species. Initial results indicated 100 percent survival of planted native species for the purpose of landscaping.

Hawaii
The University of Hawaii defined and monitored the distribution of termite species, how improved wood products may become more resistant to attack, and the efficacy under tropical conditions of soil insecticides for termite control. Wood is the principle construction material used in Hawaii and termites are the most economically destructive insect pest in the state. Researchers demonstrated at least 9 to 10 years of efficacy of borate treatements against Formosan termites. Building a curriculum and public education program that has impacted 85 public schools, Hawaiian residents can save up to $27 million in termite control costs. This is done by incorporating the researcher's low-toxicity termite management methods.

Idaho
The University of Idaho evaluated the impact of thinning and fertilization on host tree vigor and insect community structure in lodgepole pine stands susceptible to mountain pine beetle attack. By enhancing tree vigor, mountain pine beetle outbreaks may be less severe due to increased resin flow. A secondary result of the research is to determine the impact on native insect communities during stand improvement treatments. Research is ongoing.

Illinois
Southern Illinois University Carbondale applied techniques and generated basic knowledge important for the regeneration and restoration of northern red oak, a keystone species, in the eastern United States. The study indicates that larger stock types at the time of planting, containerized and 2-0 bareroot, should be used for the ensuring the greatest survival and growth. Although initially beneficial, tree shelters, top-clipping, and root pruning of the stock did not significantly affect growth after 17 years. Cuttings originating from oak seedlings exhibited high rootability and field survival and growth comparable to that of sexually propagated field planted seedlings. These findings will help regenerate this economically and ecologically valuable species.

The University of Illinois, Urbana, examined how different tree types respond physiologically to new flooding regimes resulting from man-made alterations in the hydrology of rivers. The studies will describe nitrogen uptake rates as well as biomass accumulation, biomass allocation, allocation of nitrogen and allocation of nonstructural carbohydrates to various tissues of trees representing important functional groups of riparian species. Results will help to better manage floodplain forests to increase their health and biological diversity. Research is still on-going.

Indiana
Purdue University examined current and emerging furniture design challenges; specifically for mass-customized furniture and furniture with reduced environmental impact. The purpose of the study is to extend the supplies of available raw materials, by offering new products for small diameter timber and underutilized wood resources.

The increased utilization of small diameter timber has provided an environmentally outlet for the underutilized resource in the United States and improved quality of life in Costa Rico, Afghanistan, and the Middle East

by serving as material for experimental construction. Technology transfer programs are currently underway in several third-world nations.

Iowa
Iowa State University examined the need and potential for biobased materials developed from wood and agricultural resources. Researchers, working with wood fibers, kenaf core, switchgrass, and other agricultural crops have developed new product outlets and value-added materials. Agricultural residues are now being used in the manufacturing of door skins. The concurrent development of plant- and animal-protein based adhesive systems has also added value to agricultural products. Researchers were instrumental in the development of a new commercial enterprise utilizing switchgrass as a plastic additive.

Kansas
Kansas State University evaluated established riparian field plantings to determine their effect on improving water quality in streams and rivers in central Kansas and to find the best plant species for a root-soil mantle barrier to moving water in riparian streamside tree plantings. Certain agricultural field activities contribute herbicides and fertilizers thus contaminating the water. The results of this project will help us manage riparian resources more effectively by indicating ecological implications of current management practices. The uses of cottonwood and willow seedlings are currently being investigated.

Kentucky
The University of Kentucky examined the ability to effectively prevent or mitigate the invasion of exotic species. Using geospatial positioning systems and the existing Continuous Forest Inventory, researchers are quantifying the spatial distribution and abundance of exotic invasive species in forested ecosystems as a function of landscape structure and disturbance. A predictive model to detect, monitor, prevent, and mitigate invasions is currently being constructed. This model will allow land managers to act proactively to manage activities.

Louisiana
Lousiana State University AgCenter examined the conditions that lead to the development of loblolly pine decline and how to predict its occurrence. Researchers utilized spatial data and biological surveys to construct potential hazard maps that would indicate where loblolly production may potentially decline. The maps will assist land managers in making well informed, accurate, and proactive management decisions.

The hazard maps developed were more than 90 percent accurate in evaluations in Alabama and Georgia and are currently being tested in Louisiana, Mississippi, Arkansas, and Texas. When applied to historical southern pine beetle outbreaks, the maps identified 85 percent of the outbreaks accurately providing another tool for the prevention of insect damage. The US Forest Service's Forest Health Protection office has adopted the use of the mapping technique. The US Army at Ft. Benning, Georgia also uses the technique in forest management.

Louisiana Tech University is evaluating the efficiency and effectiveness of utilizing an unmanned aerial vehicle to detect and map areas of tree stress and mortality through imaging systems. The research is focused to help increase early stress detection using a low cost method. Evaluation of the process is on-going.

Maine
The University of Maine recognized that forest managers in Maine have to incorporate more complex objectives into their planning considerations. This research introduced and adapted tools and approaches that are designed to facilitate complex forest management to the northeast. An evaluation of the integrated landscape-ecosystem management regimes overlaid with an understanding of natural disturbances and user objectives helped construct a software model that allows land managers to better understand the potential tradeoffs and interactions of competing objectives. This research will assist in facilitating future forest management.

Maryland
The University of Maryland examined the effect of soil and biosolid application rates on water quality around deep rows on a gravel mine spoils and the contribution to nutrient removal made by trees. High biosolids production and more restrictive nutrient utilization regulation combine to reduce land available for biosolids application. The untested deep-row incorporation technique has the potential to utilize a major portion of the biosolids regionally produced and improve habitat without water quality degradation. Research is currently evaluating the impact hybrid poplar trees are having on nitrogen uptake along a trenched overburden containing 171 to 294 dry tons of biosolids.

Massachusetts
The University of Massachusetts is developing a computational approach to model the mechanical behavior of structural composite lumber. This computer model will be a long-awaited tool for inventors and manufacturers of wood composites to optimize and guide development of new products. The model will foster innovation with far reaching environmental and economic impact. With this tool, manufacturers will be able to quickly and inexpensively investigate the use of weed species in wood composites and thereby reduce fuel for wildfires and evaluate the use of cheaper, juvenile wood to gain greater economic advantages. The model is currently being tested.

Michigan
Michigan Technological University is investigating the manufacturing variables and how they effect propensity for mold growth on plastic/wood products. Research shows that increasing wood and lubricant content increased the susceptibility of the laboratory-made composite to mold growth. Lubricants had a complex effect on mold growth. A blend of zinc stearate and ethylene bis-stearamide wax had the greatest effect on promoting mold growth. Processing temperature also affected mold growth but in a complex manner. Zinc borate, 3-lodopropynylbutylcarbamate, and chlorothalonil were investigated as anti-mold agents for plastic-wood composite (PWC) materials. All three biocides reduced mold growth, however, the zinc borate appeared to perform the best on a cost/performance basis. Discoloration of PWC decking by mold growth is one of the major performance drawbacks of these products. This research should be of help to the industry.

Michigan State University assessed the impacts of lumber trade restrictions and analyzed the welfare consequences of alternative restriction regimes. This research focused on the U.S.-Canada softwood lumber trade dispute and the Softwood Lumber Agreement. By understanding the driving policy and social underpinning of this issue, researchers were able to provide scientific insights for future policy making.

The University of Michigan explored the psychological benefits humans derive from urban forests by comparing perceptions and well-being between a community with and without urban forests. The research explores the psychologically restorative effects of everyday exposure to a mature urban

forest. It also seeks to understand the psychological, physical, and aesthetic benefits trees have on people. The project findings hope to provide practitioners with an increased understanding of the functional role of forested urban and suburban settings in the lives of residents, and help them to justify increased allocation from planning and management budgets toward the long-term development and upkeep of urban and community forests.

Minnesota
The University of Minnesota research provided practical guidelines to improve the success of regeneration efforts with partial cutting. Silvicultural treatments that retain live trees are increasingly being used as alternatives to clearcutting. However, little work has been done in Minnesota to address the effects of varying partial overstory removals and gap sizes on regeneration processes of mixed species. Investigations examined how post-treatment natural regeneration, advance regeneration, and artificial regeneration of mixed species proceed as a function of the microclimatic conditions resulting from different gap sizes or residual tree densities after partial cuts, determined how various strata respond to and interact/compete with one another given different gap sizes, and evaluated what release treatments and thinning intensities might be effective in channeling productivity to the regeneration and the residual trees. The findings will lead to specific silvicultural practices that will aid retention of this type in the landscape on both public an private properties.

Mississippi
Mississippi State University examined the durability of interfacial bonding in the wood-based composites and learned more about the moisture transfer process as well as the moisture-induced thickness swelling process. In addition, the performance of adhesive resin bondlines and the wood-polymer interphase at elevated-temperatures and moisture treatments were investigated. This research will assist the wood-based composite industry in redefining production protocols and product durability.

Missouri
The University of Missouri, Columbia, developed a forest stand structure model and evaluated this model in a variety of forest types and structures. Additionally, researchers developed a landscape forest structure model and evaluated the model performance on several large regions. Forest managers have an interest in understanding how natural and human disturbance effect the composition, size, spatial pattern, and density of forests. Recently, people are interested in the cumulative effects of multiple disturbances on landscape change. This research investigates these relationships using both traditional methods and some newly developed statistical methods design to address complex problems. It has the potential of allow the analysis of complex relationships that have been difficult or impossible to model in the past.

Montana
The University of Montana examined conflicts between off-highway vehicle drivers and hiking advocates to identify the foundations for their opposing recreational values, the ramifications of using judgment criteria to guide recreational opportunity allocation, and construct an analytical framework to resolve recreational opportunity conflict. Research is on-going but the results should assist decision-makers use a more systematic, rational, and transparent process to resolving limited resource allocation issues.

Nebraska
The University of Nebraska focused on the reduction of non-crop habitats for wildlife as agricultural production demands increased. As long-term yields for corn, soybeans, and winter wheat continue to climb biodiversity and

ecosystem health also declines as fewer woody habitats remain available for wildlife. This research examines the effectiveness and efficiency of sheltered agricultural landscapes and the advantages to wooded windbreaks. Research remains on-going.

Nevada

The University of Nevada, Reno, is conducting research to formulate adaptive management strategies for restoring forest health in the eastern Sierra Nevada that incorporates protection of critical watershed values. The research focuses on the evaluation of mechanical thinnings and prescribed fire, individually and interactively, to enhance long-term stand health, productivity, and water relations in east side Sierra Nevada Jeffrey pine; reconstruction of the fire history in east side Sierra Nevada Jeffrey pine by quantifying past fire frequency, severity, and changes over time in different topoclimatic settings for purposes of guiding prescribed fire prescription development in this cover type; evaluation of the long-term effects of mechanical thinnings and prescribed fire, individually and interactively, on stand and soil nutrient status and on site carbon, nitrogen, phosphorus, and sulfur budgets in the east side Sierra Nevada Jeffrey pine cover type; and evaluation the long-term effects of mechanical thinnings and prescribed fire, individually and interactively, on temporal and spatial water balance components in the east side Sierra Nevada Jeffrey pine cover type. The data collection and analysis efforts will ultimately permit land management agencies to evaluate prospective forest and fuels management practices on a scientific basis so that treatment outcomes are conducive to achieving desired forest conditions.

New Hampshire

The University of New Hampshire, examined how soil warming and nitrogen additions interact to influence microbial community composition, especially the relative abundance of bacteria and fungi, and if there is a correlation between the fungal:bacterial biomass ratio and the metabolic efficiency of the microbial community in soils exposed to chronic warming and nitrogen deposition. Forest productivity is dependent on nutrient cycling processes which are mediated by soil microorganisms. Microbial activity in turn is controlled to a large degree by temperature, moisture, and nutrient availability. Climate warming and nitrogen deposition are two global changes of significance to the New England region. Warming of 6-10 degrees Fahrenheit (F) is projected for the region by 2090 in response to increasing atmospheric greenhouse gas concentrations. Temperatures in the region have already increased by 0.74 degrees F over the past century. In addition to warming, another important regional change is the significant increase in nitrogen deposition to historically nitrogen limited ecosystems. Inputs to the terrestrial nitrogen cycle have doubled in the past century due to anthropogenic activities, particularly fertilizer use and fossil fuel combustion. This research is determining how these two environmental changes are interacting to alter key ecosystem services provided by forest soils, including carbon storage, decomposition, and nutrient cycling.

New Jersey

Rutgers, The State University of New Jersey, New Jersey Agricultural Experiment Station worked towards estimating the magnitude of the impact that sprawl has on forest cover, the greenhouse emissions attributable to the conversion of forest land into residential subdivisions, and the regional variations in the sprawl-forest cover relationship. This research aims to provide a more complete accounting of the costs of sprawl by investigating one possible set of costs, deforestation, that have been ignored. If sprawl does has a significant effects on forest cover, information about this relationship could make a useful contribution to debate about policies for containing suburban expansion.

New Mexico
New Mexico State University is developing strategies to improve seed germination and vegetative propagation in native woody plant species used in forestation and restoration activities in New Mexico including examining provenance variability in treatment responses. Research is also examining the effect of planting stock size on post-planting performance both above and below-ground and the effects of post-planting treatments such as fertilization, on the subsequent growth and development of transplanted material. Successful establishment of plant material is vital to three of New Mexico's critical industries: forestry, mining and agriculture. Forestation ecology encompasses a range of woody plant establishment approaches including reforestation, disturbed land reclamation and conservation plantings. This proposal addresses two related research areas of forestation: the propagation and evaluation of planting stock and post-planting performance of planting stock. Improving the success of tree planting in these areas requires research that examines factors impacting planting success.

New York
The State University of New York, College of Environmental Science and Forestry, examined judicial opinions that affected National Forest management between January 1989 and December 2000 and factors associated with successful challenges to Forest Service decisions.

Researchers were able to identify characteristics that make management decisions less vulnerable to litigation and provided strategies for the development of sound public forestland policies. This study provides policymakers, land managers, and stakeholders with accurate data that can help guide policy debate and choices.

Cornell University, Ithaca, examined an emergent strategy of combining energy production using modern biomass with land application of a residue from the energy production that has multiple environmental benefits. The proposed technology is low-temperature pyrolysis that yields bio-oil or hydrogen as the energy carrier. The key for securing environmental benefits is the production of a bio-char by-product during pyrolysis which can be applied to soil. In order to realize the multiple benefits of a pyrolysis and bio-char system, research is needed that allows the optimization of the pyrolysis conditions for maximization of the environmental benefits. In addition, information about long-term effects and changes of bio-char in soil is required. The research is intended to provide fundamental data to develop the envisioned energy system with respect to soil improvement, carbon sequestration and reduction of off-site pollution. It addresses major research and extension priorities related to strengthening economic development, to enhancing connections between economic and environmental challenges, and to improving natural resource protection and the environment. Lower ground and surface water pollution with agrochemicals, the remediation of existing contamination, and improvement of production on degraded sites are expected to contribute to a sustainable development using bio-char from bio-energy.

North Carolina
North Carolina State University examined the role of gene expression during adventitious root formation and how gene expression in cuttings changes as donor trees age. Genetic improvement can increase forest plantation productivity to meet the increasing demand for wood products. With the rapid turnover of the ownership of forest land and increasing competition in the forest products industries from overseas, it has become more important to develop the technology to produce fast-growing, high-quality trees for

landowners and processors. This research is helping to do this by contributing to the development and implementation of clonal forestry. Research is still on-going.

North Dakota
North Dakota State University identified sources of native, introduced and foreign woody plant germplasm with potentially desirable traits for breeding and/or selection purposes; evaluated accessions of new or untested species, cultivars and seed sources for ease of establishment, winter and drought hardiness, soil adaptation, pest susceptibility and aesthetic characteristics, and select superior woody plant clones; established practical means of propagating selected clones and other plants that are not available in the nursery trade; and introduced superior cultivars adapted for the northern plains and disseminate research information to scientific, commercial and public sectors. Evaluation recommendations for woody plants are making a significant impact on a large clientele who use landscape plants in the Northern Plains. With the introduction of 32 superior plants from this project, the inventory of hardy plants for production and sale in the nursery industry and use by landscape architects/designers, developers, city arborists, foresters, horticulturists, parks and sports facilities, conservationists, and public consumers has been markedly increased.

Ohio
The Ohio State University Agricultural Research and Development Center, assisted in the development of scaleable, community inventory systems for large and small communities in Ohio for use in community vegetation management and the development of a statewide database while evaluating growth characteristics and environmental tolerance as well as the interaction between trees and the hardscape in Ohio communities to assist in proper plant selection for urban and suburban conditions and defining the interactions between selected trees, their environment, and their pests such as the Emerald Ash Borer. Ohio communities are faced with potential losses estimated to range from 1.8 (median based) to 7.6 (mean based) billion dollars from the Emerald Ash Borer. Community losses include the loss in landscape value, tree stump removal, and replacement with a two-inch tree. In the face of such costs, communities have begun to plan for a future with Emerald Ash Borer. This problem costs a nursery grower less than $5 while correcting the problem during planting costs the landscape contractor $20. Correcting the problem after the plant has been in the landscape costs $125 dollars. Clearly the time to correct the problem is in the nursery.

Oklahoma
Oklahoma State University examined landowner willingness to implement prescribed fire on their lands, assess homeowner knowledge of fire risk and fire ecology, and assess social impediments to proper fire management regimes. Due to fire suppression activities, Oklahoma has experienced wildlife habitat degradation, changes in plant communities, & increased risk of catastrophic wildfires. The purpose of this research is to examine landowner attitudes toward and willingness to adopt prescribed burning, and to investigate the potential for cooperative action. Research is on-going.

Oregon
Oregon State University developed models of timber harvest and forest management investment decisions by private owners in the U.S. at the regional level, recognizing major economic and social determinants of behavior and examined the performance of these timber supply models in projections of timber markets using larger models of timber and secondary forest products markets to develop estimates of the private harvest response to commonly advocated changes in forest policies and management regulations, including limitations on access to some portion of the timber inventory, minimum

harvest ages and/or harvest sizes, minimum post-harvest residual stocking, and monetary incentives for prolonging rotations. Private timberlands have become the primary source of all wood products in the U.S. This research aims to improve and extend the major types of models of private timber harvest and investment behavior to allow better predictions of likely future harvests and to better understand private response to policy changes. The models being developed provide regional, state and national forest policy makers with tools to consider the costs and impacts of proposed changes in state forest practice rules, forest restoration programs on public lands and other forest policies.

Pennsylvania
The Pennsylvania State University examined natural regeneration of mixed-oak stands under different environmental conditions such as gap size, seedbed conditions, and overstory composition and density. Research focused on the role on inter-gap sunlight levels on the establishment and early development of desirable species.

Results of the study promoted new silvicultural recommendations for treating uneven-aged mixed oak stands in Pennsylvania. Private landowners now have more tools to implement a successful uneven-aged rotation and produce high-quality hardwood timber. This short-term study has provided the foundation for longer-term research.

Puerto Rico
The University of Puerto Rico assessed regeneration of native and introduced plant species in dry forest stands experiencing various forms of perturbation and assess growth and survival of mature native tree species under new disturbance regimes. This research also evaluated reforestation success on previously burned coastal dry forest sites and the effectiveness of management methods for grass control and their influence on native tree regeneration. Tropical dry forests in Puerto Rico are facing new environments related to the introduction of exotic species that change disturbance regimes and patterns of forest succession, particularly when recovering on abandoned farmland. First, the introduction of non-native grass species in pasture systems has changed fire dynamics in forest ecosystems. The understory of mature Puerto Rican dry forest is typically sparse and not amenable to fire, but secondary forests and mature forests near old pastures are subject to frequent and intense burning due to high fuel loads provided by exotic grasses. Second, non-native tree species have been introduced into Puerto Rico and some of them now dominate secondary forests but their influence on the succession of dry forests is not yet understood. Research is on-going into the effects each role influences native forest stands.

Rhode Island
The University of Rhode Island attempted to characterize the extent of in-stream nitrate removal in low gradient streams and identify stream attributes that relate to elevated nitrate removal rates. Gaining more insight into in-stream nitrate removal contributes to the scientific dialog that seeks to target site-specific nitrate control strategies to locales with high potential for export to coastal waters. Forested riparian zones are a source of woody debris and leaf litter that can promote the growth of biofilms and anaerobic microsites where in-stream denitrification can occur. The purpose of this research is to improve our capacity to target site-specific nitrate control strategies to locales with high potential for export to coastal waters.

South Carolina
Clemson University identified and investigated issues in nontimber and, especially, nonmarket valuation such as types of recreational leases

currently occurring on private lands in the United States, and identify those specifically occurring in the southeastern United States; identify and characterize emerging and potential markets for nontimber forest products; identify and characterize consumers of nontimber forest products and investigate likelihood of participation by selected user groups. Based on the previous analyses and taking into consideration demographic and participation trends, the research will project future participation by selected user groups. Many of these products are of importance to rural economies. Some result in tourism which provides jobs and an inflow of income into an area. Some products benefit private landowners directly. Nontimber forest products can result in income from sales or leases and, in the case of a large enterprise, additional jobs.

South Dakota
South Dakota State University used McIntire-Stennis funds to monitor and document the progress of restoration work by measuring changes in stream morphology and vegetation. Healthy riparian zones provide numerous ecological services to the public, including cleaner and sustained water supplies, wood products, fish and wildlife, and aesthetics. Though many riparian restoration projects are undertaken, few are monitored on a long-term basis. Data from a working ranch in western South Dakota indicated that improved grazing management could accomplish both improved economics and ecosystem services.

Tennessee
The University of Tennessee increased the understanding of the impact of the exotic hemlock woolly adelgid in eastern Tennessee forests. Research focused on identifying those native insect species associated with eastern hemlock and evaluates the efficacy of biological control agents as a means of controlling the adelgid.

Research strengthened the understanding of the lifecycle of the exotic adelgid as well as the identification of 292 insect species associated with eastern hemlocks, several of which could be severely impacted by the loss of the tree. This increased understanding is leading to improvements in the integrated pest management programs against the adelgid.

Texas
Stephen A. Austin State University continued developing, modifying, and updating their growth and yield models for unmanaged loblolly and slash pine plantations and intensively managed loblolly pine plantations in east Texas. Researchers also defined and validated techniques for updating forest inventories that use remotely sensed data.

This research provided land managers with improved growth and yield data to conduct more accurate forest planning, assisted land managers in more accurately predicting volume from their plantations, and improved existing site indices to better evaluate site quality.

Texas A&M University researchers fully investigated the warping mechanism of wood composites such as plywood, particleboard, and polymeric laminates. The objective was to develop new knowledge to eliminate or reduce warp and increase consumer confidence in purchasing composite products.

The study produced a new warping model that examined relationships between warping and layered material properties such as thickness and modulus of elasticity. This model is assisting in building a clearer understanding of mechanical and hygroscopic swelling response and improved prediction of engineering constraints of wood composite materials.

Utah
Utah State University studied groundwater-surface water interactions within pristine, impacted, and restored streams to better understand the connections and disconnections in stream hydrologic and biogeochemical functionality. These interactions are the underpins of stream ecosystem function in forested watersheds. The improved understanding has elevated the potential results due to improved stream restoration designs.

Vermont
The University of Vermont, Rubenstein School of Environment and Natural Resources, examined the carrying capacity of parks and related forest recreation areas. Indicators and standards of quality for outdoor recreation were first defined and through a variety of conceptual and empirical methods, researchers are hoping to develop and apply the concept of carrying capacity to effective and efficient park management. This research will assist park managers in serving the publics to the highest degree possible.

Virginia
Virginia Polytechnic Institute and State University evaluated harvesting alternatives that will lead to best regeneration and most valuable stands and fire and herbicide treatment alternatives to improve regeneration success and stand value while examining the potential for timber stand improvement through species and density control. The public wants to maintain the diversity of plant and animal species in forests, while demanding more forest production from a decreasing land base. This project examines ways in which the yield of timber products can be increased, while at the same time maintaining plant diversity and limiting the spread of exotic species in eastern forests. Research on understory vegetation indicate that 5 to 10 percent of many sites on the most productive slopes and soils in the Southern Appalachians can be dominated by Rhododendron understories. Reclaiming these sites by removing these dense understories could result in successful regeneration. On the Jefferson National Forest in Virginia, such treatment could generate an additional $20,000 of timber revenue per acre on affected sites.

Virgin Islands
The University of the Virgin Islands continued to develop propagation protocols for other species. Plants that were propagated were being used for enrichment plantings as well as for preventing the intrusion of invasive species via open space planting.

Washington
The University of Washington identified the major trends in China that could impact the market for timber and wood products and the potential impacts of these trends on the competitiveness of US forest products industry and wood exporters while identifying potential market opportunities and competitive threats associated with each major trend. The past decade has seen sweeping changes occur in China in response to an opening of the Chinese economy to the outside world. During this time, the Chinese have adopted a policy of export-oriented growth, modeled on the previous economic development successes observed in Japan, South Korea, Taiwan and Thailand. Much of the economic success observed in China can be attributed to a huge workforce, low labor rates, weak environmental regulations, massive foreign direct investment, generous subsidies to export oriented businesses, an artificially weak yuan and huge imports of raw materials. These trends are all the more significant since the opening of China to the outside world is a relatively recent phenomenon. As a result, many managers and exporters have a relatively poor understanding of the changes occurring in China and the implications of these changes on exports opportunities in China. A report on these trends is pending.

Washington State University examined effective and economical mitigation for the maintenance of agricultural water sources, so that land in agricultural production can continue to be drained, productive, and weed-free in such a manner that fish habitat is not degraded. The research took a holistic approach at evaluating riparian buffer function to protect water quality, improve salmon habitat, and evaluate buffer impact on farm enterprises.

Experimental hybrid poplar buffers showed mitigation of nitrate levels as water filtered through them. Economic buffer models for the production of potatoes, raspberries, and blueberries were developed and instructional modules were disseminated across the region.

West Virginia
West Virginia University examined the role tourism plays in sustaining biological diversity. The research identified the types of tourism development within a region and the relationship between nature-based tourism and biodiversity. Gaining an understanding of the mechanisms for environmental sustainability, under local management policies and codes of conduct were also examined. This work helps to prevent uncontrolled and unplanned tourism and externalities such as environmental and socio-cultural degradation.

Wisconsin
University of Wisconsin, Madison examined the relationship of forest gaps to soil characteristics to better understand soil microclimate, nutrient dynamics, and microbial ecology in northern hardwood-hemlock ecosystems.

Results indicate that the greatest nitrate losses in old growth forests occur in gaps and along gap edges. Special attention should be given to these areas when considering management. In contrast, canopy gaps in these stands serve as carbon release valves potentially reducing carbon saturation in the forest soils.

Wyoming
University of Wyoming used McIntire-Stennis funds to examine a conceptual framework linking economic and ecological outcomes resulting from management changes within sagebrush communities. Prescribed burning of these communities has been introduced into the region but no efforts have yet been taken to understand the spatial and temporal interactions between environmental and economical outcomes of this practice. Research is still on-going.

Fiscal Year 2008

Alabama
Auburn University examined the effect of rural to urban land-use change on plant community and ecosystem responses. There were significant inverse correlations between forest cover and human population, housing and road density, tree species richness and forest patch density, urban land cover and lichen species richness, and lichen incidence and forest perimeter-area fractal dimension. Tree species richness, percentage of trees with lichens, lichen species richness and lichen abundance decreased from rural to urban environment. These findings inform and guide city planners and decision makers on how to develop adequate protective standards.

Alaska
The University of Alaska Fairbanks investigated the climate sensitivity of several forest species. Responses or sensitivities to temperature changes are manifested in widespread white spruce dieback and insect-caused tree death. An increase of 1 to 2 degrees C above the record temperature of 2004 would

result in the widespread mortality of White Spruce which constitutes 20 percent of Alaska forest resource. These results suggest that the wood-user communities face an uncertain future relative to growth of Interior Alaska forests as climate warming proceeds.

Arizona
University of Arizona researchers examined methods for eliciting and incorporating public input into public forestry planning and decision-making. Two methods were compared: Analytic Hierarchy Process (AHP) and intuitive decision-making. The study demonstrated that AHP offers a significant potential for application as a public participation tool. This allows full public participation in the Forest Service planning process.

Arkansas
The University of Arkansas examined the effect of fertilizer and herbicide applications on mid-rotation loblolly pine stands. Combined fertilizer and herbicide application increased total and merchantable volume growth by 12 to 13 percent during the first four years after the application. Herbicide application alone reduced non-crop competition by 60 to 70 percent but tended to reduce height and volume growth. This study demonstrated the importance of combining fertilization and herbicide applications in enhancing production of loblolly pine crop trees in mid-rotation.

California
A study by California Polytechnic State University is a part of the California State Board of Forestry Monitoring effort to evaluate event-based suspended sediment export attributed to various land management activities through a paired and nested watershed investigation. Results would allow the establishment of best management harvesting practices as well as the calibration of the rules and regulation governing these practices.

Humboldt State University examined the effects of fuel and fire in redwood region forests. A photo series was developed that allow managers to estimate fuel loading, and surface and crown fire behavior for three fuelbed types common to the redwood region. A spatial model to characterize forest floor smoldering, a process common to regional fires, was also developed. Fuel loading values at the six sites were found to be the highest reported for forests on earth (560 Mg per hectare). Information generated will inform effective forest fire control.

The University of California, Berkeley, used information from the coarse woody debris and canopy cover study in the formulation of the Southern Sierra Nevada forest conservation strategy. This plan developed a framework for management of US Forest Service lands in the southern Sierra for conservation of the pacific fisher and other old-growth species. The study has influenced the policy discussions regionally.

Connecticut
Increasing the proportion of oak in mature forest and shortening the time required to grow trees to commercial sizes would increase the economic value of regional forests. Results from Connecticut Agricultural Experiment Station in New Haven research indicate that complete crop tree release doubles the proportion of co-dominant oak surviving in the upper canopy while simultaneously increasing their diameter growth by 59 percent. Pre-commercial crop tree release followed by commercial thinning could reduce the time needed to grow saw-timber trees from 94 to 59 years. Thus, by shortening rotation periods, a carefully timed series of crop tree releases could increase regional forest productivity by 60 percent. Applying crop tree management on all oak-hickory timberlands in Connecticut would increase the annual value of saw-timber grown from $8.6 million to $16 million. This will

increase incentives to investing in management practices that increase regional forest productivity.

Knowledge of branch motion dynamics aids in understanding of mechanisms controlling tree stability, competition, and how the atmosphere physically interacts with the forest canopy. University of Connecticut in Storrs measured the three dimensional motion of mature oak tree branches, with and without restraints placed on their motion. Results showed mass damping contribution of branch motion is large relative to intrinsic damping. These results inform arborists and urban foresters on how to maximize tree stability and resistance to wind damage with their pruning strategies.

Colorado
In its lodgepole pine mortality project, Colorado State University embarked on major data collection effort aimed at characterizing lodge pole pine mortality patterns, demography of surviving trees, pine serotiny, tree regeneration, herbaceous community dynamics, and fuel load changes. These data will be used to project future forest structure under alternative forest and fire management scenarios. Two Colorado State University graduate students, aspiring forest scientists, were trained in forestry and forest science research methods. Additional funding leveraged through this project afforded the training of a third graduate student and three graduate research assistants.

Delaware
Human-deer conflicts, in suburban and urban areas, are manifested in vehicle collisions and damage to landscape plantings and agronomic crops. University of Delaware investigated ways to reduce deer-human conflicts through deer population in demographic studies, and crop damage controls through use of deer repellants. Controlled hunts were shown to alter deer density. This information can be used by local and state agencies in understanding the efficacy and use of controlled hunts to reduce deer-human conflicts. Two students completed their theses out of this project.

Florida
Research in the University of Florida's Forest Biology Cooperative has focused on: the genetic mechanisms of disease resistance in a large loblolly pine association population; the effects of loblolly pine genetics on soil carbon properties; characterizing wood properties in loblolly pine clones. Results from this research are directly applied in decisions regarding breeding and deployment of genetically improved trees used in the management of industrial woodlands for purposes of maximizing growth and disease resistance under a range of silvicultural treatments. Knowledge developed in this research is used by the University of Florida cooperators: Plum Creek, the largest private landowner in the US, and Arborgen, which produces 400 million tree seedlings each year, and accounts for one in four seedlings planted in the country.

Georgia
Results from the University of Georgia's investigations on improving sediment budgeting and relating sediment/land use to biotic conditions in Georgia streams were used to develop and promulgate slough Best Management Practices, or BMPs, and new headwater and ephemeral area BMPs that are now part of the Georgia BMP manual for forestry. The slough BMPs provide guidance for silvicultural activities conducted within and around fluvial features found on large river floodplains. The headwater and ephemeral BMPs provide guidance for activities occurring in variable source areas, ephemeral channels, and gullies. Also, results from these studies were published in 35 publications and have contributed to a growing understanding of the role of historical sediment contributions to current sediment problems. This research has

produced seven Masters and two PhD theses and has improved classroom teaching by creating new knowledge that has been incorporated in the curricula.

Guam
The University of Guam is currently evaluating the influence of ant attendance on natural enemies and their hosts on *Cycas micronesica* in Guam. Because the project is new, there is no reportable accomplishment until February 2009.

Hawaii
The University of Hawaii is developing effective silvicultural guidelines for productive Koa forest management. Extensive data analysis revealed that phosphorus fertilization can have a medium-term impact on tree growth rates, which reduces frequency of applications required to maintain optimal nutrition and that the health and vigor of the crop tree canopy at the time of treatment application have a major influence of the tree's growth response. This research also dispels a myth that trees older than 20 years do not respond significantly to stand management treatments like thinning and fertilization. This new set of new knowledge will provide managers more realistic expectations of growth response to treatments.

Idaho
University of Idaho supports two PhD students to conduct two investigations: to gather data to estimate production functions for in-field grinding of wood fiber that may be used for energy and biofuel production, and to examine price relationships between carbon contracts traded on the Chicago Climate Exchange and the European Climate Exchange. This study includes a component that sought to estimate the relationship between ethanol, corn, wheat, soybean, crude oil and natural gas price series on basic food prices. Both studies are currently in progress and do not have any reportable accomplishment at the moment.

Iowa
Iowa State University has quantitatively documented the homogenization of northern Great Lakes forest due to a century of human land use. This research impacts millions of acres by providing a basis for national and state forest planning and management in the upper Midwest. Also, the results provide a context for assessing restoration needs and opportunities as well as important baseline for future research on coupled human and natural systems.

Illinois
The University of Illinois examined the effects of stressors associated with land use patterns on freshwater fish and their implications for conservation. Specific outcomes and impacts of this effort to date include new understanding of the physiological responses of fishes to acute temperature and oxygen stressors; improved understanding of how size and scaling can dictate the response of fishes to different stressors; training and improved skills of three graduate students using novel laboratory and field techniques; and improved ability to predict how broad stressors such as climate change and land use alterations can impact fishes from different latitudes. Results from this research can be integrated into management strategies and policy formulation to improve management of fish populations and improve water quality.

Southern Illinois University is investigating the long-term impacts of silvicultural treatments on stand development in deciduous hardwood forests. This research provides basic information regarding long-term development and stand dynamics in managed hardwoods-dominated forests. Such information will enhance the forest health and value of hardwood forests.

Kansas
Kansas State University examined the impact of vegetation management strategies applied on the Cimarron National Grasslands on species diversity of birds. Sampling the treated and untreated areas using transects showed that there is a reduction in the number of species and individual birds from untreated in 9 species and 20.5 individuals; to treated in 6.8 species and 16 individuals. Hence, the Forest Service that carries out these vegetation management strategies needs to consider this impact of its vegetation management strategies to avoid this negative impact on biodiversity.

Kentucky
University of Kentucky is experimenting on the restoration of the American Peregrine Falcon to cliff habitats in Kentucky. The State now supports eight known mated pairs. Additionally, several males have established territories in other localities across the State. The species is now considered to have recovered in Kentucky, contributing to population goals established by the recovery team for falcons in both the Midwest and Southeast US.

Louisiana
Louisiana State University examined the effects of forest regeneration practices on the productive capacity pine plantations. This study was designed to monitor growth of loblolly pine seedlings within a controlled setting to determine whether conventional regeneration practices deleteriously affect growth of the next generation of trees. Results from this study indicate that while harvesting intensities and establishment practices may affect early growth at some sites, with the exception of fertilization at the time of planting, effects appear to dissipate after 10 years. Results from forest-floor manipulation indicate no detectable effects on nitrogen or phosphorus availability or mineralization. Data on forest floor manipulation likewise suggest that phosphorus and nitrogen bound in the microbial component of the soil may be altered by the manipulations. This research implies investment in the manipulation of the forest floor should be planned and re-evaluated to obtain its intended benefits.

Louisiana Tech examined the effectiveness of Louisiana Best Management Practices for reducing non-point source pollution. The research demonstrated that full implementation of Louisiana Recommended Forestry Best Management Practices, or BMPs, during clearcut harvests, is effective in reducing mean daily maximum and average temperatures and downstream turbidity in intermittent streams of north-central Louisiana. Significant elevation of nitrate-nitrite stormwater concentrations downstream of the harvest without BMPs lasted only one month. Loads and concentrations of post-harvest ratios of downstream/upstream total suspended solids, total phosphorus, and total Kjeldahl nitrogen were not significantly different between the Control, Harvest with BMPs and Harvest without BMPs treatments.

Maine
The decay of wood, in products alone, results in a loss of approximately one-tenth of the wood produced from the Nation's forest each year. The University of Maine studies the wood degradation mechanisms and pressure infusion wood composites fabrication. This research includes the following impacts: new methods of controlling decay are being developed to help stem the estimated $24 billion loss each year associated with the decay of wood products; this research helps to pave the way for new methods to convert wood fiber into biofuels and bio-based chemicals; and new methods to develop strong, lightweight, hybrid composite materials.

Massachusetts
University of Massachusetts is developing wood waste based materials for cleaning contaminated water. The concept is based on the principle that polar moieties could surround a hydrophobic core, thus, reducing the accessibility of organic contaminants to the hydrophobic core, then sorption capacity can be reduced. Also, copper ions can complex with lignin which increased its sorption capacity and isotherm nonlinearity as a result of formation of more condensed domains as shown by higher glass transition temperature. Hence, the presence of copper ions in storm water may help wood fibers to remove more organic contaminants. The results of this study clearly reveal that sorption of organic contaminants by biopolymers is regulated by polarity/composition, conformation, structures, and the polar groups on the surface of bioplymers. Results from this research would extend the use of wood waste.

Maryland
University of Maryland investigates interactions among insects, plants and natural enemies to identify pest population regulation. Impacts of this research to date include: results of sampling, field and laboratory experimentation have furthered understanding of the dynamic interactions between insects that consume the resources and the natural enemies that help suppress their populations; adoption and use of new and improved approaches allowed the quantification and analysis of the interactions between insect pests and their parasitoids and predators; and the data can serve as part of the database for an environmental assessment or pre- and post-assessment of the suitability of the sampling site for any change in land use.

Michigan
Michigan State University discovered a new weapon to help homeowners and city foresters who hope to protect valuable landscape ash trees. The research shows that emamectin benzoate, sold commercially as Tree-Age, is remarkably effective in controlling Emerald Ash Borer, or EAB. As a result, the Michigan Department of Agriculture approved a special registration for the product for use in ash trees to control EAB. Emamectin benzoate killed adult beetles and also reduced the number of larvae in treated trees by 99 percent, compared with untreated trees. Environmentally, the product only affects insects that eat the tissue of ash trees - insects that simply land on or climb the trees are not affected. This research saves municipalities, property owners, nursery operators and forest products industries in Michigan tens of millions of dollars attributed to damage by EAB.

Managers of public forest land in Michigan have been unable to adequately assess future impacts of management practices on carbon storage to be compared against other management goals. The University of Michigan developed a new computer model which simulates forest management practices in the Michigan Department of Natural Resources and the effects on future tree species diversity, size classes, and ecosystem carbon storage. Future management decisions on public forest land in the Great Lakes region will be better able to consider stand and landscape carbon storage as a management goal to be assessed against other goals. One graduate student was trained with the project.

Michigan Technological University developed a simple and low-cost cryopreservation process of vitrification as a means for long-term storage of transgenic aspen, Populus termoloides, germplasm. Using in vitro cultures, various cryopreservation parameters have been optimized, including conditioning media, preculture duration, sucrose concentration in the plant vitrification solution and recovery regimes. A detailed step-by-step protocol has been developed and distributed to stakeholders and the research community

through publications, presentations and personal communications. This allows a sustained source of improved genetic resources.

Minnesota
The University of Minnesota evaluated economic strategies to promote forest stewardship. The national assessment of federal, state, private and non-profit financial assistance programs found that the most important type of assistance is providing owners one-on-one access to a forester or other natural resource professional to "walk the land" with them and discuss options for realizing the owner's land management objectives. The report's findings and recommendations were used by policy makers and stakeholders as input into the discussion of the Forestry Title provisions of the US Farm Bill. The family forest certification study found that without major changes in the certification programs, substantial expansion of certified family forest acreage is unlikely. These findings have been used to develop the Minnesota Logger Certification Program, one of only three in the nation, which supports large paper users, such as Time, Inc, in their interest in assuring that the paper they use is produced sustainably and that the associated forests are a sustainable resource.

Mississippi
A Mississippi State University research study used high throughput genomics microarrays, proteomics platforms and genetic manipulation in trees to identify and functionally characterize genes and proteins. An increase in the expression of the flowering gene FT2 via a genetic construct in juvenile trees less than 1 year old caused trees to flower rapidly within several months. Early flower induction can accelerate breeding programs, leading to faster tree domestication for bio-energy production, disease resistance and increased carbon sequestration.

Montana
The University of Montana examined the effects of top predators on the management of grassland-forest ecotone in Western Montana. Plant abundance, diversity and cover in and out of rodent exclosures across each larger treatment plots were estimated. Results indicated strong effects of ground squirrel herbivory on seed pod production of *Lupinus serectus* and the presence of large impacts of granivorous deer mice on the recruitment and establishment of both *L. serectus* and another large seeded native forb, *Lithospermum ruderale*. Examination of the exotic annual *Tragapogon dubius* in rodent exclosures revealed a significant abundance indicating that native granivores severely limit the abundance of this exotic plant. Data collected indicated that there were no strong effects of predators on small mammal abundance.

Nebraska
The University of Nebraska investigated the role of shelterbelts in agricultural production systems. Results from this research were incorporated into an economic model of windbreak effects (called WBECON). WBECON is available to the public. WBECON is designed to give farmers an estimate of the economic value of field windbreaks to their farm operation. Farmers enter data based on their operation. A typical field windbreak will take up to 5 percent of the land area and has a net present value of between $30,000 and $40,000 over the lifespan of the windbreak, typically 50 years. The model depends on the accuracy of the yield response data which has been gathered over the life of this project and its immediate predecessor. Tree and shrub biomass data are preliminary but will be incorporated into estimates of the role of agroforestry practices in carbon storage studies.

Nevada
At the University of Nevada, Reno, the impact of alternative forest management techniques, i.e., prescribed burning and standard thinning practices on Jeffrey Pine Sierra Nevada forests have been compared. Prescribed fire employed subsequent to thinning implemented with cut to length harvesting, results in increased residual stand mortality among upper crown classes when compared to underburning subsequent to thinning using whole-tree harvesting. With thinnings implemented through whole tree harvesting followed by underburning, total nitrogen loss from harvesting exceeds that lost through fire. With thinning implemented through cut-to-length harvesting followed by underburning, total N loss from underburning exceeds that lost through harvesting. These findings will enable fuels management practices on a scientific basis to achieve desired forest conditions while protecting critical watersheds like Lake Tahoe.

New Hampshire
The goal of a University of New Hampshire research project was to aid New Hampshire foresters and landowners in meeting and documenting timber and non-timber goals for forest management; to provide a better understanding of the historical context of present management; and to develop tools to forecast future forest growth and development. Data were collected through field studies and quantitative analysis. Results were disseminated through publications and via field training workshop. The noteworthy impacts of the project included a change in basic and applied knowledge which led to improved methods for timber inventories and models for crown rise; increased knowledge about historical New Hampshire forest characteristics; and the adoption of new inventory methods by several forester and landowners, including those trained in the workshop.

New Jersey
Rutgers University is studying the biology and spread of bacterial leaf scorch, or BLS, caused by the bacterium Xylella fastidiosa. It is complex and is determined in large part by the species of insects that vector this bacterium, bacterial strain, species/genetics of the host tree, and alternative hosts. Without a clear understanding of the disease, it is difficult to devise preventive or remedial strategies that community arborists can use to delay or manage the epidemic. As part of ongoing surveys for the disease in several communities, Rutgers determined that the total value for trees with BLS was $2.4 million for two communities combined. It was estimated that many of these trees will be removed within the next 10 year period, thus these communities must plan for these losses in the near future.

New Mexico
New Mexico State University assessed the most important tree parameters and measure of commercial productivity of site and forest: Gross Cubic Foot Volume, Tree Diameter and Relative Annual Average Growth Rate. Repeated stem diameter and height inventories of individual trees in each of 12 plots across four sites were collected. Climate data were also collected. A new Volume Model was developed. This will help forest and rangeland managers make science-based decisions regarding woodland management practices.

New York
Cornell University is modeling of energy and emission data for several bioenergy and biochar scenarios yielded significant results. Emissions can be significantly reduced by adding biochar to soil instead of using the biochar as fuel source. The energy budget is between 2 and 8 units of energy gained per unit of energy invested, which makes this system highly interesting for energy companies. The opportunity costs for using biochar as a soil amendment

could be completely offset by carbon prices of between $20 and $50. These are important results for the adoption of a biochar bio-energy system.

Little is known about gene flow within and between populations of ectomycorrhizal, or EM, fungi that would allow predictions about their vulnerability to forest fragmentation. State University of New York College of Environmental Science and Forestry research is working to answer some basic questions on gene flow and population cohesiveness in EM fungi that live in mutually beneficial symbiosis with many important forest trees. The fungi are of particular interest to forest management, because they include many high-value edible fungi and because many important forest trees rely on EM fungi for nutrient acquisition. These analyses will provide basic information required for the development of sound policies for forest ecosystem management.

North Carolina
North Carolina State University researchers developed the Southern Hardwood Growth and Yield Model that will be used to make forest management decisions and supply needed information across the region. In addition, the researchers developed and tested new biomass harvesting equipment. The biomass harvesting machine system will enable access to a resource previously unobtainable. Successful design and manufacture of a biomass harvesting machine system will result in new rural small business opportunities to supply biomass feedstock to energy producers. Landowners will have the hazardous fuel loads reduced and eventually have a new product from their land.

North Dakoa
North Dakota State University (NDSU) introduced three woody plants that are now available commercially from nurseries in Minnesota and Oregon. "Copper Curls" Pekin Lilac is a small tree selected for its very showy copper-orange, peeling bark and large attractive creamy-white flower panicles. This cultivar is winter hardy in zones 3 and 4 which should extend the range of landscape use for this species. "Prairie Horizon" Manchurian Alder is the most drought tolerant alder evaluated in NDSU trials. It is a rapid-growing, medium-sized tree with dark green leaves. "Prairie Expedition" American Elm is an American elm that has been shown to have high resistance to Dutch elm disease. This selection produces dark-green foliage and develops the classic umbrella form which typifies American elm. Such introductions increase the choices of landscapers and nurseries for planting.

Ohio
Ohio Agricultural Research and Development Center, The Ohio State University: Ohio communities are faced with potential losses estimated to range from $1.8 to $7.6 billion from Emerald Ash Borer, or EAB. The Ohio Agricultural Research and Development Center at The Ohio State University is conducting research where data were collected by citizen volunteers for 1,804 public trees in Xenia, Ohio and values were calculated for carbon sequestration, energy savings, storm water retention, air quality benefits, and aesthetic benefits. The average tree in Xenia is estimated to contribute $102 in environmental benefits for a total of $184,300. At $2 per capita allocation as suggested for Tree City USA, this would yield an urban forest budget of $48,000 and a yield of 280 percent for the city's investment in the urban forest. To combat the EAB, the scientists are seeking genes for a breeding program that may involve hybridization of native ash with Asian ash, similarly to what has been done in the case of the American chestnut. To date one half million EAB research dollars have been leveraged from base funding provided The Ohio State University.

Oklahoma
Understanding processes that control forest growth and development is key to increasing productivity and creating sustainable ecosystems. Oklahoma State University scientists seek to understand and describe the physiological processes that regulate forest productivity. The project quantified the nutrient use efficiency of loblolly pine and evaluated the interaction of pine genotype, water and nutrients on tree function. Results suggest trees and forests have a large capacity to sequester atmospheric carbon dioxide and that sustained increases in carbon fixation should result in greater forest productivity unless limited by higher temperatures or reduced precipitation. Implications for forest management include lower planting densities, earlier thinning regimes, and shorter rotation lengths with changing climate.

Oregon
Competing demands on forest land for conservation and commodity production lead to conflicts in how forests are used and managed. The purpose of this Oregon State University research is to identify cost-effective management that may allow more of all uses. Models revealed implications for the evolution of forested landscapes under public and private ownership when landowners hold differing objectives. Of particular concern, is the polarization of age class structure between old reserved forest on federal land and intensely managed and harvested young forest on private land with little area in the ages between and little movement of forests through the full range of ages. Incentives were explored to induce private landowners to manage for multiple objectives including structurally old forest.

Pennsylvania
The Pennsylvania State University researchers investigated the effects of hardwood kiln schedule drying parameters on dry kiln emissions, drying defect development, and drying rate in processing small diameter hardwood logs. Hardwood dry kiln emissions were quantified and the effects of drying parameters on hardwood dry kiln emissions were estimated. Results of the kiln schedule modifications indicated that drying time for Number 1 and Number 2 commercial black cherry lumber may be reduced from approximately 20 percent to 43 percent to between 30 percent to 15 percent moisture content, while still providing usable lumber for hardwood dimension products.

Puerto Rico
University of Puerto Rico researchers found that calorimeter data suggest that fires in grass-dominated dry forest areas are patchy in both extent and intensity, despite appearing to be relatively uniform in cover. Closed canopy dry forests, even if dominated by fire-intolerant species, help to minimize grass cover and to reduce mortality of saplings after fire. After a fire, stems and branches of saplings in closed canopy areas tend to survive and releaf even if leaf loss is total. Stems in open areas are killed to ground level and post-fire survival is attained by re-sprouting from the root collar. Second fires that occur within 1.5 years of the first fire result in much greater mortality. Results from this project will better inform forest managers about the role of wildfire and tree response. This will lead to more informed damage and impact assessments following future wildfires.

Rhode Island
University of Rhode Island researchers seek to improve capacity to target site-specific nitrate control strategies to locales with high potential for export to coastal waters. For instance, forested riparian zones are a source of woody debris and leaf litter that can promote the growth of biofilms and anaerobic microsites where in-stream denitrification can occur. In order for in-stream denitrification to be a substantial sink, greater than 20 percent, for watershed nitrogen in southern New England, denitrification uptake lengths, the length of stream a nitrate molecule travels downstream before

being denitrified, must be less than 2-5 kilometers. This study revealed that in-stream denitrification within an undisturbed stream reach in southern New England had an uptake length of at least 170 kilometers, far in excess of the 2-5 kilometer length. Knowledge generated from this research will contribute to efficient watershed management by fostering improvements in the selection of locales for individual and public investment of pollution control.

South Carolina
South Carolina's forest lands produce products of value in addition to timber for consumers and landowners. Non-timber forest products can result in income from sales or leases and in the case of a large enterprise, additional jobs. Researchers at Clemson University identified types of recreational leases currently occurring on private lands in the Southeastern United States. They identified and characterized emerging and potential markets for non-timber forest products, and identified and characterized consumers of non-timber forest products, and investigated the likelihood of participation by selected user groups. They also projected future use of these products by selected user groups.

South Dakota
South Dakota State University research from a working ranch in western South Dakota, indicate that improved grazing management can accomplish both improved economics and ecosystem services. Many of the pre-settlement woodlands in the Great Plains were degraded or destroyed during early homesteading by a combination of human actions, including cutting, overgrazing and dam building. Subsequent soil erosion and loss of biodiversity and ecological services produced a landscape still in ecological and economic recovery. The results of work to date indicate that the rate of aggradation has greatly slowed in the past decade, suggesting that the stream is approaching or has reached a steady state condition. This result also suggests that the streamside aquifer, drained when gullying occurred during early settlement, may have recovered sufficiently to support expanding populations of riparian trees, especially cottonwood and willow.

Tennesee
The University of Tennessee examined the effects of specific disturbances and microsite conditions created by silvicultural practices on the susceptibility of Central Harwood forests to invasion by Japanese stilt grass - an exotic, invasive, annual grass. Results indicated that both overstory cover and soil disturbance had important effects on growth of this exotic, that removal of leaf litter can increase the distance this annual species spreads from one year to the next, and that competition with first year tree seedlings had no substantial effect on Japanese stilt grass growth. Observed competitive effects of this exotic grass on first-year tree seedling growth differ between tree species having different adaptations. Information generated by this research will lead to the development of management strategies for this invasive species.

Texas
Over the next two decades 12 million acres of forests will be lost in the South alone because of urban sprawl. Texas A&M University examined urban forest benefits and urban forestry management activities to maximize and improve the management of our urban forest resources. Preliminary data found that pervious concrete may be a viable option around existing mature trees in low traffic areas. In the short term, pervious pavement does not appear to be detrimental to trees compared to control plots and appears to be providing a better solution for the trees than impervious pavement. In addition, pervious pavements can also be used for protecting indigenous mature trees in areas under development. For large parking lots, this material has the

potential to provide urban planners with an opportunity to minimize the negative impacts of impervious pavement on urban air and watersheds.

A replicated small watershed study established in 1980 was reactivated by Stephen F. Austin State University in 1999 to contrast the hydrologic impacts of clearcut harvesting done before Best Management Practices, or BMPs, were developed in Texas, with those of clearcut harvesting utilizing BMPs. The greatest first-year sediment loss measured in the current study was only one-fifth of that observed on the same clearcut, sheared, and windrowed watersheds in the 1980s. These results demonstrate to state agencies charged with protecting water quality that forestry BMPs are very effective in reducing potential water quality impacts of intensive silvicultural practices. The study results also demonstrated that bedding on hilly terrain during site preparation should be avoided. The study also provided reinforcement that Forestry Best Management Practices should always be implemented because they function as they are intended to do.

Utah

Wildland systems in the Intermountain West may represent an important source sink of atmospheric carbon dioxide. Relatively little is known about soil carbon pools in major forest and rangeland ecosystems. The Utah State University study assists in the assessment of carbon sequestration potential of soils, by differentiating stable from more labile forms of carbon. The soil organic content in aspen is highly variable, influenced by aspect, negatively correlated with soil moisture, and positively correlated with overstory tree density. The pair-wise comparison between conifer and aspen plots at different sites shows that the mineral soils under conifers contain significantly less soil organic content. This finding is consistent with the soil organic content quality data obtained from a third site, which indicates that soil organic content collected in conifer forests is qualitatively different, more decomposable, less recalcitrant, associated with less protected soil fractions, from soil organic content in soils under aspen, sagebrush, and meadow sites. As a result, soil organic content in conifer soil may prove less persistent than under other vegetation types. Findings from field and laboratory assays substantiate that soil organic content storage in a given geographic area is affected by soil microclimate and overstory vegetation characteristics. Results from the studies to date yield some important insights into the soil organic content sequestration potential of wildland ecosystems and should be of interest to those managing western landscapes for carbon sequestration potential.

Vermont

Forest habitat is rapidly being lost and fragmented due to development, potentially putting forest dependent birds at risk. Scientists at the University of Vermont determined how much habitat is needed within a landscape for forest bird viability and whether habitat arrangement on the landscape can mitigate the effects of forest loss. Activities for this project included collecting standardized bird surveys at 360 survey locations in west central Vermont. The project also involved collecting data on nesting success and multiple GIS analyses. These data will be incorporated into a database for public record. Scientists found that territory-level shrub cover was most important for determining which individuals occupied which habitats but that landscape-level habitat structure strongly influenced reproductive output.

Virginia

The deterioration of wood composites and wood products in building construction has been estimated to have a cost exceeding one billion dollars each year in the United States. Deck failures are a growing problem, and nearly every week during summer months in the US there is an accident

involving deck structural failures in which people are killed or injured. Virginia Polytechnic Institute and State University research provided solutions to the above problem by designing and constructing exterior decks and balconies that will safely support the weight of a sizeable group assembled in the structure. The research results on fastener spacing have been adopted by the Virginia Building Code, and recently by the International Code Council for inclusion in the 2009 International Building Code.

Virgin Islands
Phenology, fruit weight, seed weight and germination data were collected for the first time by the University of Virgin Islands for the federally endangered Caetesbia melanocarpa and the last remaining population of the plant was partially mapped. This same data was also generated for three coastal species and the territorially threatened Solanum conocarpum. Field establishment, mortality and growth rates were also recorded for four species in the forest restoration experiment on The Nature Conservancy land. Preliminary data indicate tree survival is 75 percent, improving to 90 percent when mulch is used and that the method is successful. However, the impact of successful forest restoration projects is long-term in nature and appropriate quantitative measures are still debated among professionals.

Washington
Clerodendrum is the largest genus of the cosmopolitan family Labiatae (Lamiaceae). Many species are widely grown in both temperate and tropical climates as ornamental shrubs and small trees. Despite the interest in these plants there is, as yet, no usable classification from which to assess potential as ornamentals, weeds, medicinal or toxic plants. The cladograms generated in the University of Washington researchers provide for the first time the true limits of the genus Clerodendrum. A framework phylogeny of Clerodendrum and its allied genera was established. Four major monophyletic groups were recovered. Scientists concluded that molecular analyses are important, sometimes indispensable, in taxonomic delimitation and circumscription.

Washington State University examined native lignin primary structure in the model plant species, poplar, alfalfa and Arabidopsis. To date, thioacidolysis procedures were completed to estimate inter-unit linkage frequencies in lignin, and to determine the amounts of dimeric/trimeric and higher oligomers released by this cleavage. The data obtained indicate thus far that lignins have definable primary structures rather than the randomly assembled speculations that have long been part of lignin lore.

West Virginia
West Virginia University, Division of Forestry and Natural Resources research is aimed at developing non-destructive evaluations of mechanical properties of structural lumber and wood based composite products. The developed non-destructive testing methods can reasonably estimate the residual strength and stiffness of structural wood or wood based composites without any destruction of a building. A significant database has been developed along with simple models to estimate strength and stiffness of structural, built-in wood materials. Further impact includes the possibility to determine the strength and stiffness of raw materials for structural composites (i.e., veneer strands) that would be very useful for structural composite manufacturers.

Wisconsin
Human migration into the Pine Barrens is altering the population structure, communities and land use practices of the region, and resource management of forests, lakes, parks and private lands is undergoing change. The purpose of the University of Wisconsin at Madison research is to learn more about the different expectations of seasonal and permanent landowners on land use

management. Significant differences in the two land owner groups were discovered in this study. Seasonal landowners were more interested in the amenity attributes of the forests, lakes and public lands than commodity production on those resources. Further, those seasonal lands were more involved in community affairs including government and voluntary associations. Seasonal residents engaged permanent residents more often than the permanent residents seeking out seasonal residents. It is clear from our work that the rural countryside in northern Wisconsin is changing.

Wyoming

Management of forest ecosystem can influence aboveground carbon pools and soil organic matter. Management practices have no or minimum effect on below ground carbon pools. A significant period of time is needed to overcome the loss of carbon due to management practices in Wyoming pine forests. This University of Wyoming study will provide information on the sustainability and profitability of Wyoming forest ecosystems and how environmental benefits from increased tree productivity and soil carbon sequestration can be sustainably managed.

NATIONAL NEEDS GRADUATE AND POSTDOCTORAL FELLOWSHIPS

Ms. DeLauro: How many doctoral students and masters fellows have been and will be supported by this funding for fiscal years 2004 - 2009?

Response: Under the National Needs Graduate and Postgraduate Fellowships Grants Program, each training award at the master's degree level provides support for two years of education and at the doctoral degree level, support for three years of education. Appropriations for fiscal years 2003 and 2004 were combined, and proposals were invited for programs supporting master's and doctoral degrees. The response to the program announcement resulted in 73 applications requesting a total of $15,239,519. There were 39 grants awarded to support recruitment and training of 22 students at the master's level and 75 students at the doctoral level. Appropriations for fiscal years 2005 and 2006 were combined, and proposals were invited supporting master's degrees and doctoral degrees. In addition, funds were available to provide support for eligible fellows to conduct thesis/dissertation research or undertake studies at sites outside of the U.S. There were 90 applications submitted requesting a total of $23,655,294. There were 29 grants awarded to support the recruitment and training of 43 students at the master's level, 101 students at the doctoral level, and 95 fellows for the international research and thesis allowance for experiential learning experiences. In fiscal year 2007, 90 applications were received requesting a total of $19,657,949. Twenty-four grants were awarded to support 28 students at the master's level, 42 students at the doctoral level and 9 fellows for international research and thesis allowance for experiential learning experiences. In fiscal year 2008, 76 applications were received requesting a total of $17,820,285. Sixteen grants were awarded, totaling $2,930,268, to support 7 students at the master's level, 37 students at the doctoral level and 20 fellows for international research and thesis allowance for experiential learning experiences. The stipends and the international research and thesis allowance for experiential learning experiences were funded at $500 higher than in prior years. By leveraging funds in the amount of $227,273, through a reimbursable agreement with the Forest Service, Research and Development, the National Needs Graduate and Postgraduate Fellowships Grants Program was able to offset the effect of increased stipends and support student training to meet expertise shortage areas in food and agriculture, including forest resources.

The fiscal year 2009 program announcement is scheduled to be published in March of 2009. It is anticipated that awards will be made to support approximately 20 master's level students and 40 doctoral level students. We also anticipate supporting international research and thesis allowance for experiential learning experiences for 10 eligible fellows. Further, we anticipate continuing the funding partnership with the Forest Service, Research and Development.

NATIONAL RESEARCH INITIATIVE (NRI)

Ms. DeLauro: Please provide the Committee with a detailed description of projects included in each of the NRI categories for fiscal year 2007 and 2008.

Response: The information is submitted for the record. It includes a table of funding by category and a table summarizing the programs in each category.

COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE
National Research Initiative Funding Allocations by Category

Categories	Funds Spent in FY 2007	Funds Spent in FY 2008
Natural Resources and Environment	$ 21,534,100	$ 27,193,082
Nutrition, Food Safety, and Health	21,837,772	26,027,448
Animals	42,013,240	35,569,095
Biology and Management of Pests and Beneficial Organisms	30,570,826	30,476,944
Plants	30,384,184	33,090,422
Markets, Trade, and Rural Development	6,269,319	12,200,000
Enhancing Value and Use of Agricultural and Forest Products	13,216,184	12,189,705
Total	165,825,625	176,746,696

COOPERATIVE STATE RESEARCH EDUCATION AND EXTENSION SERVICE
National Research Initiative
Programs Included in Funding Categories

Animal Programs Include:
Animal and Plant Biosecurity
Animal Biosecurity Coordinated Agricultural Projects
Animal Reproduction
Animal Growth and Nutrient Utilization
Animal Genome
Porcine Genome Sequencing
Animal Protection & Biosecurity
Animal Protection & Biosecurity (A): Animal Disease
Animal Protection & Biosecurity (B): Animal Well-Being

Nutrition, Food Safety, and Health Programs Include:
Bioactive Food Components for Optimal Health
Human Nutrition and Obesity
Food Safety
Food Safety Organized Research Unit (FS-ORU)
Food Safety and Epidemiology (A): Biological Approaches for Food Safety
Food Safety and Epidemiology (B): Epidemiological Approaches for Food Safety

Biology and Management of Pests and Beneficial Organisms Programs Include:
Microbial Genome Sequencing
Functional Genomics of Agriculturally Important Organisms
Microbial Genomics
Microbial Genomics (A): Genome Sequencing
Microbial Genomics (B): Functional Genomics of Microorganisms
Organismal & Population Biology of Arthropods & Nematodes
Suborganismal Biology & Genomics of Arthropods & Nematodes
Arthropod and Nematode Biology and Management (A): Organismal and Population Biology
Arthropod and Nematode Biology and Management (B): Suborganismal Biology
Arthropod and Nematode Biology and Management (C): Tools, Resources and Genomics
Arthropod and Nematode Biology and Management (D): Protection of Managed Bees CAP
Microbial Biology (A): Microbial Observatories
Microbial Biology (B): Biology of Plant-Microbe Associations

Natural Resources and Environment Programs Include:
Managed Ecosystems
Soil Processes
Water and Watersheds

Air Quality
Biology of Weedy & Invasive Species in Agroecosystems
Carbon Cycle Science
Global Change

Plants Programs Include:
Plant Biosecurity
Agricultural Plants and Environmental Adaptation
Plant Genome
Genetic Processes and Mechanisms of Agricultural Plants
Application of Plant Genomics Coordinated Ag. Project (CAP)
Developmental Processes of Agricutural Plants
Agricultural Plant Biochemistry
Plant Biology (A): Gene Expression and Genetic Diversity
Plant Biology (B): Environmental Stress
Plant Biology (C): Biochemistry
Plant Biology (D): Growth and Development
Plant Biology (E): Plant Breeding and Education

Markets, Trade, and Rural Development Programs Include:
Rural Development
Agricultural Prosperity for Small & Medium-Sized Farms
Agribusiness Markets and Trade
Internation Cooperative Biodiversity Groups, NRI

Enhancing Value and Use of Agricultural and Forest Products Programs Include:
Improving Food Quality and Value
Biobased Products & Bioenergy Production Research
Nanoscale Science & Engineering for Agriculture & Food Sys.

Interagency and Cross Cutting Programs Include:
Interagency Metabolic Engineering Program

NATIONAL RESEARCH INITIATIVE (NRI)

Ms. DeLauro: Please provide a breakdown into the smaller subsets of research for each of the NRI components for fiscal years 2007 and 2008.

Response: The information is submitted for the record.

[The information follows:]

Program	Fiscal Year 2007	Fiscal Year 2008
Agricultural Biosecurity		
Animal and Plant Biosecurity	$ 3,165,334	0
Animal Biosecurity Coordinated Agricultural Projects	18,000	$ 1,200,000
Animal Protection and Biosecurity	3,028,383	2,922,667
Animal Protection and Biosecurity, Animal Disease	7,420,040	9,371,618
Animal Protection and Biosecurity, Animal Well-Being	2,190,393	2,898,898
Organismal and Population Biology of Arthropods and Nematodes	7,296,590	4,178,179
Plant Biosecurity	3,704,440	2,960,402
Biology of Plant-Microbe Associations	5,785,895	5,943,467
Subtotal	**32,609,075**	**29,475,231**
Agricultural Genomics		
Microbial Genome Sequencing	4,013,207	4,545,000
Microbial Genomics	4,262,000	738,000
Animal Genome	11,385,267	9,757,178
Arthropod and Nematode Biology and Management, Tools, Resources and Genomics	300,000	3,498,400
Functional Genomics of Agriculturally Important Organisms	600,000	0
Arthropod and Nematode Biology and Management Protection of Managed Bees	0	1,152,062
Functional Genomics of Microorganisms	0	5,391,000
Plant Genome	6,269,615	12,475,498
Plant Biology, Gene Expression and Genetic Diversity	3,820,000	4,715,500
Procine Genome Sequencing	5,000,000	0
Application of Plant Genomics Coordination Ag. Project (CAP)	2,550,000	0
Suborganismal Biology and Genomics of Arthropods and Nematodes	6,102,134	3,531,358
Subtotal	**44,302,223**	**45,803,996**

Agricultural Production and Value-Added Processing		
Animal Reproduction	5,331,792	4,722,701
Animal Growth and Nutrient Utilization	4,498,325	4,696,033
Genetic Processes and Mechanisms of Agricultural Plants	360,000	0
Developmental Processes of Agricultural Plants	371,000	0
Agribusiness Markets and Trade	0	5,100,000
Agricultural Plant Biochemistry	1,820,243	0
Plant Biology, Biochemistry	3,446,631	3,726,576
Plant Biology, Growth and Development	3,810,461	4,435,123
Agricultural Plants Environmental Adaptation	200,000	0
Global Change	0	3,204,183
Plant Biology, Plant Breeding and Education	0	599,382
Nanoscale Science and Engineering for Agriculture and Food Systems	2,500,000	0
Biobased Products and Bioenergy Production Research	7,781,326	8,705,274
Subtotal	**30,119,778**	**35,189,272**
Agroecosystems		
Managed Ecosystems	4,482,958	4,327,797
Microbial Observatories	2,211,000	1,499,478
Soil Processes	5,109,018	4,853,990
Water and Watersheds	4,815,803	4,625,517
International Cooperative Biodiversity Groups	0	2,500,000
Air Quality	4,970,000	5,132,840
Biology of Weedy and Invasive Species in Agroecosystems	2,156,321	5,048,755
Plant Biology, Environmental Stress	4,007,500	4,177,941
Rural Development	1,208,330	4,600,000
Agricultural Prosperity for Small and Medium-Sized Farms	5,060,989	0
Subtotal	**34,021,919**	**36,766,318**
Nutrition, Obesity, Food Safety and Quality		
Bioactive Food Components for Optimal Health	2,143,106	3,724,186
Biological Approaches for Food Safety	0	4,600,586
Human Nutrition and Obesity	10,820,000	10,662,271
Food Safety	3,609,666	2,205,405
Epidemiological Approaches for Food Safety	4,265,000	4,130,000
Food Safety Organized Research Unit	1,000,000	705,000
Improved Food Quality and Value	2,934,858	3,484,431
Subtotal	**24,772,630**	**29,511,879**
TOTAL	**165,825,625**	**176,746,696**

NATIONAL RESEARCH INITIATIVE

Ms. DeLauro: Please provide a table showing recipients and the amounts they received under NRI in fiscal year 2007 and 2008.

Response: The information is submitted for the record.

[The information follows:]

State	Institution Name	FY 2007 Award Amount	FY 2008 Award Amount
Alabama	Alabama A&M University	$699,916	0
	Auburn University	702,912	$382,828
	University of Alabama, Tuscaloosa	100,000	0
	University of Alabama, Huntsville	100,000	0
	Total, Alabama	1,602,828	382,828
Alaska	Alaska Native Tribal Health Consortium	1,313,982	0
	University of Alaska, Fairbanks	50,000	1,353,951
	Total, Alaska	1,363,982	1,353,951
Arizona	Arizona State University	1,233,792	400,000
	Arizona Board of Regents, The University of Arizona	0	1,527,850
	Northern Arizona University	0	799,679
	University of Arizona	1,630,888	2,886,142
	Total, Arizona	2,864,680	5,613,671
Arkansas	University of Arkansas, Fayetteville	1,364,507	0
	University of Arkansas	0	2,825,238
	University of Arkansas, at Pine Bluff	0	100,000
	University of Central Arkansas	0	189,831
	Arkansas Children's Hospital Research Institute	100,000	0
	Total, Arkansas	1,464,507	3,115,069
California	Board of Trustees of the Leland Stanford Junior University	0	345,000
	California Polytechnic State Univ.	0	90,000
	Chapman University	0	124,955
	JBS International, Inc. Oakland	0	470,277
	Kaiser Foundation Hospitals	0	1,490,000
	Keck Graduate Institute of Applied Life Sciences	400,000	0
	Regents of the University of California	0	3,258,903
	San Diego State University	895,000	0
	Stanford University	392,527	0
	The Regents of the University of California	0	11,267,661
	University of California	0	399,953
	University of California, Davis	11,298,620	125,000
	University of California, Irvine	499,276	0
	University of California, Merced	99,869	0
	University of California, Riverside	370,000	0

	University of California, San Diego	0	865,500
	University of California, Santa Barbara	152,500	0
	University of California, Santa Cruz	379,000	0
	USDA, Agricultural Research Service	736,453	1,728,000
	USDA, Agricultural Research Service GEB Salinity Lab	0	394,761
	USDA, Agricultural Research Service U.S. Salinity Lab	0	739,740
	U.S. Geological Survey	410,995	0
	Western University of Health Sciences	0	375,000
	Total, California	15,634,240	21,674,750
Colorado	Colorado State University	2,766,714	4,458,028
	The Regents of the University of Colorado	0	499,590
	University of Colorado at Boulder	0	561,999
	University of Colorado Health Science Center	99,800	0
	University of Northern Colorado	0	97,691
	USDA-Agricultural Research Service	0	348,841
	Total, Colorado	2,866,514	5,966,149
Connecticut	University of Connecticut	868,705	1,003,868
	University of Connecticut Health Ctr.	0	986,225
	Yale University	125,000	0
	Total, Connecticut	993,705	1,990,093
Delaware	Delaware State University	0	249,992
	University of Delaware	2,098,874	2,894,821
	Total, Delaware	2,098,874	3,144,813
District of Columbia	American Society for Microbiology	10,000	15,000
	Carnegie Institution of Washington	0	125,000
	Ecological Society of America	0	10,000
	Georgetown University	0	909,994
	Institute for Food Technologies	2,000	0
	National Academy of Science	6,000	0
	Smithsonian Institution	287,509	0
	Total, District of Columbia	305,509	1,059,994
Florida	Florida State University	135,000	0
	Florida A&M University	539,446	251,960
	University of Central Florida	0	370,239
	University of Florida	2,847,695	3,681,802
	University of Florida Board of Trustees	0	422,582
	University of Miami	0	10,000
	USDA-Agricultural Research Service	262,000	0
	Total, Florida	3,784,141	4,736,583
Georgia	Emory University	1,305,000	0
	Clark Atlanta University	50,000	0
	Georgia Tech Research Corporation	996,283	0

	University of Georgia	1,120,906	391,290
	University of Georgia Res. Foundation	0	4,418,931
	USDA-Agricultural Research Service, South Atlantic Area	209,037	0
	Total, Georgia	3,681,226	4,810,221
Hawaii	University of Hawaii	112,000	840,973
Idaho	Boise State University	0	99,929
	University of Idaho	515,722	1,963,753
	Total, Idaho	515,722	2,063,682
Illinois	Agricultural Research Service, Midwest Area	852,872	2,818,517
	American Dairy Science Association	5,000	0
	American Society of Animal Science	6,598	3,000
	Board of Trustees of the University of Illinois	0	4,523,364
	University of Chicago	722,000	1,314,922
	University of Illinois, Urbana-Champaign	8,550,396	0
	Total, Illinois	10,136,866	8,659,803
Indiana	Purdue University	2,507,746	3,185,161
	Earlham College	99,998	0
	Trustees of Indiana University	0	385,000
	University of Notre Dame	125,000	0
	USDA-Agricultural Research Service	375,000	0
	Total, Indiana	3,107,744	3,570,161
Iowa	Iowa State University	4,782,583	7,571,999
	American Association of Veterinary Immunologists	10,000	0
	Soil and Water Conservation Society	0	10,000
	Total, Iowa	4,792,583	7,581,999
Kansas	Kansas State University	5,004,065	5,658,656
Kentucky	University of Kentucky	2,108,347	3,430,509
Louisiana	Louisiana State University	0	122,718
	Louisiana State University and A&M College	645,732	280,413
	LSU Health Sciences Center, Shreveport	0	302,000
	Southern University and A&M	100,000	0
	Total, Louisiana	745,732	705,131
Maine	University of Maine, Orono	48,000	544,998
Maryland	Agricultural Research Service, Beltsville Area	797,204	972,598
	American Fisheries Society	0	10,000
	Comparative Nutrition Society	10,000	0

	J. Craig Venter Institute	2,282,000	0
	Federation of American Societies for Experimental Biology	0	35,000
	Institute for Genomic Research	891,181	0
	University of Maryland Biotechnology Institute	0	399,990
	University of Maryland, Baltimore	235,687	0
	University of Maryland, Baltimore County	285,000	0
	University of Maryland, College Park	3,913,422	2597667
	Total, Maryland	8,414,494	4,015,255
Massachusetts	Boston Medical Center Corporation	0	500,000
	Massachusetts Institute of Technology	0	1,785,000
	Tufts University	134,000	0
	University of Massachusetts, Amherst	1,476,549	1,271,233
	University of Massachusetts, Dartmouth	0	375,000
	Woods Hole Research Center	0	468,000
	Total, Massachusetts	1,610,549	4,399,233
Michigan	Andrews University	0	50,000
	Michigan State University	3,618,762	7,469,628
	Michigan Technological University	200,000	0
	Regents of the University of Michigan	0	398,000
	University of Michigan, Ann Arbor	391,000	0
	U.S. Forest Service	15,000	0
	Total, Michigan	4,224,762	7,917,628
Minnesota	American Phytopathological Society	0	20,000
	Univerity of Minnesota	0	3,327,400
	Minnesota State University	50,000	0
	University of Minnesota, Twin Cities	8,093,474	0
	Total Minnesota	8,143,474	3,347,400
Mississippi	Mississippi State University	2,411,465	500,300
Missouri	Donald Danforth Plant Science Center	1,046,759	0
	Thomas Jefferson Agricultural Institute	495,360	0
	The Curators of the Univ. of Missouri	2,444,030	590,525
	Washington University	425,000	0
	University of Central Missouri	99,986	0
	Total, Missouri	4,511,135	590,525
Montana	Montana State University	1,143,915	960,042
	University of Montana	310,652	0
	Total, Montana	1,454,567	960,042
Nebraska	University of Nebraska, Lincoln	2,374,717	2,077,293
	University of Nebraska, Omaha	99,089	0
	Total, Nebraska	2,473,806	2,077,293
Nevada	University of Nevada, Las Vegas	295,000	0
	University of Nevada, Reno	431,500	199,860
	Total, Nevada	726,500	199,860

New Hampshire	University of New Hampshire	707,166	414,104
	Dartmouth College	709,886	0
	Total, New Hampshire	1,417,052	414,104
New Jersey	Rutgers, The State University	1,559,118	409,990
New Mexico	New Mexico State University	1,116,477	2,673,089
	Southwestern Indian Polytechnic Inst.	0	2,000
	Total, New Mexico	1,116,477	2,675,089
New York	Albert Einstein College of Medicine of Yeshiva University	0	1,499,211
	Boyce Thompson Insitute for Plant Research	699,560	398,695
	Cary Institute of Ecosystem Studies	0	124,774
	Cold Spring Harbor Laboratory	0	398,863
	Columbia University	350,963	0
	Cornell University	3,127,781	4,601,807
	Innovation Biotechnologies International, Inc.	500,000	0
	William H. Miner, Agricultural Research Institute, Inc.	0	277,267
	Research Foundation CUNY/Queens College	0	158,780
	SUNY College of Environmental Science and Forestry	499,299	450,000
	USDA-Agricultural Research Service	399,500	0
	Total, New York	5,577,103	7,909,397
North Carolina	Duke University	399,711	0
	North Carolina State University	5,046,256	3,814,426
	University of North Carolina, Chapel Hill	799,813	397,136
	University of North Carolina, Charlotte	399,936	0
	Total, North Carolina	6,645,716	4,211,562
North Dakota	North Dakota State University	477,650	1,369,077
	University of North Dakota	0	367,000
	Total, North Dakota	477,650	1,736,077
Ohio	Miami University	376,940	0
	Ohio Agricultural Research and Development Center	399,264	0
	Ohio State University	3,892,550	3,088,108
	Ohio University	0	447,000
	University of Cincinnati	333,204	0
	U.S. Environmental Protection Agency	391,598	0
	Total, Ohio	5,393,556	3,535,108
Oklahoma	Oklahoma State University	1,407,674	1,918,462
	The Samuel Roberts Noble Foundation, Inc.	408,873	0
	University of Oklahoma	859,630	0
	The University of Tulsa Sciences Center	0	100,000
	Total, Oklahoma	2,676,177	2,018,462
Oregon	Oregon Health and Science University	600,000	0
	Oregon State University	631,000	4,927,304
	Portland State University	390,000	0

	University of Oregon	0	400,000
	U.S. Forest Service	347,219	389,179
	Total, Oregon	1,968,219	5,716,483
Pennsylvania	Agricultural Research Service, North Atlantic Area	0	500,000
	Drexel University	700,601	24,457
	Pennsylvania State University	4,883,897	6,060,843
	University of Pennsylvania	971,928	0
	University of Pittsburg	0	400,000
	USDA-Agricultural Research Service	1,160,446	406,000
	Villanova University	0	199,684
	Total, Pennsylvania	7,716,872	7,590,984
Puerto Rico	University of Puerto	31,589	0
	Agricultural Experiment Station, College of Agricultual Science	0	28,811
	Universidad del Turabo, SUAGM	0	50,000
	Total, Puerto Rico	31,589	78,811
Rhode Island	Gordon Research Conference	47,206	55,500
	Brown University	125,000	0
	University of Rhode Island	1,056,965	390,000
	Total, Rhode Island	1,229,171	445,500
South Carolina	Clemson University	880,360	280,891
	University of South Carolina, Columbia	335,000	0
	Total, South Carolina	1,215,360	280,891
South Dakota	South Dakota School of Mines and Technology	199,786	0
	South Dakota State University	1,104,900	1,514,358
	The University of South Dakota	0	99,548
	Total, South Dakota	1,304,686	1,613,906
Tennessee	Tennessee Technological University	400,000	199,940
	University of Tennessee, Knoxville	2,962,192	894,288
	Total, Tennessee	3,362,192	1,094,228
Texas	Baylor College of Medicine	1,245,763	2,701,068
	Texas Agricultural Experiment Station	0	939,754
	Texas A&M University, College Station	4,766,085	2,296,186
	Texas AgriLife Research	0	3,077,410
	Texas Tech University	669,850	0
	The University of Texas Medical Branch at Galveston	0	374,000
	Trinity University	0	205,000
	USDA-Agricultural Research Service	0	399,347
	USDA-Agricultural Research Service, Southern Plains Area	0	410,000
	University of Texas, Austin	1,130,902	390,342

	University of Texas, San Antonio	395,000	0
	West Texas A&M University	0	367,383
	William Marsh Rice University	0	125,000
	Total, Texas	8,207,600	11,285,490
Utah	Brigham Young University	145,024	0
	The University of Utah	0	398,922
	Utah State University	846,693	382,896
	Total, Utah	991,717	781,818
Virginia	Eastern Mennonite University	67,000	0
	U.S. Forest Service/Development	0	10,000
	George Mason University	789,446	0
	The Rector and Visitors of the University of Virginia	0	343,921
	Virginia Institute of Marine Science	0	375,000
	Virginia Polytechnic Institute and State University	3,570,198	3,874,897
	Total, Virginia	4,426,644	4,603,818
Vermont	University of Vermont	1,524,748	96,494
Washington	Agricultural Research Service, Pacific West Area	0	189,816
	Northwest Fisheries Science Center	348,336	0
	Washington State University	3,964,602	3,085,807
	University of Washington	124,321	50,000
	Western Washington University	100,000	0
	Total, Washington	4,537,259	3,325,623
West Virginia	West Virginia University Research Corporation	859,456	0
	West Virginia State University	99,985	1,234,893
	Total, West Virginia	959,441	1,234,893
Wisconsin	Society for the Study of Reproduction, Inc.	4,300	5,000
	University of Wisconsin System	0	3,740,633
	University of Wisconsin, Madison	4,955,534	0
	U.S. Forest Service	497,368	0
	Total, Wisconsin	5,457,202	3,745,633
Wyoming	University of Wyoming	828,059	1,030,765
	GRAND TOTAL	165,825,625	176,746,696

Ms. DeLauro: Please update the chart on page 607 of last year's hearing record to reflect the grants awarded in 2007 and 2008.

Response: The information is submitted for the record.

[The information follows:]

NRI Grants Awarded Within Fiscal Year 2007

Performing Organizations	Proposals Received	Grants Awarded in 2007	Percentage of Grants Awarded to Proposals Received	Funds Requested	Dollars Awarded	Percentage of total dollars awarded
1862 Land-Grant University	1,377	368	26.72%	$578,354,714	$126,138,954	76%
1890 Land-Grant University (incl Tuskegee)	24	9	37.50	7,071,245	1,660,751	1
1994 Land-Grant University Count	0	0	0.00	0	0	0
Individual	5	0	0.00	635,713	0	0
Non Land-Grant Public University or College	196	50	25.51	76,705,333	13,057,163	8
Other	3	1	33.33	1,516,886	600,000	0
Other Federal Agency/Department Count	6	3	50.00	2,030,474	1,150,929	1
Private For-Profit	12	1	8.33	4,821,151	500,000	0
Private Non-profit	63	42	66.66	23,761,884	9,689,811	6
Private University or College	84	24	28.57	34,884,448	7,375,918	5
State, Local, or Tribal Government	4	0	0.00	1,597,272	0	0
USDA Agency	103	39	37.86	39,852,131	5,652,099	3
Total	**1,877**	**537**	**28.61**	**771,231,251**	**165,825,625**	**100**

NRI Grants Awarded Within Fiscal Year 2008

Performing Organizations	Proposals Received	Grants Awarded in 2008	Percentage of Grants Awarded to Proposals Received	Funds Requested	Dollars Awarded	Percentage of total dollars awarded
1862 Land-Grant University	1,565	386	24.66%	$646,825,263	$142,921,350	81%
1890 Land-Grant University (incl Tuskegee)	45	5	11.11	16,171,305	601,952	0
1994 Land-Grant University Count	1	1	100.00	2,000	2,000	0
Individual	9	0	0.00	1,984,861	0	0
Non Land-Grant Public University or College	150	38	25.33	62,791,346	10,368,624	6
Other	15	0	0.00	6,659,065	0	0
Other Federal Agency/Department	3	1	33.33	847,275	0	0
Private For-Profit	15	1	6.67	8,826,165	470,277	0
Private Non-profit	90	28	31.11	29,881,729	5,071,280	3
Private University or College	128	19	14.84	62,727,534	8,004,414	5
Public Secondary School	1	0	0.00	363,312	0	0
State, Local, or Tribal Government	8	0	0.00	3,633,234	0	0
USDA Agency	101	24	23.76	53,502,428	9,306,799	5
Total	**2,131**	**503**	**23.60**	**894,215,517**	**176,746,696**	**100**

Ms. DeLauro: Of the NRI grants awarded in fiscal year 2007 and 2008, how much funding and how many grants were awarded to ARS? What were the grants for?

Response: In fiscal year 2007 the NRI awarded 14 grants for a total of $4,792,512 to ARS scientists.

Proposal titles include:

Development of a Systematic Approach for Marker Selection in Phytophthora Using Mitochondrial Genomic Sequences
Ecology and epidemiology of *Escherichia coli O157:H7* in fresh produce production regions of the Central California Coast
Linking Soil and Water Quality in Tall Fescue Pastures
Bovine Copy Number Variation and its Implication in Early Embryonic Loss
Tomato fruit epidermis and carpel genomics: tools for gene discovery, functional analysis and enhancement of the Solanaceae toolkit
14-3-3 Proteins Regulate Soluable and Membrane-Bound Proteins Involved in Metabolism and Growth and Development
Engineering Bacteriophage Endolysins: Antimicrobials for mastitis pathogens that are refractory to resistance development
Structural-functional analysis of ALMT-type transporters: Identification of protein motifs conferring roles in aluminum tolerance
Heart Rate Variability: Unraveling the Sympatho-Vagal Mechanisms of Stress Responses and Well-Being Status in Pigs
New Transposon Vectors for Stability and Genomic Targeting in Insects of Agricultural Importance
Control of Carotenoid Biosynthesis by a Novel Regulatory Gene Identified in Cauliflower
Production of an Integrated Physical and Genetic Map for Rainbow Trout
An Integrated Approach to Identify and Deploy Novel Genetic Determinants from Resurrection Plants for Improved Dehydration Tolerance of Crop
Invasive plant species and the new bioeconomy

In fiscal year 2008 the NRI awarded 30 grants for a total of $8,936,860 to ARS scientists.

Proposals titles include:

Breeding wheat for winter survival: characterization of C-repeat binding factors associated with frost tolerance in wheat.
Conference Grant for 7th International Symposium on Plant-Soil Interactions at Low pH
Biosolids Application: Quantifying and Modeling Impacts on Ecosystem Services across Urban, Agricultural, and Wildlife Interfaces
Quantification and Control of Bacterial Pathogens in Agricultural Watersheds

Impacts of Irrigation Water Quality on the Persistence and Transmission of E. coli O157:H7 from soil to plants
International Conference on Pig Reproduction
8th International Marek`s Disease Symposium conference grant
Conference Proposal - "Avian Influenza: Vectors, Vaccines, Public Health, and Product Marketability"
Implementation of Whole Genome Selection in the US Dairy and Beef Cattle Industries
Development and field evaluation of genome-wide marker-assisted selection (GWMAS) over multiple generations in commercial poultry
Genome-wide screen for genes with polymorphic cis-acting elements that respond to Marek`s disease virus challenge in chicken
In Vivo Manipulation of Mammary Stem Cells to Improve Milk Production Efficiency
COSII-based mapping and diversity in the Solanaceae
Regulation of polarity in maize
Structural and functional analysis of genes conferring sensitivity in wheat to host-selective toxins produced by necrotrophic fungi
The genetic and biochemical regulation of circulative virus transmission in aphids
Identification and characterization of chemosensory receptors from the codling moth, Cydia pomonella
Impact of Methionine Oxidation on Protein Phosphorylation
Genomics-based Discovery of Novel Traits in Beneficial Plant-Associated Pseudomonas spp.
Genome-wide functional analysis of Phytophthora small RNAs
Comparative functional genomics of plant pathogenic Fusarium species.
Association genetics of beta-glucan metabolism to enhance oat and barley germplasm for food and nutritional function

NATIVE AMERICAN INSTITUTIONS ENDOWMENT FUND

Ms. DeLauro: Please provide an update on the distribution of funds from the Native American Institution Endowment Fund.

Response: An update on the distribution of funds from interest earned on the Native American Endowment Fund is provided.

[The information follows:]

Cooperative State Research, Education, and Extension Service
Native American Institutions Endowment Fund Interest
Funding History

Institutions	Fiscal Year 2001	Fiscal Year 2002	Fiscal Year 2003	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008
Bay Mills Community College	$25,531	$33,074	$39,252	$40,627	$46,974	$49,113	$63,997	$73,402
Blackfeet Community College	36,010	46,978	58,264	64,369	78,104	95,095	117,472	111,587
Candeska Cikana Community College	23,658	29,188	35,208	37,464	41,388	50,650	63,885	69,419
Chief Dull Knife College	24,658	28,947	35,964	37,117	40,777	49,159	66,544	62,415
College of Menominee Nation	25,160	31,556	39,496	43,505	51,240	62,006	81,980	83,566
Crownpoint Institute of Technology	30,725	35,167	42,979	45,061	49,130	59,768	101,455	93,868
Dine' College	106,866	127,051	146,328	160,547	196,079	291,055	273,832	316,383
D-Q University	19,608	23,644	27,643	29,521	29,055	29,991	37,814	0
Fond du Lac Tribal and Community College	23,856	32,290	35,849	41,644	46,318	55,594	70,349	73,539
Fort Belknap College	24,511	30,930	36,746	40,350	44,811	50,624	65,878	66,809
Fort Berthold Community College	31,305	38,624	42,043	46,732	54,694	62,011	80,096	80,819
Fort Peck Community College	35,900	43,350	48,917	52,148	58,970	77,872	94,511	89,335
Haskell Indian Nations University	79,407	93,457	119,536	112,992	105,704	136,160	166,434	173,671
Institute of American Indian Arts	22,793	27,564	34,381	34,758	37,834	46,071	68,720	67,084
Lac Courte Oreilles Ojibwa Community College	34,630	48,374	50,896	58,932	63,700	63,297	85,405	92,906
Leech Lake Tribal College	26,158	30,124	39,809	42,275	39,255	46,226	58,132	64,199
Little Big Horn College	28,598	36,273	45,238	52,411	63,446	67,181	82,497	85,901
Little Priest Tribal College	19,643	25,116	27,392	31,463	34,781	39,973	49,575	50,327
Nebraska Indian Community College	22,886	28,920	34,749	30,900	37,292	41,283	53,215	51,151
Northwest Indian College	48,595	66,721	73,833	84,235	88,734	90,036	121,514	130,679
Oglala Lakota College	71,856	90,155	104,100	108,934	127,085	139,522	170,249	181,500
Saginaw Bay Chippewa Tribal College/A	-	-	-	-	30,603	37,597	49,037	50,053
Salish Kootenai College	67,584	77,073	92,236	97,093	107,041	119,210	153,645	135,486
Si Tanka/Huron University	29,519	31,169	41,605	52,436	50,294	29,991	37,814	0
Sinte Gleska University	58,434	70,948	79,916	89,655	99,268	118,605	152,994	136,723
Sisseton Whapeton Community College	23,348	29,694	35,857	38,883	44,236	53,240	65,141	68,595
Sitting Bull College	26,450	37,881	42,494	47,898	59,798	65,610	76,521	80,819
Southwest Indian Polytechnic Institute	67,933	86,532	99,202	108,182	106,995	95,790	149,046	134,662
Stone Child College	29,711	38,674	43,349	42,847	50,894	66,892	83,968	83,978
Tohono O'odham Community College/B	-	-	-	-	-	43,672	59,968	59,942
Turtle Mountain Community College	52,428	65,170	73,034	89,049	107,304	111,325	139,919	136,310
United Tribes Technical College	26,577	42,806	50,696	62,714	73,706	97,829	136,514	130,679
White Earth Tribal and Community College/C	-	-	23,711	27,913	27,967	31,815	41,507	44,833
Subtotal, Interest Payments to Colleges	1,144,338	1,427,450	1,700,723	1,852,655	2,093,477	2,474,263	3,119,628	3,080,639
Federal Administration	47,681	59,477	70,863	77,194	87,228	103,094	129,985	128,360
Total Endowment Interest	1,192,019	1,486,927	1,771,586	1,929,849	2,180,705	2,577,357	3,249,613	3,208,999

A/ Saginaw Chippewa Tribal College became eligible for Endowment distribution in fiscal year 2005.
B/ Tohono O'odham Community College became eligible for Endowment distribution in fiscal year 2006.
C/ White Earth Tribal and Community College became eligible for Endowment distribution in FY 2003.

NATIVE AMERICAN INSTITUTIONS ENDOWMENT FUND

Ms. DeLauro: Please update the table in last year's hearing record showing distribution of these funds to date.

Response: The information on allocations for 2001-2008 is attached.

[The information follows:

Cooperative State Research, Education, and Extension Service
Native American Institutions Endowment Fund Interest
Funding History

Institutions	Fiscal Year 2001	Fiscal Year 2002	Fiscal Year 2003	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008
Bay Mills Community College	$25,531	$33,074	$39,252	$40,627	$46,974	$49,113	$63,997	$73,402
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College of Menominee Nation	25,160	31,556	39,496	43,505	51,240	62,006	81,980	83,566
Crownpoint Institute of Technology	30,725	35,167	42,979	45,061	49,130	59,768	101,455	93,868
Dine' College	106,866	127,051	146,328	160,547	196,079	291,055	273,832	316,382
D-Q University	19,608	23,644	27,643	29,521	29,055	29,991	37,814	0
Fond du Lac Tribal and Community College	23,856	32,290	35,849	41,644	46,318	55,594	70,349	73,539
Fort Belknap College	24,511	30,930	36,746	40,350	44,811	50,624	65,878	66,809
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Little Big Horn College	28,598	36,273	45,238	52,411	63,446	67,181	82,497	85,901
Little Priest Tribal College	19,643	25,116	27,392	31,463	34,781	39,973	49,575	50,327
Nebraska Indian Community College	22,886	28,920	34,749	30,900	37,292	41,283	53,215	51,151
Northwest Indian College	48,595	66,721	73,833	84,235	88,734	90,036	121,514	130,679
Oglala Lakota College	71,856	90,155	104,100	108,934	127,085	139,522	170,249	181,500
Saginaw Bay Chippewa Tribal College/A	-	-	-	-	30,603	37,597	49,037	50,053
Salish Kootenai College	67,584	77,073	92,236	97,093	107,041	119,210	153,645	135,486
Si Tanka/Huron University	29,519	31,169	41,605	52,436	50,294	29,991	37,814	0
Sinte Gleska University	58,434	70,948	79,916	89,655	99,268	118,605	152,994	136,723
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A/ Saginaw Chippewa Tribal College became eligible for Endowment distribution in fiscal year 2005.
B/ Tohono O'odham Community College became eligible for Endowment distribution in fiscal year 2006.
C/ White Earth Tribal and Community College became eligible for Endowment distribution in FY 2003.

NATIVE AMERICAN INSTITUTIONS ENDOWMENT FUND

Ms. DeLauro: How much interest has the fund accumulated since initial funding was provided? What interest rate did these funds earn in fiscal year 2007 and 2008? How have funds been distributed by fiscal year to date?

Response: The Native American Institutions Endowment Fund has earned $19,818,795. The long-term investment strategy has been to stagger the investments so that one Treasury Note matures each year. In fiscal year 2007 and 2008 the endowment is invested in Treasury notes with interest rates of 3.625 percent, 3.875 percent, 4.000 percent, 4.125 percent, 4.250 percent, 4.375 percent, 4.500 percent, 4.625 percent, 4.750 percent, 4.875 percent, 5.500 percent, and 6.000 percent.

A table showing the funds distributed to universities by fiscal year is submitted for the record.

[The information follows:]

Cooperative State Research, Education, and Extension Service
Native American Institutions Endowment Fund Interest
Funding History

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D-Q University	19,608	23,644	27,643	29,521	29,055	29,991	37,814	0
Fond du Lac Tribal and Community College	23,856	32,290	35,849	41,644	46,318	55,594	70,349	73,539
Fort Belknap College	24,511	30,930	36,746	40,350	44,811	50,624	65,878	66,809
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Haskell Indian Nations University	79,407	93,457	119,536	112,992	105,704	136,160	166,434	173,671
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Oglala Lakota College	71,856	90,155	104,100	108,934	127,085	139,522	170,249	181,500
Saginaw Bay Chippewa Tribal College/A	-	-	-	-	30,603	37,597	49,037	50,053
Salish Kootenai College	67,584	77,073	92,236	97,093	107,041	119,210	153,645	135,486
Si Tanka/Huron University	29,519	31,169	41,605	52,436	50,294	29,991	37,814	0
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Stone Child College	29,711	38,674	43,349	42,847	50,894	66,892	83,968	83,978
Tohono O'odham Community College/B	-	-	-	-	-	43,672	59,968	59,942
Turtle Mountain Community College	52,428	65,170	73,034	89,049	107,304	111,325	139,919	136,310
United Tribes Technical College	26,577	42,806	50,696	62,714	73,706	97,829	136,514	130,679
White Earth Tribal and Community College/C	-	-	23,711	27,913	27,967	31,815	41,507	44,833
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Total Endowment Interest	1,192,019	1,486,927	1,771,586	1,929,849	2,180,705	2,577,357	3,249,613	3,208,999

A/ Saginaw Chippewa Tribal College became eligible for Endowment distribution in fiscal year 2005.
B/ Tohono O'odham Community College became eligible for Endowment distribution in fiscal year 2006.
C/ White Earth Tribal and Community College became eligible for Endowment distribution in FY 2003.

NATIVE AMERICAN INSTITUTIONS ENDOWMENT FUND

Ms. DeLauro: Please describe at least one accomplishment for fiscal years 2007 and 2008 for each entity that received funding under the Native American Institutions Endowment Fund.

Response: The information is submitted for the record.

[The information follows:]

Fiscal Year 2007:

Bay Mills Community College
Supported a recruitment and retention program in the food and agricultural sciences. Hiring of a recruitment specialist, travel and supplies, high school visits and demonstration activities, college nights on campus for high school students are some of the recruitment activities. The retention program will develop a learning center with computer and software capability, a tutoring program, development of a peer student mentoring program, and development of a tracking and evaluation program to measure success.

Blackfeet Community College
Used funding to address its' ability to prepare professionals in Agriculture, Natural Resources, Environment, Youth, and Health curriculum, using a Blackfeet Indian cultural approach. Endowment monies were used to support the creation of and faculty salary in teaching a new Associate Science Degree in Environmental Science, and for the planning of an Associate Science Degree in Agriculture; to increase student academic performance with the purchase of classroom materials, outdoor lab materials, and materials in pursuit of providing distance learning education; and for the continued support of curriculum development of academic degree programs; and for increased distribution of Blackfeet Community College information, scholarships, and area community visits for student recruitment and retention.

Cankdeska Cikana Community College
Endowment funding at was used for the landscape planning and renovation of two vegetable and ethno-botanical gardens, and a student instruction greenhouse. The college purchased maintenance supplies such as a used farm tractor, a garden tool shed and fencing, and adequate garden tools for student use. Monies supported two part-time work study positions made available to students, to ensure hands-on, experiential learning; and travel costs for students visiting local farms to experience small-farm operations.

Chief Dull Knife College
Endowment monies supported student recruitment and faculty development through increased class offerings, college brochures and pamphlets, the renovation of a distance learning/vocational center, and the purchase of distance learning classroom materials.

College of Menominee Nation
Used endowment funding to provide marketing, recruitment, and retention activities for the academic year. College purchased yearly calendars, a college marketing brochure, individual program brochures, radio advertisements, local television commercials, newspaper advertisements, tribal college journal and magazine advertisements, and sign rentals. College used funding to support travel to disperse these materials to area reservation high schools, college career fairs, job center and employee education fairs. College used these materials to encourage student enrollment to target populations, using a culturally sensitive approach.

D-Q University
D-Q University is not currently an accredited educational institution and therefore not eligible for the Endowment Interest Distribution.

Dine College
Endowment funds were used in planning the construction of a demonstration farm to give students hands on experiential learning using tools from the classroom. Developed recruitment brochures, website, and applications for increased community attention and visibility. Funds were also used for travel to disperse these materials to reservation high schools to promote the agriculture discipline, and the College. Endowment funds also supported salaries for the Rural Development Director and his supporting staff, and their educational activities in farming, food, agricultural sciences, and rural economic and community development.

Fond du Lac Tribal and Community College
Funding was utilized to establish and equip three science labs, especially the Environmental Science Laboratory. Additional programs supported were the faculty development to better prepare college faculty to serve as mentors to high school instructors for science education. The establishment of on-line course development to support high school curriculum and post-secondary courses.

Fort Belknap College
Used funds to support teaching and research activities in its Natural Resources and Computer Technology programs. Funds supported: the employment of a computer technology instructor/information systems technician; GPS/GIS application software and data management capability; and student and faculty involved environmental research projects in mapping and monitoring using GPS/GIS and remote sensing technologies. Funds also supported classroom hardware, software, and advance instructional tools in the college's campus technology center.

Fort Berthold Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Fort Peck Community College
Provided support for the Distance Learning delivery system, which integrates the business office, financial aid, and registration functions to become a more effective and efficient college through technology.

Haskell Indian Nations University
Conduct on campus recruitment and orientation course for Off Reservation Boarding School students from four states. Participating students received college course credits for completion of the course. The funds also continued to support the Institute of Distance Education to increase the college's ability for student accessibility, distance learning, teacher instruction, curriculum development, and video conferencing.

Institute of American Indian Arts
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, and campus construction.

Lac Courte Oreilles Ojibwa Community College
Continued consistent and growing success in meeting both the college's and CSREES' Strategic Goals through efforts in recruiting, retaining, training, and graduating tribal students in Food, Agriculture, and Sciences. Invested funds in informational brochures and pamphlets to distribute at area high schools; the successful matriculation of 3 students through paid summer internship programs at Croix Hatchery, LCO Reservation, and Community Gardens Project; paid travel expenses for four students who attended a science based national conference; supported the enrollment of 5 students through scholarships; transferred a student to the UW-Steven's Point College to continue a baccalaureate degree; and finally, strengthened coordination of academic programs.

Leech Lake Tribal College
Supported classroom construction and renovation for the food and agricultural sciences program. The college is in the planning stages to develop innovative methods to increase student enrollment, academic performance, and curriculum development of the food and agricultural sciences in accordance with CSREES Strategic Goals.

Little Big Horn College
With the previous acquisition of IT and distance education equipment, funds to improve the delivery of information technology (on-line learning) to rural areas of the reservation. Also using funds to leverage additional grants and will begin to create reservation learning centers in each community.

Little Priest Tribal College
Used funds in the support of an Agriculture and Natural Resources course, instructor and instrumentation and educational materials. This curriculum will encourage taking on research projects within their communities to become more active within their communities and support valuable tribal traditions and natural resource practices.

Navajo Technical College
Addressed its contribution to CSREES' goals, by using funding to support student scholarships and internships in veterinary science, including increased bison and cattle research and hands-on experience, animal genetics, and animal behavior.

Nebraska Indian Community College
Used funds to build the capacity of their Business Office through technology and training upgrades as well as securing the third campus (South Sioux City) for permanent use. They also used the funds to support new faculty in the food and ag sciences and to increase academic student performance in science and natural resources. Also used funds for the maintenance of greenhouses and other facilities, to maintain adequate condition for student research and instruction. Funding was also used for student recruitment and retention resources, through the acquisition of signs, brochures, and other related items to entice and enhance college relations with prospective students of the agriculture and food related sciences.

Northwest Indian College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction

Oglala Lakota College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Saginaw Chippewa Tribal College
Used endowment funds to support efforts at recruiting additional American Indian students and their retention. They purchased 'EMPOWER' software to aid in administrative management and record keeping as well as recruitment and retention.

Salish Kootenai College
Increase student enrollment at the college by offering a CSREES funded curriculum, Baccalaureate Environmental Science Program. The college is looking to increase its student's accessibility to 4-year degree programs through challenging classroom and hands-on field experiences, knowledgeable instructors, accessibility to the internet, and distance learning education. College is in the early planning stages to convert 2 agricultural science 2-year Associate Degree Programs to 4-year Baccalaureate Programs.

Si Tanka University
Is not currently an accredited educational institution and therefore not eligible for the Endowment Interest Distribution.

Sinte Gleska University
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Sisseton Wahpeton Community College
Used funds to support activities related to the General Agriculture and Food Science degree program. Exterior classrooms that emphasize traditional knowledge and culture using native food and medicinal plants are being expanded as well as integrated into the current ag curriculum.

Sitting Bull College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Southwestern Indian Polytechnic Institute
Using funds to continue to upgrade, repair, construct and equip science laboratory, greenhouse, equipment and classroom buildings that support the education, research and extension activities of the food and agriculture courses and projects at the college. Irrigation systems were improved for the demonstration/teaching farm and greenhouses. Funds are enhanced at the college by supporting activities around existing research, extension and Equity projects.

Stone Child College
Purchased classroom equipment, supplies and instrumentation for the construction technology, ag engineering and pre-nursing degree programs. These activities will enhance the vocational education program at the college.

Tohono O'odham Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Turtle Mountain Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

United Tribes Technical College (UTTC)
Used to support a Certified Dietary Manager Associate Degree Program. The Nutrition and Foodservice Program was approved as a training site previously and this project is going well. Funds were also used to equip and develop an experiential learning project for the Nutrition and Foodservice students. The Teaching Lab (kitchen) Project was completed and is a great asset for the students, faculty and UTTC Land Grant Department. Additionally, funds are used to plant UTTC Land Grant vegetable and herb teaching garden located on campus. This effort encompasses experiential learning activities in a culturally sensitive way that connects students with their heritage and the land. Both projects are in conjunction with the UTTC strategic plan for the college.

White Earth Tribal and Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction.

Fiscal Year 2008:

Bay Mills Community College
Supported a recruitment and retention program in the food and agricultural sciences. Hiring of a recruitment specialist, travel and supplies, high school visits and demonstration activities, college nights on campus for high school students are some of the recruitment activities. The retention program will develop a learning center with computer and software capability, a tutoring program, development of a peer student mentoring program, and development of a tracking and evaluation program to measure success.

Blackfeet Community College
Used funding to address its' ability to prepare professionals in Agriculture, Natural Resources, Environment, Youth, and Health curriculum, using a Blackfeet Indian cultural approach. Monies were used to support the creation of and faculty salary in teaching a new Associate Science Degree in Environmental Science, and for the planning of an Associate Science Degree in Agriculture; to increase student academic performance with the purchase of classroom materials, outdoor lab materials, and materials in pursuit of providing distance learning education; and for the continued support of curriculum development of academic degree programs; and for increased distribution of Blackfeet Community College information, scholarships, and area community visits for student recruitment and retention.

Cankdeska Cikana Community College
Used for the landscape planning and renovation of two vegetable and ethno-botanical gardens, and a student instruction greenhouse. Purchased maintenance supplies such as a used farm tractor, a garden tool shed and fencing, and adequate garden tools for student use. Monies supported two part-time work study positions made available to students, to ensure hands-on, experiential learning; and travel costs for students visiting local farms to experience small-farm operations.

Chief Dull Knife College
Supported student recruitment and faculty development through increased class offerings, college brochures and pamphlets, the renovation of a distance learning/vocational center, and the purchase of distance learning classroom materials.

College of Menominee Nation
Used endowment funding to provide marketing, recruitment, and retention activities for the academic year. Purchased yearly calendars, a college marketing brochure, individual program brochures, radio advertisements, local television commercials, newspaper advertisements, tribal college journal and magazine advertisements, and sign rentals. Used funding to support travel to disperse these materials to area reservation high schools, college career fairs, job center and employee education fairs and these materials to encourage student enrollment to target populations, using a culturally sensitive approach.

D-Q University
Is not currently an accredited educational institution and therefore not eligible for the Endowment Interest Distribution.

Dine College
Used in planning the construction of a demonstration farm to give Dine College students hands on experiential learning using tools from the classroom. Developed recruitment brochures, website, and applications for increased community attention and visibility. Funds were also used for travel to disperse these materials to reservation high schools to promote the agriculture discipline, and the College. Funds also supported salaries for the Rural Development Director and his supporting staff, and their educational activities in farming, food, agricultural sciences, and rural economic and community development.

Fond du Lac Tribal and Community College
Establish and equip three science labs, especially the Environmental Science Laboratory. Additional programs supported were the faculty development to better prepare college faculty to serve as mentors to high school instructors for science education. The establishment of on-line course development to support high school curriculum and post-secondary courses.

Fort Belknap College
Support teaching and research activities in its Natural Resources and Computer Technology programs. Funds supported: the employment of a computer technology instructor/information systems technician; GPS/GIS application software and data management capability; and student and faculty involved environmental research projects in mapping and monitoring using GPS/GIS and remote sensing technologies. Funds also supported classroom hardware, software, and advance instructional tools in the college's campus technology center.

Fort Berthold Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Fort Peck Community College
Provide support for the Distance Learning delivery system, which integrates the business office, financial aid, and registration functions to become a more effective and efficient college through technology.

Haskell Indian Nations University
Conduct on campus recruitment and orientation course for Off Reservation Boarding School students from four states. Participating students received college course credits for completion of the course. The funds also continued to support the Institute of Distance Education to increase the college's ability for student accessibility, distance learning, teacher instruction, curriculum development, and video conferencing.

Ilisagvik College
Will be eligible for Endowment Distribution Funds in 2009.

Institute of American Indian Arts
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, and campus construction.

Lac Courte Oreilles Ojibwa Community College
Continued consistent and growing success in meeting both the college's and CSREES' Strategic Goals through efforts in recruiting, retaining, training, and graduating tribal students in Food, Agriculture, and Sciences. The college invested funds in informational brochures and pamphlets to distribute at area high schools; the successful matriculation of 3 students through paid summer internship programs at Croix Hatchery, LCO Reservation, and Community Gardens Project; paid travel expenses for four students who attended a science based national conference; supported the enrollment of 5 students through scholarships; transferred a student to the UW-Steven's Point College to continue a baccalaureate degree; and finally, strengthened coordination of academic programs.

Leech Lake Tribal College
Supported classroom construction and renovation for the food and agricultural sciences program. The college is in the planning stages to develop innovative methods to increase student enrollment, academic performance, and curriculum development of the food and agricultural sciences in accordance with CSREES Strategic Goals.

Little Big Horn College (LBHC)
With the previous acquisition of IT and distance education equipment, LBHC is using Endowment funds to improve the delivery of information technology (on-line learning) to rural areas of the reservation. The College is also using funds to leverage additional grants and will begin to create reservation learning centers in each community.

Little Priest Tribal College
Used funds in the support of an Agriculture and Natural Resources course, instructor and instrumentation and educational materials. This curriculum will encourage taking on research projects within their communities to become more active within their communities and support valuable tribal traditions and natural resource practices.

Navajo Technical College
Addressed its contribution to CSREES' goals, by using endowment funding to support student scholarships and internships in veterinary science, including increased bison and cattle research and hands-on experience, animal genetics, and animal behavior.

Nebraska Indian Community College
Used funds to build the capacity of their Business Office through technology and training upgrades as well as securing the third campus (South Sioux City) for permanent use. They also used the funds to support new faculty in the food and ag sciences and to increase academic student performance in science and natural resources. The college also used funds for the maintenance of greenhouses and other facilities, to maintain adequate condition for student research and instruction. Funding was also used for student recruitment and retention resources, through the acquisition of signs, brochures, and other related items to entice and enhance college relations with prospective students of the agriculture and food related sciences.

Northwest Indian College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Oglala Lakota College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Saginaw Chippewa Tribal College
Used funds to support efforts at recruiting additional American Indian students and their retention. They purchased 'EMPOWER' software to aid in administrative management and record keeping as well as recruitment and retention.

Salish Kootenai College
Increased student enrollment at the college by offering a Baccalaureate Environmental Science Program. The college is looking to increase its student's accessibility to 4-year degree programs through challenging classroom and hands-on field experiences, knowledgeable instructors, accessibility to the internet, and distance learning education. College is in the early planning stages to convert 2 agricultural science 2-year Associate Degree Programs to 4-year Baccalaureate Programs.

Si Tanka University
Is not currently an accredited educational institution and therefore not eligible for the Endowment Interest Distribution.

Sinte Gleska University
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Sisseton Wahpeton Community College
Used funds to support activities related to the General Agriculture and Food Science degree program. Exterior classrooms that emphasize traditional knowledge and culture using native food and medicinal plants are being expanded as well as integrated into the current ag curriculum.

Sitting Bull College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Southwestern Indian Polytechnic Institute
Continue to upgrade, repair, construct and equip science laboratory, greenhouse, equipment and classroom buildings that support the education, research and extension activities of the food and agriculture courses and projects at the college. Irrigation systems were improved for the demonstration/teaching farm and greenhouses. Funds are enhanced at the college by supporting activities around existing research, extension and Equity projects.

Stone Child College
Purchased classroom equipment, supplies and instrumentation for the construction technology, agriculture engineering and pre-nursing degree programs. These activities will enhance the vocational education program at the college.

Tohono O'odham Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

Turtle Mountain Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

United Tribes Technical College (UTTC)
Support a Certified Dietary Manager Associate Degree Program. The Nutrition and Foodservice Program was approved as a training site previously and this project is going well. Funds were also used to equip and develop an experiential learning project for the Nutrition and Foodservice students. The Teaching Lab (kitchen) Project was completed and is a great asset for the students, faculty and UTTC Land Grant Department. Additionally, funds are used to plant UTTC Land Grant vegetable and herb teaching garden located on campus. This effort encompasses experiential learning activities in a culturally sensitive way that connects students with their heritage and the land. Both projects are in conjunction with the UTTC strategic plan for the college.

White Earth Tribal and Community College
Escrowed monies for future planning and collegiate development in agricultural sciences, for faculty development, student recruitment efforts, or campus construction, in 2008.

PEER PANELS

Ms. DeLauro: How much did CSREES pay out in honoraria and travel for peer panels in fiscal years 2007 and 2008? What is the budget for fiscal year 2009?

Response: In fiscal year 2007 honoraria costs were $477,711 and travel costs were $1,600,161. In fiscal year 2008 honoraria costs were $488,870 and travel costs were $1,630,869. These costs are associated with the review of the proposals submitted to the National Research Initiative, Higher Education Programs, Other Research, Extension and Integrated Activities programs, the Community Food Projects and several other competitively awarded programs. In fiscal year 2009, estimated costs for honoraria and travel are $500,603 and $1,667,300, respectively.

PESTICIDE IMPACT ASSESSMENT

Ms. DeLauro: Please quantify fiscal year 2007 and 2008 program accomplishments, and your plans for fiscal year 2009. Please indicate total funding for each regional pest management center in fiscal year 2007 and 2008 and estimated funds in fiscal year 2009.

Response: The fiscal year 2007 and 2008 accomplishments of the Regional Integrated Pest Management Centers resulted from the continuation of on-going activities and from the initiation of new projects. A significant program accomplishment during this period was the initiation of a project to deliver integrated pest management training to Public Housing Associations in partnership with the Department of Housing and Urban Development. This project significantly increased the program's ability to serve a traditionally undeserved audience by helping maintenance staff and Public Housing Association residents understand how they can successfully practice integrated pest management to contribute a healthy home environment, including a significant reduction in pest-related asthma triggers. The program also supported on-farm training for agricultural producers, Natural Resources Conservation Service staff, and Extension experts on the use of integrated pest management practices to achieve national conservation goals. The on-farm training programs were designed to help growers adopt practices that minimize environmental impacts, increase crop yields, and improve pest management so that growers could become eligible to participate in cost-sharing programs available through the Natural Resources Conservation Service. Growers who completed the training sessions reported that they gained knowledge that helped them increase their use of weed mapping, disease forecasting, insect traps, row covers, greenhouses, crop rotation, disease-resistant varieties and pest scouting.

The program continued to build an integrated pest management resources database to provide stakeholders with easy access to hundreds of land-grant university documents containing integrated pest management information. The program also assisted with the development of the Pest Information Platform for Extension and Education, a mapping and modeling system that saved soybean growers an estimated $22 to $598 million for the past two years, according to the USDA's Economic Research Service. The program successfully used working groups focused on particular issues, such as pesticide resistance management, school integrated pest management, and weather monitoring and pest forecasting. The Educator Exchange Program was created to enhance education among vegetable and strawberry growers, and to help agricultural professionals cross geographical boundaries to learn about new integrated pest management practices.

The program produced a wide variety of publications, including National Pest Alerts (for example, Brown Dog Tick and Plum Pox), newsletters *(IPM Insights, IPM Monitor, Southern Exposure, The Western Front, The Connection)*, practice guidelines and handbooks (for example, *Best Practices for Wildlife Control Operators* and *Northeast Vegetable and Strawberry Pest Identification Guide)*.

The program developed timely and credible documents assessing the use of pesticides and other pest management tactics in agricultural and urban settings. These documents served as a valuable reference for Environmental Protection Agency staff conducting pesticide residue tolerance reviews as required by the Food Quality Protection Act of 1996. The process used to develop Pest Management Strategic Plans provided a valuable opportunity to bring together growers and other stakeholders to identify priority research and extension needs. These documents have been cited as evidence of need in proposals submitted to competitive grants programs, and several of these proposals have been funded, a result at least partly due to the strong evidence of stakeholder involvement reflected in the Pest Management Strategic Plan.

In fiscal year 2009, the program will continue work on a number of projects that will improve economic benefits of adopting integrated pest management practices, reduce potential risks to human health, and reduce potential risks to the environment. The program will build new partnerships to address challenges and opportunities, serve the real-world needs of diverse stakeholders, and build on existing knowledge to solve problems.

The total funding provided to each Regional Integrated Pest Management Center for fiscal years 2007 and 2008 and the estimate for fiscal year 2009 is submitted for the record.

[The information follows:]

Fiscal Year	Cooperative State Research, Education, and Extension Service Funding
2007	$3,951,277
2008	3,899,511
2009	*

*The President's fiscal year 2009 budget proposes to consolidate this program and the Crops at Risk from FQPA Implementation, FQPA Risk Mitigation for Major Food Crop Systems, and Methyl Bromide Transition Program into the National Integrated Pest Management (IPM) Initiative. This Initiative will be funded under the Agriculture and Food Research Initiative (formerly the National Research Initiative). The FY 2009 President's Budget proposes an increase of $2,097,000 for the IPM Initiative over the fiscal year 2008 level of $12,903,000 for all four programs.

PLANT GENOME MAPPING

Ms. DeLauro: Please update your response in last year's hearing record on the status of the genome mapping of each of the following commodities: corn, wheat, soybeans, cotton, rice, and peanuts.

Response: In corn, scientists have completed a high resolution draft genome sequence that includes 2 billion bases of DNA and insight on the estimated 50 to 60 thousand genes important to the crop's growth and vitality. The sequence adds knowledge to other projects underway that can now utilize thousands of genetic markers to elucidate the relationship between genes and economically important traits. Mapping studies aim to exploit natural genetic variation as opposed to adding new genes to improve grain yield, nutritional quality, drought and pest resistance, and the production of renewable energy.

In wheat, an international team of scientists have isolated one of wheat's 42 chromosomes and made a physical map of it, placing more than 1400 molecular markers along its 995 million bases of DNA. The map will not only assist in future sequencing of the entire genome but also help researchers more easily find genes important to increasing yields and dealing with drought and disease.

In soybeans, scientists have completed a preliminary assembly and annotation of the 1.1 billion bases of DNA in the genome. Complementing the sequencing effort is a project to genotype thousands of accessions from the USDA soybean germplasm collection with single nucleotide polymorphism DNA markers. Genotyping and sequence information will be a valuable resource for breeders and researchers to mine the germplasm collection and understand the natural genetic variation it contains.

In cotton, the Department of Energy Joint Genome Institute has completed a draft assembly and automated annotation in April 2008 that is now undergoing manual annotation and release to the public by research collaborators at the University of Georgia. While the application of DNA markers has offered a valuable tool for revealing the genetic basis of both simple and complex traits in crop plants, cotton genome mapping lags behind other major crops.

In rice, many new and powerful genomic methods have been developed since the completion of the genome sequence in 2004, to include microarrays, mutant collections, gene-silencing assays, proteomic and metabolomic platforms, and bioinformatics. These tools are now enabling many research teams worldwide to validate the function of an estimated 40 thousand rice genes in response to pests, pathogens and adverse environmental conditions such as flooding, drought and limited nutrients.

In peanut, a relatively low amount of molecular variation in the cultivated species has resulted in a focus on mapping of wild species and DNA transformation. However, with potential new developments in single nucleotide polymorphism-based markers and other genetic markers, the focus is shifting towards the molecular characterization of the cultivated species. The development of expressed sequence tags, genomic

clone libraries, characterized mutant collections, and bioinformatics is expected to advance peanut genome mapping.

Ms. DeLauro: Please provide the amount of CSREES funds, by funding category, devoted to plant genome mapping for fiscal years 2007, 2008 and 2009.

Response: In fiscal year 2007 and 2008, approximately $10 million of the National Research Initiative Competitive Grant funds were used for plant genome mapping to include genome structure and organization, functional genomics, bioinformatics and applied genomics. Research and integrated research, education, and extension submissions for fiscal year 2009 are due March 4, 2009. Funding recommendations and award decisions should be known by September 2009; however, funding is expected to be about $10 million.

Ms. DeLauro: Please describe some of the recent accomplishments in this area.

Response: Recent accomplishments in plant genome mapping include the following: 1) New statistical methods and association mapping strategies for genomics assisted breeding of QTL's, or Quantitative Trait Loci; 2) New training courses on mapping and QTL analyses for students; 3) Improved physical maps for sequencing of common bean, barley and apple; 4) New methods to sequence large and complex genomes; 5) Identification of resistance genes for scab, rust and fire blight in apple, head blight in wheat, and sheath blight in rice. Continued advances in both biological discovery as well as technology development serve as a key resource for plant systems research to address the challenges of increasing population, decreasing agricultural land area, and the impacts of climate change.

Ms. DeLauro: Please update the Committee on plant mapping projects you are doing in conjunction with the National Science Foundation and others.

Response: The Interagency Working Group on Plant Genomes, under the auspices of the Committee on Science of the National Science and Technology Council, along with the Office of Science and Technology Policy, coordinates activities, guidance, and oversight of the National Plant Genome Initiative. Participating agencies include the Cooperative State Research, Education, and Extension Service (CSREES), Agricultural Research Service, and Forest Service (FS) of the U.S. Department of Agriculture, the National Science Foundation (NSF), the Department of Energy (DOE), the National Institutes of Health, and the U.S. Agency for International Development. Each agency contributes to the development of the National Plant Genome Initiative plans and participates in its activities consistent with its specific mission and based on available resources. The Interagency Working Group on Plant Genomes continues to provide strong leadership and stewardship for National Plant Genome Initiative activities, ensuring continued world-class research and training as reliance on plants increases for materials, energy and fuels. The CSREES' National Research Initiative and the DOE's Office of Biological and Environmental Research have a joint program in plant

feedstock genomics. The goal of the program is to facilitate the use of plant tissues, specifically lignocellulosic materials, for bioenergy or biofuels. The program has awarded research grants to support feedstocks including poplar, corn, sorghum, switchgrass, cordgrass, rice, wheat, alfalfa, and the model bioenergy plant Brachypodium. All awards leverage information and research tools developed and made available over the last 10 years by National Plant Genome Initiative projects. In addition, the Conifer Coordinated Agricultural Project is a unique collaborative effort of CSREES and FS that brings together basic researchers and applied tree breeders in a combined agriculture and forestry research, education, and extension mission. This project also coordinates with related NSF and DOE pine projects on association genetics of natural genetic variation, comparative resequencing, and conifer expressed sequence tags. The University of California - Davis is leading a team of researchers to provide tree breeders across the United States with new tools to enhance and accelerate traditional tree improvement activities. These "knowledge-based" tools derive value from experimentally demonstrated associations between traits of interest, such as wood density or disease resistance, and genetic markers. By adding genetic markers to their toolbox, breeders will be able to select superior trees more accurately, more rapidly, and at lower cost than using traditional approaches alone. It is anticipated that within five years cooperatives producing virtually all of the conifer seedlings in the United States, more than 1.3 billion annually, might benefit from this technology improvement.

REGIONAL RURAL DEVELOPMENT CENTERS

Ms. DeLauro: How much in State, local, and private funding were the rural development centers able to generate in fiscal years 2007 and 2008?

Response: The four rural development centers were able to generate State, local, and private funding totaling $1,257,079 in fiscal year 2007 and $745,142. The information is submitted for the record.

[The information follows:]

State, Local, and Private Funding Generated by Regional Rural Development Centers for Fiscal Years 2007 and 2008.

FY	Northeast Region	Southern Region	North Central Region	Western Region	Total
2007	$386,039	$534,311	$229,988	$106,741	$1,257,079
2008	73,287	292,421	344,434	35,000	745,142

Ms. DeLauro: Please list each center and how much federal support has gone to each in the past three fiscal years.

Response: Federal support from CSREES for the four Regional Rural Development Centers totaled $1,257,269 in fiscal year 2006, $1,257,269 in fiscal year 2007, and $1,248,789 in 2008. Support for each Center in the last three fiscal years is indicated in the following table. The information is submitted for the record.

[The information follows:]

Federal Support from CSREES by Regional Rural Development Center for Fiscal Years 2005, 2006, and 2007.

FY	Northeast Region	Southern Region	North Central Region	Western Region	Total
2006	$314,317	$314,317	$314,317	$314,318	$1,257,269
2007	314,317	314,318	314,317	314,317	1,257,269
2008	312,197	312,197	312,197	312,198	1,248,789

RESEARCH, EDUCATION, AND ECONOMICS INFORMATION SYSTEM

Ms. DeLauro: As necessary, please update your description in last year's hearing record of the Research, Education, and Economics Information System. Please discuss the costs, uses, and benefits of the system. Provide funding levels from inception in table format.

Response: This program, the Research, Education, and Economics Information System--REEIS--is an automated, centralized one-stop, and current source of information on the research, education, and extension programs, projects, and activities of the USDA and its partner institutions in the areas of food, agriculture, and natural resources. It is an information system that has been designed to serve all with an interest in research, education, and extension efforts performed or financially supported by USDA. REEIS not only presents USDA data, but incorporates food, agriculture, and natural resources research, education, and extension data from other agencies, university partners, and states. In order to reach its broad audience in a readily available, yet cost-effective manner, REEIS has been implemented as an Internet application. Stakeholders include the public, university researchers, industry representatives, Congress, and the USDA.

Prior to the implementation of REEIS, USDA, members of the research, education, and extension community, Congress, and the public had no centralized, automated means for finding current and complete information about research, education, and extension efforts performed or funded by USDA. With the implementation of REEIS, the vehicle has been created for readily presenting monitoring and performance information for these funded efforts. Identification, evaluation, and accountability of programs is enhanced and thereby better enables information exchange, collaboration, assessment of value, and dissemination of research underway or completed.

The original and ultimate objective of the system is to enable users to measure the impact and effectiveness of research, extension, and education programs. REEIS is meeting this goal by incrementally incorporating data from more and more programs, and continually expanding the data available for currently incorporated programs and disseminating information on current research programs. REEIS now contains over 10 major data sources of information.

In January 2003, the first fully operational release of REEIS was made available on the Internet. In 2004 and 2005, REEIS continued to operate and provide expanded sources of data from the following agencies: CSREES, Forest Service, National Agricultural Statistics Service, National Science Foundation, Patent and Trademark Office, and U.S. Census Bureau. The system also provides extensive links to related web-based information resources. In 2006, research programs of states were included through accomplishment reports and state plans of work. A robust search engine was also included which indexes the state accomplishments, current research projects, relevant web sites, and other resources for easy retrieval through a single interface. In 2007, the reporting function was enhanced by upgrading all reports to a new version of the system which provides additional analytical

capability. In 2008, there was a continuation of enhancing program monitoring and reporting tools. The Leadership Management Dashboard was developed and released in REEIS as a real time tool integrating information from multiple databases. The Leadership Management Dashboard links grant funding information with program information and provides an integrated view of how grant funds are allocated and spent by various USDA programs. The initial audience for the Leadership Management Dashboard is USDA National Program Leaders. Additional releases of this enhanced tool will be made available to broader audiences.

Information is provided for the following topics: current and historical agricultural research efforts; forestry research efforts; statistics about students, institutions, faculty, and degrees related to agriculture; partner institution snapshots; food and nutrition efforts; 4-H programs; information on families at risk; impact reports; agricultural snapshots of each state and outlying areas; agriculture related patents and citations; state accomplishments and plans of work; and Internet links to related agencies, institutions, and data bases.

REEIS began in fiscal year 1997 when Congress appropriated funds for planning and design. The funding information follows:

Fiscal Year	Appropriation
1997	$400,000
1998	800,000
1999	1,000,000
2000	2,000,000
2001	2,120,325
2002	2,078,000
2003	2,750,000
2004	2,444,492
2005	2,424,448
2006	2,561,130
2007	2,561,000
2008	2,703,939
2009	2,703,939
TOTAL	26,547,273

SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM

Ms. DeLauro: Please provide a table that shows the amount of funding for each of the past three years for the SBIR program and break out the source of funding.

Response: The information is submitted for the record.

[The information follows:]

USDA SMALL BUSINESS INNOVATION RESEARCH PROGRAM

Agency	FY 2007 Actual	FY 2008 Actual	FY 2009 Budget
Agricultural Research Service	$ 1,890,000	$ 1,895,000	$ 983,600
Animal and Plant Health Inspection Service. . . .	49,672	82,674	40,600
Cooperative State Research, Education, and Extension Service.	15,599,447	15,079,000	12,151,261
Economic Research Service .	158,675	220,850	205,000
Forest Service.	737,327	762,297	741,225
FAS/International Cooperative Development .	9,375	9,375	9,375
National Agricultural Statistics Service. . . .	6,000	6,950	0
Rural Development/Rural Business Programs	350,000	50,000	0
Total	18,800,496	18,106,146	14,131,061

SBIR PROGRAM

Ms. DeLauro: What has been achieved with this funding? Please provide specific examples.

Response: No awards have been made yet for Fiscal Year 2009. In Fiscal Year 2007 there were 81 Phase I grants and 39 Phase II grants awarded to companies in 40 different States. In Fiscal Year 2008 there were 77 Phase I grants and 37 Phase II grants awarded to companies in 37 different States.

At this time we do not have specific achievements from the Fiscal Year 2008 awards; however, examples of achievements from Fiscal Year 2007 are as follows:

A Phase II grant was awarded to **Freund's Farm, Inc. in East Canaan, Connecticut** for "Development of Horticultural Containers from Anaerobically Digested Cow Manure". Dairy farms need to find better ways to handle the large amounts of manure that are produced. This project is producing a value-added product from anaerobically digested cow manure called Cow Pots. These are horticultural containers that can be used to grow plant seedlings and then planted directly in the soil where they will biodegrade. Cow Pots have been featured on the cover of Gardeners Supply catalog and on the Discovery Channel program "Dirty Jobs". The grant is not completed yet but sales of Cow Pots have already started and reached the $500,000 level last year.

A Phase II grant was awarded to **Heritage Acres Foods, LLC in Jefferson City, Missouri** for "Verifying the Feasibility of Marketing Heritage Organic Pork". Heritage Acres Foods is a 100 percent producer-owned company formed to market all natural antibiotic-free and organic pork and pork products. Currently, there are 110 small farms that collectively own Heritage Acres Foods. The purpose of the grant is to encourage farmers to transition from antibiotic-free to organic pork. Currently, all of their pork is marketed through private label retail and food service channels, including Chipotle Mexican Grill restaurants and all Whole Food stores in the mid western district. Last year they sold over $3 million worth of fresh and processed all natural and organic pork products.

A Phase II grant to **The Shivvers Group, Inc. in Corydon, Iowa** focused on "Researching Drying of Grain and Distiller's Grain with a Simple, Innovative and Extremely Efficient Heat Recovery Process". More than one-third of the direct energy used to produce corn is used to dry the grain and thus developing more efficient grain dryers can save a great deal of energy. Most grain dryers require about 2,500 BTU of energy consumption per pound of water evaporated. The goal of this project is to develop an improved grain dryer that can reduce the energy requirement to 500 BTU per pound of water evaporated. This project is ongoing but Shivvers has already achieved 790 BTU per pound of water evaporated so they have made great progress. Shivvers is a major producer of grain dryers and they expect to start selling this new energy efficient grain dryer within one to two years.

SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION (SARE) PROGRAM

Ms. DeLauro: How were the funds for the SARE Program used, by location, for fiscal years 2006, 2007, and 2008? Include with that information a table showing how much funding went to each SARE location.

Response: Funds for the Sustainable Agriculture Research and Education program were used in four regions and in the national office as follows. Equal allocations were made to the four regions, which used the funds primarily to fund Research and Education grants and Producer Grants, and also for Graduate Student projects, other small competitive grant programs, and regional Administration Councils. The remaining funds were used in the national office for communications and coordination and for information dissemination through the National Agricultural Library's Alternative Farming Systems Information Center, the SARE outreach office, and conferences and other educational efforts.

Detailed fiscal year allocations are as follows:

	FY 2006	FY 2007	FY2008
North Central Region	$2,682,698	$2,635,858	$3,150,058
Southern Region	2,682,698	2,635,858	3,150,058
Western Region	2,682,698	2,635,858	3,150,058
Southern Region	2,682,698	2,635,858	3,150,058
Subtotal, Regional allocations	10,730,792	10,543,432	12,600,232
National Initiatives/projects:			
National Communications/coordination	368,072	385,672	399,205
National Agricultural Library	151,199	198,699	168,026
SARE Outreach Office	210,450	214,400	285,000
National Initiatives: education and conferences, etc.	29,823	148,133	24,533
Federal Administration	491,040	491,040	575,940
Small Business Innovation Research	294,624	294,624	345,564
Total, SARE	12,276,000	12,276,000	14,398,500

Ms. DeLauro: Please update the list in last year's hearing record of the four regional councils, their membership, and their annual budgets.

Response: The annual budget for each region was $2,682,698 for fiscal year 2006, and $2,635,858 for fiscal year 2007, and for fiscal year 2008, $3,150,058. The four regional councils and their 2008 membership rosters are as follows:

North Central Region:

Thomas Coudron, USDA-ARS
Chicago, Illinois

Brad Brummond, Walsh City Extension
Park River, North Dakota

Karen DeBoer, University of Nebraska, Extension
Sidney, Nebraska

Mark Hanna, Iowa State University, Researcher
Ames, Iowa

Hans Kandel, Regional Extension Educator
Crookston, Minnesota

David Baker, University of Missouri, Extension
Columbia, Missouri

Jerry DeWitt, Iowa State University, Extension
Ames, Iowa

Judy Grundler, Missouri Dept of Agriculture
Jefferson City, Missouri

Doug Karlen, USDA/ARS
Ames, Iowa

Fred Madison, Wisconsin Geological Natural History Survey
Madison, Wisconsin

Dave Campbell, Farmer
Maple Park, Illinois

Barbara Van Til, U.S. Environmental Protection Agency Region 5
Chicago, Illinois

Edgar Hicks, Agribusiness
Omaha, Nebraska

Tim Kautza, Non-profit
Des Moines, Iowa

Tom Larson, Farmer
St. Edward, Nebraska

Juan Marinez, Michigan State University
East Lansing, Michigan

Gary Reding, Farmer
Greensburg, Indiana

Ken Rider II, Farmer
Deshler, Ohio 43516

Robin Salverson, South Dakota State University
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Cheryl Simmons, USDA/NRCS
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Liz Stahl, University of Minnesota
Worthington, Minnesota

William Tracy, University of Wisconsin-Madison
Madison, Wisconsin

Tricia Wagner, Farmer
Hermann, Missouri

Jill Auburn, USDA, CSREES
Washington, District of Columbia

Northeast Region:

John Ayers, Penn State University
University Park, Pennsylvania

Juli Brussell, University of New Hampshire
Durham, New Hampshire

Michael Chamberlain, Development Services Associates
Auburn, New York

Stuart Cooper, Mid Atlantic Farm Credit
Salisbury, Maryland

Jackie Folsom, Vermont Farm Bureau
Richmond, Vermont

Judy Gifford, Farmer
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Mark Gorman, Pennsylvania Environmental Council
Meadville, Pennsylvania

David Granstrom, USDA/ARS
Beltsville, Maryland

Mark Nardi, U.S. Geological Survey MD-DE-DC Water Science Center
Dover, Delaware

David Hansen, University of Delaware
Georgetown, Delaware

Daniel Kluchinski, Rutgers University
New Brunswick, New Jersey

Mary Ann Hayes, University of Maine
Orono, Maine

M. Tiffany Laws, USDA/NRCS
Annapolis, Maryland

Kate Newkirk, Farmer
Winslow, Maine

Dyremple Marsh, Delaware State University
Dover, Delaware

Tom Morris, University of Connecticut
Storrs, Connecticut

Karl North, Farmer
Marathon, New York

Andrea M. Szylvian, Environmental Protection Agency
Boston, Massachusetts

Michael Vayda, University of Vermont
Burlington, Vermont

Victoria Lynn Smith, Connecticut Agricultural Experiment Station
New Haven, Connecticut

Brian Wickline, Farmer
Union, West Virginia

Jill Auburn, USDA, CSREES
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Southern Region:

Douglas H. Constance, Sam Houston State University
Huntsville, Texas

Ken Dawson, Non-profit
Cedar Grove, North Carolina

Keith Dix, Farmer
Nellysford, Virginia

Charles Goan, University of Tennessee at Knoxville
Knoxville, Tennessee

Helen Fields, Farmer
John's Island, South Carolina

Johnnie Jones, North Carolina Coalition of Farm & Rural Families
Raleigh, North Carolina

Calvin King, Arkansas Land & Farm Development Corporation
Brinkley, Arkansas

Thomas H. Klindt, University of Tennessee Agricultural Experiment Station
Knoxville, Tennessee

Edward Martin, Georgia Water District Chief
Atlanta, Georgia

Ray McKinnie, North Carolina A&T University
Greensboro, North Carolina

Louis E. Petersen, Jr., Commissioner of Department of Agriculture
St. Croix, United States, Virgin Island

James Morgan, FORGE Board
Fayetteville, Arkansas

Robert Phillips, South Carolina State University
Orangeburg, South Carolina

Robert Phillips, South Carolina State University
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Randy Raper, USDA/ARS
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Lora Lee Schroeder, U.S. Environmental Protection Agency Region IV
Atlanta, Georgia

Juan Carlos Rodriguez, Farmer
Gainesville, Florida

Jimmy Sidebottom, Farmer
Greensburg, Kentucky

Liesbeth Schmidt, Farmer
Lake City, Florida

Beth Tillery, Farmer
McKee, Kentucky

Tom Trantham, Jr., Farmer
Pelzer, South Carolina

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Western Region:

Karl Kupers, Producer
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Mark W. Frasier, Rancher
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Deborah Young, University of Arizona Cooperative Extension
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Dr. Michael Harrington, Colorodo State University
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Peg Perreault, Environmental Protection Agency
Denver, Colorado

Cindy Lair, WASDA Representative Colorado Department of Agriculture
Lakewood, Colorado

Don Bustos, Farmer
Espanola, New Mexico

Chuck Boerner, Farmer
Hana, Maui, Hawaii

Richard Parrott, Farmer
Twin Falls, Idaho

Rick Melnicoe, University of California, Western Region IPM Center
Davis, California

Jill Auburn, USDA, CSREES
Washington, District of Columbia

Ms. DeLauro: Please list the administrative or overhead costs of each regional council.

Response: The staffing costs for the Sustainable Agriculture Research and Education regional programs for fiscal year 2008 are as follows. Approximately one-third to one-half of these staff costs are spent on the program communications and outreach, in addition to program administration.

Fiscal Year 2008	Salaries	Benefits	Total
North Central Region	$170,804	$76,458	$247,262
Northeast Region	274,864	107,197	382,061
Southern Region	247,517	74,496	332,013
Western Region	334,730	150,024	484,754

Total Full-Time-Equivalent staff paid by the Sustainable Agriculture Research and Education fiscal year 2008 for each region is as follows, not including student assistance:

North Central Region	3.75
Northeast Region	4.33
Southern Region	5.40
Western Region	4.42

USDA SUSTAINABLE AGRICULTURE PROGRAM

Ms. DeLauro: Please list the USDA funds related to sustainable agriculture, by agency, for fiscal years 2007, 2008, and 2009.

Response: The information is submitted for the record.

[The information follows:]

Sustainable Agriculture Research
($000)

Agency	FY 2006	FY 2007	FY 2008
Agricultural Research Service:			
Soil, Water, and Air Sciences	$127,066	$127,226	$116,359
Plant Sciences	204,015	204,271	186,823
Animal Sciences	104,690	104,822	95,869
Commodity Conversion & Delivery	33,539	33,582	30,713
Human Nutrition	9,822	9,835	8,994
Alternative Farming System (NAL)	241	239	239
Total, ARS	479,373	479,975	438,997
CSREES - Research and Education:			
Hatch	65,772	39,924	28,346
Cooperative Forestry Research	333	275	217
1890 Colleges and Tuskegee University	10,735	10,842	10,084
Animal Health, Sec. 1433	765	757	0
Special Research Grants	1,184	2,202	1,184
National Research Initiative	25,853	25,853	25,853
Sustainable Agriculture	12,276	14,399	9,138
Total, CSREES Research and Education	116,918	94,252	74,822
CSREES - Extension Activities:			
Smith-Lever 3b & c	15,251	14,641	14,495
Smith-Lever 3d (Pest Management)	9,860	9,791	10,651
Sustainable Agriculture	4,026	4,568	3,754
Total, CSREES Extension Activities	29,137	29,000	28,900

CSREES - Integrated Activities:			
Crops at Risk from FQPA Implementation	1,375	1,365	a/
FQPA Risk Mitigation	4,419	4,388	a/
Total, CSREES Integrated Activities	5,794	5,753	0
Total, CSREES	151,849	129,005	103,722
Total, USDA	631,222	608,980	542,719

VETERINARY MEDICAL SERVICES ACT (VMSA)

Ms. DeLauro: Please provide an update on the implementation of the VMSA and on the use of funds that have been appropriated to date as well as plans to implement the changes to the program made in the 2008 farm bill.

Response: Congress passed the National Veterinary Medical Services Act --NVMSA-- in December, 2003. The Food, Conservation, and Energy Act of 2008 --2008 Farm Bill-- amended this legislation to change, the title of NVMSA to the Veterinary Medicine Loan Repayment Program. To date, a total of $1,859,000 has been appropriated to the Cooperative State Research, Education, and Extension Service --CSREES-- for NVMSA, of which $495,000 was appropriated in fiscal year 2006, $495,000 was appropriated in fiscal year 2007, and $869,000 was appropriated in fiscal year 2008.

CSREES began working in fiscal year 2006 to implement this program. It was decided that the most practical option was to take advantage of existing Office of Personnel Management programs that allow USDA to assist veterinarians who choose Federal employment. CSREES developed an implementation plan that took advantage of existing student loan regulations explicated in section 5379 of title 5 of the United States Code. On March 19, 2007, a Final Rule was published in the Federal Register which permitted CSREES to implement the NVMSA program.

In FY 2007, CSREES used $750,000 of the FY 2006 and FY 2007 NVMSA funds and entered into a reimbursable agreement with the Food Safety and Inspection Service (FSIS). The agreement with FSIS explicitly addressed the original purposes of the Act: areas of veterinary need in the Federal Government, with emphasis on food safety and rural areas, and creation of a cadre of DVMs eligible for National Service. The targeted FSIS positions focused on remote, rural locations, another shortage sector explicitly defined in the Act. FSIS matched NVMSA funds by using recruitment incentives, thus doubling the impact of the legislation. Moreover, as a Federal employer, FSIS was able to offer moving and settling assistance, significant concerns of those seeking assistance.

The 2008 Farm Bill removed Federal employment as a priority and prohibited CSREES from using section 5379 of the United States Code to carry out any part of this legislation. Notwithstanding that FSIS had already entered into agreements in good faith with 5 individuals, the amendment required FSIS to return all funds that it had received under this program to CSREES. These

funds have been returned and pursuant to the direction of Congress will be reapplied to the Veterinary Medicine Loan Repayment program.

CSREES is now moving forward with rulemaking that will commit the funds available, less administrative costs, to a competitive loan repayment program for private sector veterinarians. CSREES held a public listening session on this program on September 15, 2008, and is in the process of drafting applicable rules to implement this program. The 2008 Farm Bill specifies that the rule(s) must be promulgated within 270 days from June 18, 2008. CSREES will meet this deadline.

VIRAL HEMORRHAGIC SEPTICEMIA (VHS)

Ms. DeLauro: Please list and describe funding provided through each activity within CSREES in 2008 related to VHS and all funding proposed or planned for 2009.

Response: The agency has made significant investments and has played a critical role in the coordination of federally-funded scientific and educational efforts combating VHS in the United States. The agency has collaborated with Federal and State agencies, sportsmen's organizations, land grant university Cooperative Extension and Sea Grant extension programs, professional fisheries societies, and grass-roots organizations to conduct research and develop educational programs and disseminate educational materials to educate the public about the ecological dangers and recommendations to contain the spread of the disease. Below are brief summaries of research, education, and extension projects funded by CSREES to address VHS in the United States.

CSREES provided funding for two research projects through the Critical Issues in Plant and Animal Disease Program. 1) A total of $50,000 was competitively awarded to Michigan State University for a project on the emergence and spread of viral hemorrhagic septicemia virus (VHSV) in Michigan. The project targets the development of enhanced diagnostic reagents for the Great Lakes isolate of VHS, the North American genotype IVb: and 2) Cornell University, New York, received $153,081 for a project on VHS in the Great Lakes Basin. The research is developing a laboratory model of VHS infection for channel catfish and rainbow trout and determining the sensitivity of detection of this VHS isolate with qRTPCR. These funds will also provide a reference laboratory and services for the fish health community. These studies will allow the determination of how many species are at risk, as well as providing a means of making science-based decisions on limiting the spread of VHS.

A Federal Administration Research grant was awarded to the University of Toledo, Ohio in the amount of $209,126 for a project on genetic detection and geographic analysis of Great Lakes fish infection by VHS. The project will utilize and merge geographic information systems technologies and molecular genetic tools to understand and combat VHS in the Great Lakes region. University researchers are collaborating with federal and state agencies to develop key genetic tools for rapid and accurate detection of the virus in infected fish, analyzing fish population susceptibilities and disease resistance, and profiling disease dynamics through geographic and population mapping. This new information will be made available through geographic tools that integrate ecological, genetic, and environmental health data into a web-

accessible format to be used by researchers, regulatory and fisheries management agencies, educators, policy-makers, and the general public

A Federal Administration Extension grant was awarded to the University of Wisconsin in the amount of $353,667 to deliver a coordinated and focused applied research and demonstration program, combined with an aggressive direct-to-farm extension outreach program, and to address the needs of fish farms and state, federal, and tribal hatcheries. The Northern Aquaculture Demonstration Facility, located on the Red Cliff Indian Reservation in Wisconsin and part of the University of Wisconsin-Stevens Point campus will be used to conduct the aquaculture-related education and outreach programs in Wisconsin. The project will develop aquaculture workshops at various locations in Wisconsin and throughout the North Central Region focusing on biosecurity and methods for minimizing the spread of VHS and other fish diseases. Six workshops addressing VHS will be funded for approximately $3,060 from the total amount of the grant.

The Agency's Regional Aquaculture Centers are also actively engaged in funding VHS-related research, education, and extension projects. Three Regional Aquaculture Centers have provided VHS-related funding for the following projects:

Scientists and extension professionals from the University of Washington and Oregon State University are collaborating on a multi-year project, funded by the Western Regional Aquaculture Center in the amount of $101,000, on the potential threat of Great Lakes VHS virus in the Western United States. The project will assemble and distribute biosecurity information related to VHS; develop diagnostic assays to differentiate Great Lakes VHSV IVb from endemic West coast VHSV IVa; test the susceptibility of yellow perch, rainbow trout, herring, and Chinook salmon to disease and mortality caused by Great Lakes VHSV IVb, the West coast VHSV IVa, and European VHSV I; test the ability of relevant host species to act as carriers and/or reservoirs of different VHSV genotypes; and develop outreach materials to disseminate the results of the supported research.

The Northeastern Regional Aquaculture Center provided funding in the amount of $199,263 for targeted biosecurity education and Best Management Practices development program for aquaculturists, Extension agents, and regulators. The award was made to Micro Technologies, Inc. to develop and implement a program of five two-day interactive biosecurity/Best Management Practices training workshops for the aquaculture industry in Maine, Rhode Island, West Virginia, New York and Pennsylvania; produce a Biosecurity/Best Management Practices Resource Manual, adaptable to specific species and/or facility design, and distributed at workshops and via the Internet; and create and maintain a public-access web-based database with informational resources as well as updated recommendations on biosecurity and Best Management Practices.

Cornell University in New York was awarded $197,960 from the Northeastern Regional Aquaculture Center for a project on the infection cycle of VHS. The project will determine the fate of key fish species when exposed to standard challenge doses of VHSV IVb to identify those most susceptible to development of disease and/or development of a carrier state of the infection; generate the needed data to support the validation of a quantitative real-time

polymerase chain reaction (RT-PCR) for VHSV; and provide an effective and timely distribution of new information to the aquaculture community relative to VHS.

The North Central Regional Aquaculture Center provided $197,960 aimed at minimizing the risk of spreading VHS and other fish diseases into fish farms and wild waterways throughout the North Central Region. The project will be a collaborative effort by scientists and Extension professionals from University of Wisconsin-Stevens Point; Michigan State University; Iowa State University's Center for Food Security and Public Health; and the United States Geological Service's Upper Midwest Environmental Sciences Center. The project will study iodine disinfection on walleye and northern pike eggs infected with VHS; develop a VHS "response packet" that targets fish-farm producers; conduct a series of six biosecurity workshops held at different fish farms across the region and targeting different production systems; utilize existing Aquatic Invasive Species (AIS) Hazard Analysis Critical Control Point (HACCP) Training Curriculum to develop specific fish disease HACCP plans for each of the six facilities involved in the workshops; develop and disseminate three model fish disease HACCP plans; and produce a fish farm biosecurity video that incorporates different system types, and distribute this video to end-users via DVD and Internet streaming videos.

Additionally, the USDA Animal and Plant Health and Inspection Service is collaborating with the Regional Aquaculture Centers through a multi-investigator, multi-institutional partnership to control the spread of the virus. A VHS Educational Alliance was created with the Animal Plant Health and Inspection Service, other federal agencies, the Regional Aquaculture Centers, and state Cooperative Extension and Sea Grant programs. Through this Alliance, a website has been developed by Iowa State University to provide currently available information on VHS. The Animal Plant Health and Inspection Service is providing support and content on VHS from a regulatory and scientific perspective. The North Central Regional Aquaculture Center has provided $4,000 to develop and maintain this website and $5,000 to develop a training module on VHS which is included in a Fish Health Certificate Program for fish producers to obtain an online.

The Industry Advisory Council for the Regional Aquaculture Centers has not yet met to identify and prioritize issues for Fiscal Year 2009. However, it is anticipated that VHS projects will continue to be eligible for consideration. Similarly, VHS will likely be among the candidate priority issues when the Critical Issues in Plant and Animal Diseases Program Fiscal Year 2009 priorities are developed. Finally, projects proposing work on VHS will be eligible for support through the Animal Protection and Biosecurity Competitive Program under CSREES' Agriculture and Food Research Initiative (formerly the National Research Initiative), and through the Animal Health and Disease (section 1433) grant program.

Questions Submitted by Congressman Kingston

Economic Research Service

Food Safety

Mr. Kingston: I have claimed that the data from CDC indicates that the food processing and distribution system in the US is the safest in the world, at least 99.98% safe. The Chairwoman has referenced the USDA's Inspector General and others who have stated that the data being used to make such claims is not necessarily representative of what is going on in food safety, is flawed or both.

Can both of you tell us what it would take in the way of resources and data gathering to establish a credible and representative picture of the level of food safety in the US and the costs and economic impacts of food borne illness? We really need to get beyond the rhetoric on this issue.

Response: The Centers for Disease Control and Prevention estimates that 76 million U.S. consumers contract foodborne illnesses, resulting in 325,000 hospitalizations, 5,000 deaths, and an unknown number of chronic complications each year. Most foodborne illness cannot be linked to a specific pathogen or food source; only an average of 5,800 cases of illness each year can be linked to a specific food source.

The cost of foodborne illness depends on the particular pathogen and the types of outcomes, particularly the incidence of premature death and chronic complications such as kidney failure and arthritis. ERS has recently estimated the costs of foodborne illness for two common foodborne pathogens: *Salmonella* and Shiga toxin-producing *E.coli* O157. ERS estimates the annual cost of foodborne *Salmonella* at $2.3 billion and annual cost of STEC O157 at $350 million (in 2006 dollars, not including chronic complications). Since these two pathogens account for less than 2 million of the 76 million cases per year, the total cost of foodborne illness is many times higher than the sum of the costs of these two pathogens. ERS has work underway to produce an estimate of the cost of foodborne illness due to unidentified pathogens.

ERS does not have expertise in epidemiology, and thus cannot assess the feasibility or cost of obtaining data to make a more definitive assessment of the level of food safety in the U.S.

North American Free Trade Agreement (NAFTA)

Mr. Kingston: There has been a rush lately, as widely reported in the press, to abandon or radically alter the North American Free Trade Agreement (NAFTA). Can you tell us what the economic benefits of NAFTA have been in agriculture and what the costs would be to the United States of not sustaining NAFTA in its present form?

Response: Since NAFTA's implementation in 1994, agricultural trade among Canada, Mexico, and the United States has grown from $16 billion in 1993 to $53 billion in 2007. Not all of this increase is directly attributable to NAFTA, of course, since population and income growth, comparative advantage, transport costs, and other economic factors also come into play. Nevertheless, the dismantling of tariff and quota barriers across the NAFTA countries has broadened the potential market for agricultural producers in each member country. Increased trade, greater off-season availability of fresh fruits and vegetables, more secure opportunities for cross-border investment, and increased employment are among the benefits that NAFTA provides in the agricultural sector.

Imports from the NAFTA partners benefit U.S. consumers and the U.S. food industry. Beer, vegetables, and fruit account for roughly three-fourths of U.S. agricultural imports from Mexico. Fruit and vegetable imports from Mexico are closely tied to Mexico's favorable climate and growing season that largely complements the U.S. growing season. Intra-industry trade (trade within the same industry) accounts for a large portion of agricultural trade between Canada and the United States, as food manufacturers, wholesalers, and retailers have restructured their business operations to supply regional markets that include consumers on both sides of the U.S.-Canada border.

NAFTA has had a small, positive impact on U.S. agricultural employment. U.S. agricultural exports to Canada and Mexico have risen by over 160 percent under NAFTA, increasing by $18 billion since 1993. These exports support about 268,000 jobs throughout the U.S. economy, according to ERS analysis of 2005 data. This number is quite small, however, when compared with the size of the U.S. workforce (about 140 million) and the number of U.S. farm operators (3.2 million).

NAFTA's provisions for the non-discriminatory treatment of foreign investors have stimulated cross-border investment among the member countries. The United States is the origin of most of foreign direct investment in the North American processed food sector. Between 1999 and 2007, U.S. companies invested an estimated $8 billion in Mexico's agricultural, food, and beverage industries. Sales by Canadian and Mexican affiliates of U.S. multinational food companies were estimated at $14.1 billion in 2005.

The economic impact of not sustaining NAFTA in its current form would depend on the nature of the changes. Any country that withdraws from NAFTA would lose its duty-free access to the markets of the other member countries and face the trade barriers that those countries apply to other members of the World Trade Organization on a Most Favored Nation basis. Such a trade policy change would force an abrupt economic adjustment for the country that withdraws from the agreement. Losing duty-free access to the Mexican market, for instance, could be particularly disruptive for U.S. grain and oilseed producers. ERS analysis suggests that a loss of U.S. preferential access to the Mexican market under NAFTA, for example, would reduce U.S. exports to Mexico of corn, wheat, oilseeds, and rice.

Ethanol Production, Food Prices, and the Rural Economy

Mr. Kingston: What is your estimate of the impact of ethanol production on food prices and can you tell us if you are studying the economic and social impacts of higher food prices due to ethanol mandates on low income families? If not, what would it take in additional resources to conduct that analysis?

Response: The most direct impact of ethanol production on food prices is through higher food commodity costs. Since the majority of ethanol in the U.S. is produced from corn, corn prices have experienced the biggest change in response to increased ethanol production. In addition, soybean prices have risen due to decreased supplies in 2007 as farmers shifted some acres from soybeans to corn. However, other factors, such as higher energy prices, strong global demand for food commodities, increased U.S. agricultural exports resulting from this stronger demand and a weaker dollar, and weather-related production problems in some areas of the world have also contributed to the increase in food commodity prices. These many factors are affecting a new and unique market situation. Current market adjustments in response to the increasing demand for biofuels are unlikely to be surmised from historical patterns. While ERS is attempting to sort out the relative

influences of the factors influencing food prices in this unique market, data will not be available for some time to definitively state the contribution of each factor to rising food prices.

ERS has been conducting research to estimate the effect of higher corn prices (partially due to increased ethanol production) on retail food prices. This research shows that higher corn prices increase animal feed and ingredient costs for farmers and food manufacturers, but pass through to retail prices at a rate less than 10 percent of the corn price change. Given that foods using corn or corn syrup as an ingredient make up less than a third of retail food spending, overall retail food prices would rise less than 1 percent per year above the normal rate of food price inflation when corn prices increase by 50 percent. However, even this increase may be partially tempered by substitutes in food production, as with sugar for high fructose corn syrup.

Higher food prices are more difficult to deal with for low income families who spend a greater share of their income on food and other necessities. Even a small price increase has a larger impact on low income families than on families who pay a smaller share of their income on food. USDA's Food Stamp Program does provide inflation-adjusted benefits to help supplement low income family food budgets, but, in a situation of both rising food prices and a weakening economy, this assistance may not cover as much of the costs as in the past.

Land Prices and the Rural Economy

Mr. Kingston: Based largely on ethanol, I assume, there have been a number of studies and reports about skyrocketing land prices through out the country for agricultural lands. [It has been reported that land in North Dakota recently sold for $1000 per acre.] Also I note that the University of Illinois has recently released a new study of the rural economy.

What additional light are these studies shedding on the relative economic conditions of rural economies compared to their urban counter part?

Response: Recent studies have shown that rural (non-metropolitan) economic trends in this decade have closely paralleled urban trends. Urban jobs have grown at a somewhat faster rate, but overall unemployment levels are about the same in rural and urban areas. Poverty rates remain slightly higher in non-metropolitan areas, with the rural-urban gap largely unchanged since 2000. Heavily agricultural areas have gained jobs in the past few years, but the Census population estimates in 2006 still showed widespread population loss in these areas.

There have been substantial gains in the market value of farm real estate in recent years, and ERS has forecast that 2008 will be the fifth consecutive year of double digit increases. However, there is variation in values across States and regions depending on the inherent quality of the land for agricultural production, and on competing demands for other uses, such as development. Much of the growth in land values during the early part of this decade can be attributed to factors other than returns from farming such as recreation and urbanization potential, wide use of 1031 exchanges (sales of farm property and replacement with similar property elsewhere to avoid capital gains taxes), and investors looking for opportunities to diversify their portfolio. In contrast, the more recent increase in farm real estate can be attributed to the earning expectations of agricultural production, particularly for the most land intensive crops—corn, soybeans, and wheat. The market for agricultural commodities is influenced by the increased production of

corn-based ethanol. ERS is undertaking more in-depth research to examine the specific influence of new ethanol and biodiesel plant construction and resulting commodity price strength on land values. Future research will also investigate the growing demand for farm land by investors in the context of current national economic conditions including changes within the housing market.

Mr. Kingston: Has the rural economy been impacted by the sub prime market failure in the same way as the rest of the economy and if not why not?

Response: Recent ERS analysis shows that agriculture's balance sheet is at a historically sound position, with asset values growing much faster than debt. Over 60 percent of all U.S. farms reported owing no debt to lending institutions, individuals, or other creditors at year-end 2006. Overall, farm liabilities were only 11 percent of farm assets. Along with the conservative nature of farm borrowing, farm lending has much higher equity requirements than residential lending. Typically, no more than 65 percent of a farm land purchase is financed, and in equipment no more than 75 percent of the valuation of the equipment can be financed. Farms, unlike their non-farm counterparts, are unlikely to separate their dwelling from the farm business; therefore these operations are not as susceptible to short term volatility in credit markets or housing prices as their urban or rural non-farm counterparts.

The problems in the sub-prime mortgage market are a recent phenomenon. Housing data from rural markets are not yet available are available to assess whether the impacts on the rural economy are different from those for the economy as a whole, but there is nothing to suggest dissimilarity at this time.

Mr. Kingston: What has ERS done since our discussion last year to analyze issues like low education levels, that you indicated were major factors defining the rural economy?

Response: Talent and education are key determinants of economic well-being for rural people and their communities. Education continues to be a focus of rural development research at ERS due both to its economic importance and to the stark differences in education levels across rural areas. Since our 2007 discussion, ERS has conducted research on how differences in education levels and in monetary returns to education affected the gap in average wages between urban and rural workers. The research findings show that a small portion of the gap is explained by the fact that rural workers have less education on average than urban workers. Although part of the urban-rural wage-gap can be explained by higher urban education levels, higher urban pay-off for a college degree actually plays a larger role. This is particularly true for college graduates. ERS also analyzed the increase in rural educational attainment levels over the past decade, finding that the growth in the college-educated population has been similar in rural and urban areas.

Mr. Kingston: What impacts is the new energy legislation requiring corn ethanol having or going to have on the rural economy based on your research? Are you concerned that the ethanol bubble will burst due to environmental concerns, new technology or new substitutes? What would happen to rural economies?

Response: Ongoing research at ERS is designed to provide empirical estimates of the impact of the ethanol industry on rural economies. Both direct employment at ethanol plants and associated jobs within the local economy will be assessed, including possible offsetting effects of reductions in other industries that also use corn as a

primary input (e.g., livestock production). The economic contribution of ethanol plants to a local economy will depend on whether the non-feedstock inputs are acquired from other areas. Currently, 70 percent of ethanol plants are located in rural counties experiencing population loss, which suggests that these jobs are being created in places that otherwise have limited employment opportunities. When cellulosic-based ethanol technologies become economically viable, new opportunities may open up for some rural communities.

Broadband Services

Mr. Kingston: In 2008 ERS received $250,000 to conduct a study of the broadband services industry.

Can you report on the progress of the study? In particular could or will you be able to develop a rational methodology for determining under what circumstances and to what degree the Federal Government should intervene to assure widespread service to rural economies?

ERS response: The ERS study of the broadband services industry has begun. ERS has developed a number of measures for broadband availability in rural areas that will be used to compare the impact of broadband access to various rural economic entities. Comparing counties that are similar in all ways except for access to broadband will enable us to distinguish how access affects investment and development. ERS will hold a workshop on September 29-30, 2008 to present new research from land-grant institutions and other research institutions that address the economic effect of broadband services to the rural, food, and agriculture economic sectors. The workshop is designed to obtain input to complement the ERS research. A preliminary summary drawing on the combined efforts of ERS and its cooperators is anticipated in February 2009.

Study of Commercialization of Products from Cloned Animals

Mr. Kingston: The 2008 appropriations bill directed FDA to work with ERS in conducting a study of the market and trade implications of the commercialization of meat and milk from cloned animals and their offspring. Has the study been initiated and what is the scope of the study?

Response: ERS has initiated its study on market impacts of commercialization of meat and milk from cloned animals and their offspring. The analysis will consider five major factors influencing the extent and cost of market differentiation:

- *The development of standards of identity for "non-cloned" milk and meat products:* Which products are identified as "cloned" will determine the extent and costliness of market differentiation. In particular, whether products from the offspring of cloned animals are also identified as "cloned" will have a large impact on market evolution. ERS will document the evolution of standards of identity domestically and internationally to develop a number of scenarios for the differentiation cost estimates.

- *Domestic consumer attitudes towards products from cloned animals and their offspring:* Domestic consumers are the primary market for US beef, pork, and milk. Their attitudes about cloned-animal products will determine the relative size of the cloned and non-cloned markets. ERS will work with new survey evidence on consumer attitudes after the FDA announcement to construct a number of market scenarios.

- *International markets' acceptance of products from cloned animals and their offspring:* International markets' acceptance of meat and milk from cloned animals and their offspring will also influence the relative size of the cloned and non-cloned markets, or they could chose to produce certified non-cloned products for export markets. ERS will use two of its trade models to examine the economic impact of a number of trade scenarios.

- *Industrial organization:* The structure of the major industries affected by the decision to introduce cloned animal products into the food supply will influence the characteristics of differentiated markets. ERS will examine number of firms, market share, vertical and horizontal integration, and market breadth and depth of the industries affect by cloning to report on the dynamics of market development.

- *Segregation/certification/marketing:* Marketing of non-cloned products will depend on the development of systems/technologies to credibly distinguish non-cloned from cloned products. To build these markets, producers may need to invest in testing, traceability, certification, labeling, and marketing services and technologies. ERS will investigate the viability of these technologies/services and the types of costs they entail.

Mr. Kingston: Over the long run do you believe that cloning could have a major positive impact on the ability of underdeveloped countries to improve their standard of living?

Response: Current costs of cloning technologies suggest that cloning will not have a significant impact on the ability of underdeveloped countries to improve their standard of living in the near to medium term. Long-run advances in cloning technologies and subsequent economic effects are difficult to predict.

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