

**REVIEW OF THE WELFARE OF ANIMALS IN
AGRICULTURE**

HEARING

BEFORE THE
SUBCOMMITTEE ON LIVESTOCK, DAIRY, AND
POULTRY

OF THE

COMMITTEE ON AGRICULTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

May 8, 2007

Serial No. 110-18



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HEARING TO REVIEW THE WELFARE OF ANIMALS IN AGRICULTURE

TUESDAY, MAY 8, 2007

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON LIVESTOCK, DAIRY, AND POULTRY
COMMITTEE ON AGRICULTURE
Washington, DC.

The Subcommittee met, pursuant to call, at 10:35 a.m., in Room 1300 of the Longworth House Office Building, Hon. Leonard Boswell [Chairman of the Subcommittee] presiding.

Members present: Representatives Boswell, Kagen, Holden, Cardoza, Lampson, Costa, Peterson (ex officio), Hayes, King, Conaway, Smith, Walberg, Schmidt and Goodlatte (ex officio).

Staff present: Adam Durand, Chandler Goule, Tyler Jameson, Scott Kuschmider, John Riley, Sharon Rusnak, April Slayton, Debbie Smith, Kristin Sosanie, Lindsey Correa, John Goldberg, Pam Miller, Stephanie Myers, Pete Thomson, and Jamie Weyer.

STATEMENT OF HON. LEONARD BOSWELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA

Mr. BOSWELL. We would like to call our meeting to order for today, and I would like to thank all of you for being here. I give a special thanks to our witnesses for offering their insight into the current welfare issues surrounding animal agriculture. I look forward to hearing your testimony. I think it an opportunity for us to share together and treat each other like we would like to be treated and get some things out we ought to be talking about.

I would just say this. Having spent most of my life involved in animal agriculture, I understand many of the issues firsthand. Looking back over my own history, I have worked with a variety of animals from dairy cows to feeder pigs to my current cow-calf operation and of course we have always had a couple of horses or more on the farm as we do even today. So these issues are not showing up on my radar for the first time.

We will hear from all sides of this issue today with two primary questions, maybe more: what is the status of animal welfare in American agriculture, and what is the industry currently doing to address the concerns of consumers. On the first question, as animal agriculture has grown over the past 50 years, I believe our views on animal welfare have advanced. Today we will hear from the industry about the science-based self-regulation that the poultry, cattle, hog and many other livestock producers have developed to ensure that welfare standards remain current and reflect consumer concerns.

My own experience in agriculture has shown me what happens when producers treat their animals poorly. Take, for example, dairy cows. If these animals are not properly fed, watered, and sheltered, we know what happens to milk production, which makes a difference in many cases whether the person can stay in business or close their doors. Mistreated animals simply will not produce and that is not good for the animal or the farmer.

On the second question, I believe that the industry has already taken steps to address some consumer concerns. With the recent boom in demand for organic agriculture, which is going on across the country, it is clear that more and more consumers are focusing on not only what their food is but where it has come from and how it was grown and raised. For example, Burger King, Wendy's, Ben and Jerry's and all Wolfgang Puck restaurants also now expect their suppliers to meet certain animal welfare standards.

I welcome these changes in industry from cage-free to free range chickens. Consumers deserve the choice. If someone is willing to pay \$3 for a dozen eggs to ensure they come from chickens that lived in certain conditions, they should have that option. Similarly, if someone decides to use products from conventionally raised animals, they should have that choice as well as long as the operation is up to Federal, State and industry standards.

These voluntary market-driven changes may or may not be enough to fix problems in the industry. However, there may still be more than we can do. That is why hearings like this are important. We need to consider all options and we must ensure that existing laws are being enforced before we move too quickly to write new ones. Creating new laws before the new ones are properly enforced is not necessarily the solution. Our hope is this hearing today will not simply focus on problems but solutions as well. We need solutions not only to protect animals but ensure safe, plentiful, and affordable food supply.

Animal agriculture is a multibillion-dollar industry in the United States which not only helps feed those of us in this room but people around the world. In a sense, we all have a vested interest in agriculture, the consumer as well as the producer. We all have a vested interest for this reason, and that is simply this: Based on per capita, we have the least expensive food in the world. That is right. We have the most plentiful and we have the safest per capita. The percentage of disposable income in the United States, I am told by those who study this, is the lowest by quite a bit compared to modern places like western Europe all the way to the undeveloped countries where this takes all of their income. So we have a very good situation in that sense. We have food that is safe, plentiful and inexpensive.

So as we go on to this discussion today, for some it is a highly emotional situation but I am glad to have witnesses from all sides of the debate so we can have a candid, respectful and productive discussion on the welfare of animals in American agriculture.

So at this time, I would like to turn it over to my good friend and colleague, Robin Hayes from North Carolina, for any opening remarks he would like to make.

**STATEMENT OF HON. ROBIN HAYES, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF NORTH CAROLINA**

Mr. HAYES. Thank you, Mr. Chairman. Chairman Boswell has called today's hearing to discuss animal welfare issues affecting American's livestock and poultry producers.

I am pleased that we will be hearing from the former Ranking Member of this committee and someone who is a great friend and expert of the U.S. producers, Congressman Charlie Stenholm. We welcome you hear today and know that you bring us insightful words of wisdom regarding animal welfare and the challenges that lie ahead for animal agriculture. I am sure Mr. Stenholm would agree that it is our job as members of this committee representing our agricultural constituents back home to stand strong for our producers and stand up to anyone wishing to put them out of business.

I must applaud the animal agriculture industry for the great strides they have made over the years to address animal welfare. Producers have been proactive in the humane treatment of animals by implementing industry-led standards and guidelines based on the latest scientific recommendations for animal welfare and I might add their own concern for their own animals. Farmers, ranchers and sound science-based veterinarians, not activists, should be dictating animal husbandry practices. I am pleased to see representatives of the scientific and research community as well as the livestock industry that are here to share with us the programs and measures they have in place to ensure animals are treated with the utmost of care.

Mr. Chairman, with the farm bill looming, I would like to express my concern about the timing of the hearing. I think we all recognize that we are in the middle of working on the farm bill and the hearings we have should directly relate to farm bill issues, especially considering the time constraints we are under. Given the fact that I do not believe these issues should be included in the farm bill, I do question the timing of the hearing. I believe everyone would be better served if we address these issues outside of the farm bill venue so that they can receive the attention they deserve.

Having said that, I appreciate you and applaud your efforts to be inclusive in this hearing and I appreciate the witnesses' time in being here today. Thank you.

Mr. BOSWELL. Thank you, Mr. Hayes. I notice we have the Chairman of the Full Committee with us and I would like to offer an opportunity for Congressman Peterson at this time.

**STATEMENT OF HON. COLLIN C. PETERSON, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF MINNESOTA**

Chairman PETERSON. I thank the Chairman and the Ranking Member for their leadership in calling this hearing. I have got a statement but I think we have got a fairly long list of witnesses so I am just going to include the statement for the record and look forward to hearing the testimony.

Mr. BOSWELL. Thank you, and I recognize Mr. Goodlatte, who is the Ranking Member of the Full Committee.

**STATEMENT OF HON. BOB GOODLATTE, A REPRESENTATIVE
IN CONGRESS FROM THE STATE OF VIRGINIA**

Mr. GOODLATTE. Thank you, Mr. Chairman, and I would like to take this opportunity to welcome each of our witnesses today and to thank them for their time and effort in addressing the complex issues of today's hearing.

In my conversations with Chairman Peterson, he has laid out a very challenging and aggressive schedule for the pending farm bill. For that reason, I am curious why we are having this particular hearing at this particular time. While we all share the same values in regard to animal welfare, the practical application of those values requires significantly more time and thoroughness than this hearing affords. Additionally, this hearing lacks the participation of the sheep industry or the packers including poultry, pork and beef sectors or animal exhibitions such as zoos, circuses, marine animal parks, rodeos or companion animal representatives. I think that if we were to have a complete record on this topic, we need to hear from all of them as well.

Like all Americans, I support the humane treatment of all animals including those in our Nation's farms and stockyards, research facilities, processing plants, exhibitions and our homes. It is our responsibility to be good stewards of the animals under our charge.

Let me be clear on this point. I know that I speak for my colleagues on this committee when I say that the inhumane treatment of animals will not be tolerated. In conversations I have had with farmers and ranchers across the country, it is clear that the animal agriculture industry shares this strong belief and appreciate for the animals in their care. These farmers work alongside their animals day in and day out. These animals are the very livelihood of many farmers in the 6th District of Virginia and elsewhere. For that reason, the animal agriculture industry continues to develop practices on its own that meet the evolving scientific research on animal welfare. As we discuss these issues going forward, I will continue to take my guidance from the men and women involved in animal agriculture, trusting in the knowledge that they both care about their animals and understand the challenges associated with their care.

Mr. Chairman, I look forward to the testimony of today's witnesses and their responses to our questions. Thank you.

Mr. BOSWELL. Thank you, Mr. Goodlatte. I appreciate you being with us today.

The chair would request that other members submit their opening statements for the record so that witnesses may begin their testimony and we will do our best to ensure that there is ample time for questions.

So at this time I would like to welcome our first panelist to the table, the Honorable Charlie Stenholm. Mr. Stenholm, please begin when you are ready.

**STATEMENT OF HON. CHARLIE STENHOLM, OLSSON, FRANK
AND WEEDA, P.C., WASHINGTON, DC.**

Mr. STENHOLM. Thank you, Mr. Chairman, Ranking Member Hayes, members of the committee. I appreciate very much the opportunity to testify here today on behalf of all animal agriculture.

If you eat or wear clothes, you are affected by agriculture. The industry remains an important part of the United States economy. According to USDA, animal products account for the majority, 51 percent, of the value of U.S. agricultural products, exceeding \$100 billion per year.

I am sure many of you went to zoos as a child or will bring your children or grandchildren to one this summer. Caregivers at zoos nationwide care about the welfare of their animals. Many of you probably remember the first time you saw a circus and may attend one when it comes here. The Ringling Brothers Barnum and Bailey Center for Elephant Conservation has one of the most successful breeding programs for endangered Asian elephants outside of Southeast Asia. They care about the welfare of their animals. Just like these groups of animal owners, production agriculture has not and will never be given the credit it is due by animal rights activists and that we too care about the welfare of our animals.

There is one thing though that everyone you will hear from today agrees on. All animals should be treated humanely from birth until death. Now, what you will not hear is an agreement on the facts. Everyone is entitled to their opinions but not everyone is entitled to their interpretation of the facts. You will hear testimony today from several livestock producer associations and they all care about the same thing: ensuring the health and well-being of their animals is their number one priority.

The livestock industry has worked hard both from a legislative standpoint through this committee and through industry guidelines to improve animal welfare conditions. Animal agriculture constantly works to accept new technologies and science and apply them to industry, investing millions of dollars every year to ensure the wellness of their livestock. Producers recognize the need to maintain animal welfare regulations for the safety and nutrition of their livestock, for the conservation of the environment and for the profitability of their operations. But those regulations should be based on sound science from veterinary professionals that best understand animals, working together with legitimate animal use industries.

While the livestock industry has a long history of supporting animal welfare, many activist groups such as PETA, the Humane Society of the United States, and Farm Sanctuary have used falsehoods and scare tactics to push their hidden agendas of fundraising and systematically abolishing all use of animals including production agriculture, zoos, circuses and sporting events. These groups campaign for animal rights, which is not synonymous with animal welfare, using half truths or complete deception. These groups also fail to mention the millions of dollars in fundraising and assets that drive their misguided goals. The Humane Society has accumulated \$113 million in assets, has a budget 3 times the size of PETA's, and according to the ActivistCash website, has more than enough funding to finance animal shelters in all 50 States. Yet it only operates one animal sanctuary, Black Beauty Ranch in Texas, which is at full capacity. Now, you will hear later that they are doing more, and that is great, we commend them for it, but they haven't to this point. According to the Wall Street Journal, two offshoots of Humane Society spent \$3.4 million on Congressional elec-

tions and ballot initiatives, which is more than Exxon Mobile Corporation spent and there is an ongoing investigation by the Louisiana Attorney General to determine if the \$30 million the Humane Society fundraised during the Hurricane Katrina crisis has been handled appropriately.

Now, these activist groups use the platform of animal rights to advocate for regulations so strict they will put animal agriculture out of business, which is their real goal. A video recently circulated to Members of Conservation and a video produced by the Humane Society make numerous false claims against the livestock industry. For example, the video suggests that horses are inhumanely transported on double-deck trailers on their way to slaughter, and if a horse does arrive in one of those trailers, the processing facility would not accept it. They say that we are still doing it. It has been against the law since 1995. In addition, numerous truck drivers invested in new trailers at a tremendous investment on their part to comply with the law and agriculture has stepped up once again to improve animal welfare conditions.

Another example of misleading rhetoric by animal rights activists involves the process of captive bolt euthanasia. The previously mentioned videos claim that captive bolt is not humane. Interestingly, however, the 2000 report of the AVMA's panel on euthanasia specifically approves the use of captive bolt as a humane technique of euthanasia for horses. It is also an approved method of euthanasia for pork, cattle and lamb. The captive bolt method meets specific humane requirements set forth by AVMA's panel on euthanasia, USDA and, interestingly, the Humane Society of the United States statement on euthanasia because it results in instantaneous brain death and is generally agreed to be the most humane method of euthanasia for livestock. Watching the end of life for any living creature is not a pleasant experience, even when performed in the most humane manner. However, these groups continue to use human emotion and sensationalism to prey on the public's sensitivity in order to reach their goal of abolishing animal agriculture.

Unfortunately, we all know mistakes happen and laws are broken. We cannot say that any form of euthanasia is perfect. I will not try to convince you or anyone else otherwise. But when these unfortunate incidents occur, appropriate action should be taken. We should not get in the habit of creating arbitrary, uninformed and emotionally based regulations on an industry whose livelihood depends on the health and well-being of its animals. We should not tie the hands of researchers and investors that continually seek improvements in animal welfare practices and we should not tie the hands of producers who work night and day to ensure the quality of life of their livestock so they can provide this country and others with the most abundant, safest, and the most affordable food supply.

In conclusion, Mr. Chairman, professional experts such as AVMA, the American Association of Equine Practitioners and USDA should not have their expertise continue to be questioned by animal rights activists who line their own pockets with donations secured by exploiting and distorting the issues. These groups throw sensationalistic and often staged photos in the faces of those who do not understand it including your fellow Members of Congress

not on this committee. What they do not do is use their millions of dollars in fundraising to build animal shelters and provide research for new technologies and procedures or provide truthful information to consumers about animal agriculture industry. Emotions run high and with continued antics by activist groups, the ultimate outcome will be devastating. If animal rights activist groups continue to be successful like we have seen in recent months with the closing of U.S. horse processing facilities, abandonment of animals will increase, animal welfare will decline, honest and legal businesses will close, America's trade balance will worsen, jobs will disappear, family heritage and livelihood will be stolen and the best interest in the welfare of animals will be lost.

As the Agriculture Committee, it is your job and responsibility to keep science and best management practices at the forefront of your decisions when developing legislation. Emotional, feel-good policy is not reasonable for the agricultural industry. As a committee, you are tasked with providing the type of environment for your agricultural constituents and your other constituents, the 99.3 percent of your constituents who enjoy the food that is produced by the .07 percent that in fact are the producers.

Thank you, Mr. Chairman.

Mr. BOSWELL. Well, thank you, Mr. Stenholm. We appreciate that. You covered a lot of territory. I didn't know a Texan could talk that fast. I appreciate what you said. I have a couple questions and then we will go to the rest of the members.

Some of your testimony speaks of the efforts of the European Union to regulate animal welfare. What are your thoughts on these efforts and has it impacted their trade balance?

Mr. STENHOLM. Well, one of the—you look for a pony in the pile every now and then in this whole area and just recently Britain has decided they have had enough with the animal rights activists in Britain where a lot of our folks go to be trained in some of the tactics that are used and they have said enough is enough, and interestingly, public perception in Europe is now beginning to change. Europeans are finally, recognizing that if you continue to do as some would have us to do, eliminate the use of animals in research and eliminate the use of good science and technology in all production agriculture, that the world is going to have a hard time feeding itself. So that is one of the areas that we have seen a little good news. Just this last week USA Today had an article on it, it was the first time I had heard about it. But from the standpoint of trade balance, I have been fortunate and honored and pleased to be declared the spokesman for the Horse Welfare Coalition over the last year and a half. Chairman Goodlatte and Ranking Member Peterson last year, turned around this year, did an excellent job on this committee of showing to our colleagues that ending the horse industry, which is what the folks have successfully done with the temporary reprieve now with Cavel being back in operation as I speak but hopefully a permanent reprieve coming soon in which the processing component of the horse industry, which adds over \$30 million to the export trade surplus for the United States, will not be ended. People will say to you, we don't have any intention of ending the animal industry but folks have been almost successful in ending the horse processing industry in the United

States at a loss of jobs, loss of income and the devastating results now to the horse industry that we are already beginning to see.

Mr. BOSWELL. Thank you. I have other questions but I think I will yield to Mr. Hayes at this time.

Mr. HAYES. Thank you, Mr. Chairman.

Mr. Stenholm, it is a rare and unique opportunity to have someone of your stature who has been on both sides of the witness table and we appreciate what you bring to the table and you also have been on both sides of the horse and the cow and the livestock industry. Just take a few moments, if you will, to describe from your own perspective the attitude and the relationship between the rancher and his animals.

Mr. STENHOLM. That is one of the parts of the emotionalism of this that has really bothered me, and again, I want to make it very clear. I respect the rights of those who you will hear from who basically want to eliminate horse slaughter as an option. I respect their right to that opinion. But I do not respect their right to take that away from me as a horse owner or my fellow horse owners. The private property rights option is one that the cattle industry and the horse industry and sheep industry and all agriculture and it is amazing to me how many of our members now in this Congress have suddenly forgotten about individual property rights. No one argues about how a horse's life should be ended or a calf's life should be ended. Well, some do. Some believe no life should ever be ended except naturally, but that is a very small minority. But an owner of livestock, to be accused of mismanaging or mishandling their livestock when their very livelihood depends on that animal living a healthy life under the best conditions that you can present to them affects the bottom line. Now, this bothers some people, the bottom line. But, Mr. Chairman, as you noted in your opening statement, we are blessed to live in a country that has the most abundant food supply, the best quality, the safest food supply at the lowest cost of people in any other country in the world. That doesn't happen by accident. That happens because producers use the best science and technology from the best universities in the world, teaching our young people how to do better, how it used to be said in Norman Borlog's time, how to make 2 blades of grass grow where 1 grew before and then to use that and to use it in a humane fashion.

With all due respect, I would say that I believe it is good we are holding this hearing today because you can be almost guaranteed that there will be amendments offered in the Congress on an appropriations bill, which got us off on the wrong foot with horses a couple years ago, you remember. You can imagine that there will be folks that will have amendments, and by providing this good record today, showing what ranchers, farmers, livestock producers, all individuals who are concerned about the welfare of animals what you are actually doing is something that I know you have already been using but what we have got to do is find a way to get that story out to where more of the non-agricultural press begin to pick up on what we are really doing in agriculture, not what some people say we are.

Mr. HAYES. Thank you, sir, and one more question. As a rancher, is there anything any more important to you as a businessman and rancher than the welfare of your livestock?

Mr. STENHOLM. No.

Mr. HAYES. Thank you, Mr. Chairman. I yield back.

Mr. BOSWELL. At this time the chair recognizes Mr. Goodlatte.

Mr. GOODLATTE. Thank you, Mr. Chairman.

Charlie, welcome back. We very much appreciate your testimony and very much appreciate the opportunity to work with you on this committee for many years including as the Ranking Member.

You mentioned in your testimony that the Humane Society of the United States operates an animal sanctuary in Texas. Is this sanctuary subject to regulation under the Federal Animal Welfare Act?

Mr. STENHOLM. I don't believe that it is but I think you will find general agreement that it should be.

Mr. GOODLATTE. Has it been inspected by the U.S. Department of Agriculture?

Mr. STENHOLM. Not to my knowledge it has not.

Mr. GOODLATTE. Do you know anything about its compliance history with animal welfare regulations?

Mr. STENHOLM. Not to my knowledge, it doesn't.

Mr. GOODLATTE. There is no record at the Federal level?

Mr. STENHOLM. There is no record that we have ever been able to determine because again, under current law, I believe this approximates what is called private property rights but this is an area that quite rightly should be looked at in the same venue in which we look at how we have done an excellent job of regulating the horse processing industry, for example. Every horse that is brought to the plant is inspected. This constant statement of stolen horses is not true. Now, when I say that, there is always the possibility that one is going to slip through the cracks. It is like the unloading of the double-decker trucks. Every horse that is euthanized in a processing plant, it is done under the supervision of a veterinarian. That is not true in other countries of the world. So, this is where there is a lot of needs out there by those who advocate the abolition of horse slaughter in this case without ever answering the question what is going to happen to the 100,000 unwanted horses and how are they going to be regulated and under what conditions. We are seeing it all over the country now, all over the country in which we are already beginning to see inhumane treatment of horses by people who have good intentions.

Mr. GOODLATTE. I take it if that sanctuary is not inspected under the Federal Animal Welfare Act, than other sanctuaries for animals are not inspected as well. Is that correct?

Mr. STENHOLM. That is my understanding because in our pursuit of legislation and pursuit of bigger and better laws, I guess is what you would say, that is one area that has not been looked at to the same degree that we have in all of other production agriculture. We got a double standard.

Mr. GOODLATTE. I see periodically, even under the current circumstances where there are clearly not enough sanctuaries for unwanted animals, horses included, of course, in existence right now, I see periodic reports even of the number that exist today of animals not treated well where local authorities intercede to take ac-

tion for animals that are underfed or not given proper treatment or medical care. Do you think that is a circumstance that ought to be regulated?

Mr. STENHOLM. That is always a tough call for me because I think we have got plenty of regulation in so many areas and I always hesitate before I answer a question of that nature. It is tremendously costly. I think that is something that we would want to look at. Certainly if we are going to follow the line that some are advocating in which you are going to have more and more unwanted horses that have to be cared for, more and more unwanted other animals that have to be cared for. At some point in time I think you are going to see a clamor for it. But in the same vein in which we have as production agriculture, as we have constantly and consistently upgraded our laws and regulations to meet the sincere requirements or the commonsense requirements for humane treatment of animals, it is amazing that we have kind of excused some of the other side from any of that.

Mr. GOODLATTE. I see my time is almost expired. Thank you, Mr. Chairman.

Mr. BOSWELL. Thank you, Mr. Goodlatte.

The chair at this time would recognize the gentleman from California, Mr. Cardoza. Mr. Cardoza has stepped out. Okay. Mr. Lampson stepped out. I am just catching up here. I guess I should keep up with everybody who is coming and going.

Mr. Kagen.

Mr. KAGEN. I didn't chase anybody out, Mr. Chairman. They left on their own.

Congressman Stenholm, I am new in Congress, a little over 110 or 120 days, and I want to thank you for your years of service. I have got to ask you, do you miss being a Congressman?

Mr. STENHOLM. I don't miss the hours you are keeping and I don't miss the controversy that you are involved in. It feels pretty good to be up here telling you what you ought to do.

Mr. KAGEN. Well, my father raises horses and he told me when I came to Congress I would be getting a lot of advice and I appreciate your advice, but you served on this committee before and you have seen these issues come up before in terms of animal welfare. Has anything changed over the years in terms of your point of view, not just back home but also here in Congress in terms of how you feel Congress could make a difference on the farm or in agricultural control of animals?

Mr. STENHOLM. Yes, I have seen dramatic changes from—this will be my 8th farm bill that I have participated in, 2 before Congress, 5 in and 1 now after Congress. It used to be back in the good old days, as was said, that only had to consult 3 entities to write a farm bill, or any issue. One was the House and Senate Ag committees, 2 was USDA, and 3 was the farm organizations. Well, we now have hundreds if not thousands of organizations that have an interest and again, as I said in my testimony, have every right to have input into the policies of our food production system but it makes for a much more complex situation and it makes the difficulty of finding a majority vote that is helpful is a lot more challenging than it was 28 years ago when I sat not in that chair but down here.

Mr. KAGEN. Well, would you agree that there is an economic interest on all people in agriculture who raise animals for eventual slaughter or for use in food production to keep their animals happy and healthy and their general welfare? Isn't there an economic interest to keep them in that condition?

Mr. STENHOLM. Absolutely. Here again, I respect all opinions. My opinion differs from what is humane treatment and the most acceptable from some of the animal rights folks. That is the biggest disagreement I have with the idea that animals have rights like humans have rights. All animals deserve to be humanely treated from birth until death, period. Definitions of humane treatment from birth until death differ, particularly with those of us who raise animals and those who only consider them pets.

Mr. KAGEN. Very good. Thank you very much.

I yield back my time.

Mr. BOSWELL. Thank you.

The chair now recognizes the gentleman from Texas, Mr. Conaway.

Mr. CONAWAY. Thank you, Mr. Chairman.

Welcome, Charlie. Good to see you here this morning. There has also been restrictions placed on our ability to manage wild horses and wild burros on Federal lands being swept into this whole issue as well. What is your understanding of how those excess horses and burros are being warehoused?

Mr. STENHOLM. This is an interesting phenomenon that we have today because in the wisdom of Congress several years ago, we decided that excess wild horses could not be processed for human consumption and therefore must be preserved until their natural death or they are adopted and most of us in production agriculture agree that adoption of wild horses is the preferred alternative. The last resort is slaughter for human consumption. But now we have somewhere around 30,000 wild horses unadoptable, unwanted that are being fed in feed lots and other pasture operations at a cost to taxpayers approximating \$50 million a year and we are going to add another 4,000 surplus horses to that number this year. Now, here is where I have a little bit of problem with what I guess kindly I would have to say is a little hypocrisy because many of the same groups that say it is inhumane to keep wild animals in zoos say it is perfectly all right to keep a wild animal in a pen, a wild horse or a wild burro. Now, that is where common sense gets in the way of good policy and that is why it is so emotional. But we are talking about real horse owners, the majority of which disagree with the majority of Congress and with the majority of this House voted and a majority of the Senate committee. They will tell you privately, we understand but it is emotionalism and that is scary but you bring up a point that again common sense needs to be prevailing in this and it doesn't make sense to spend \$50 million a year feeding unwanted wild horses.

Mr. CONAWAY. My second question was going to be, if those feed lots were zoos, would they meet standards for maintaining animals? A horse is a roaming type of an animal and to keep it locked in the feed lot for years, cattle go into feed lots for a limited amount of time but putting a horse into a feed lot environment for the rest of its natural days to me seems noticeably cruel.

Mr. STENHOLM. I have to assume that they are because that is under the jurisdiction of the BLM and I have to assume that the regulations like Mr. Goodlatte was asking about, private facilities, do not apply there but I think this is a question that I would recommend to this committee to ask the appropriate committee in the Interior to do a little oversight on this. I don't think we have done any oversight that I can remember and that is a long time.

Mr. CONAWAY. We have asked for pictures and we are trying to get those. Let me ask you this. Under the Fifth Amendment, by taking personal property away from folks, which is in effect what this destroying the horse processing business does, do you see the Federal Government having a responsibility for all of these abandoned horses as a result of not being able to sell them into a market that previously existed? In other words, is there an unfunded mandate that we passed that forces counties to now take care of these horses that are abandoned? Should that be the Federal Government's responsibility to assume responsibility for those horses that this business has taken out by these new regulations, new laws?

Mr. STENHOLM. Only if the Federal Government insists on following a procedure in which the Federal Government determines what is going to happen to the unwanted horses. Then I think it is natural the Federal Government should assume the responsibility. It is like what we have done with wild horses. We have assumed that. But, I have been working with the livestock marketing association. The first people that have come in contact now with this unwanted horse phenomenon has been the people bringing their horse in to the livestock auction to sell it and they are being turned away because they are being told we can't buy your horse; what do you mean, you can't buy my horse? The Federal Government has now provided laws enforced by the courts so far that we can't buy your horse to go to a processing plant. What do you mean, you can't buy my horse? It is my horse.

Mr. CONAWAY. Well, actually I can't sell my horse.

Mr. STENHOLM. Yes.

Mr. CONAWAY. Or, why can't I sell my horse?

Mr. STENHOLM. Why can't I sell my horse, why can't you buy my horse? That is a good question and it is one the legal courts are ultimately going to have to decide of which I believe as you, I believe by the nature of your question, believe, it is a private property right. Taking away that right is bordering on unconstitutionality.

Mr. CONAWAY. Thank you, Mr. Stenholm.

Mr. Chairman, I yield back.

Mr. BOSWELL. Thank you.

The chair at this time would recognize the gentleman from California, Mr. Costa.

Mr. COSTA. Thank you, Mr. Chairman. I appreciate the opportunity to hear from our distinguished colleague and friend who I think is well respected, as it has already been established.

In your testimony, Mr. Stenholm, you talked about what constitutes in your mind animal welfare that is reflective of the care that I think we all want to see provided whether we are talking about one person's animals or whether we are talking about, in the case of animal and livestock industries, business efforts that also

constitute proper care of animals. Have you or your organization had an opportunity beyond Texas to look at and examine or your organization the list of animal welfare laws that exist in the country today, and if your organization has, do you have an ability to reflect on what areas and which States are working better than others? It seems to me that under the theory that, you know, there is really not that much that is new under a lot of this, that taking a reflection of what a lot of States have done, some efforts have been I think positive, some have not worked as intended and some have always faced, as I like to say, the law of unintended consequences. I am wondering if you could give us a snapshot in terms of what you sense, what your organization senses as occurring around the country.

Mr. STENHOLM. Well, we have got more and more States getting involved in determining what is humane and inhumane treatment of animals. That is one of the concerns that I bring to this committee. You know, at some point we have got to have some uniformity in what the standards are. It is going to be an impossible situation to have differing States with differing rules and regulations in modern commerce. You know, we have had the attacks on the veal industry and certain States have outlawed veal production. We have had the sow stalls controversy now that is creating a lot of consternation in the pork industry and again, sow stalls and what you replace them with or what you do to me always needs to be based on the sound science and what is best for the pigs. There are different opinions on that. Different States are beginning to involve themselves. Ranking Member Goodlatte mentioned the need of regulation in States of some of the animal welfare groups that are going to be there. You are going to hear in just a moment that there is a big effort now to provide for animal shelters. That is great, but under what Federal supervision and should it be State supervision? These are questions that you are going to have to answer. I specifically speak to the horse issue but right now we are in the process of attempting to repeal the law in Texas prohibiting it. As I speak, there is a hearing and a protest in Illinois regarding the banning of the Cavel processing plant. The protest is coming from horse owners saying to Illinois, please don't ban horse processing in the State of Illinois. You are going to see more and more of this because it is so emotional and it is so sensational for those on the other side. It is difficult to stand up in a State legislature where you served so well for so many years. You know the difficulty of dealing with emotionalism and the different States doing it is going to wreck havoc on an animal industry.

Mr. COSTA. In the remainder of my time, I would like to make a suggestion and that is that you, with some of the other organizations that are so concerned and I think appropriately so, possibly set up a type of a workshop and maybe we do it in conjunction with the subcommittee with organizations like the National Conference of State Legislatures, with possibly the National Governors Association. I mean, I think there needs to be a matrix, Mr. Chairman, as we look at what laws exist around the country and see if we can get a better understanding of the challenges out there, what has worked, what has not worked, and see if we can bring about some level of consensus and uniformity because frankly, I think this cur-

rent situation status quo is not helpful to the industry. It is not helpful to humane treatment for animals in areas where we can I think have agreement and it seems to me something that we could work on.

Mr. STENHOLM. Mr. Costa, there is an effort, I believe they are called the Animal Alliance, that is set up on the agriculture side to help do just what you are suggesting and I think that you will be hearing from them quite often.

Mr. BOSWELL. Thank you for the suggestion.

The chair at this time would recognize the gentleman from Nebraska, Mr. Smith.

Mr. SMITH. Thank you, Mr. Chairman, and thank you, Congressman Stenholm, for appearing before us today.

Growing up in rural America, certainly I have always paid a lot of attention to animal issues, livestock issues, and most recently, or more recently I should say, it has been brought to my attention the commitment that having animals on the premises entails, whether it is a small dog or cat or certainly a horse, and the financial commitment of caring appropriately whether it is the feeding or veterinary expenses as well. You touched a little bit on the cost of caring for these wild horses and certainly that was a new number for me. It has been brought to my attention in my district that there is a concern that you have touched on a bit of what do we do with the unwanted horses and there has been some concern expressed in my district that a rancher might find some unwanted horses on his or her property. What then? I mean, are you aware of what the options a rancher might have, that are liability issues and certainly in light of Federal penalties that may exist? Could you please elaborate?

Mr. STENHOLM. You bring up a very good question, and if it is on a ranch and the horse is unwanted, it probably will be euthanized with a bullet and allowed—well, it probably won't even be buried and nobody will ever know about it. But if you are in a non-rural area, you have a problem. Landfills in many cities will not accept large animals so you don't have the option of euthanasia by a veterinarian, and here it is interesting to me when you hear—there are three ways of euthanizing that unwanted horse. One is captive bolt, which is the most humane, two is bullet, and three is overdose of barbiturates. Talk to any veterinarian and they will tell you that overdose of barbiturates is not the most humane way to end your horse's life. That is what veterinarians tell us. And we are already seeing this happening. We are seeing it reportedly in Kentucky now, these are thoroughbreds, and contrary to what you hear from California, talk to the livestock auctions and listen to them what is happening there with mistreated horses that come in to them. People bring them in because they find them wandering. People don't have the wherewithal financially to deal with that question. Renderers, we don't have many of those left. In some cases that is an option but you have to pay somebody to come get your horse. That gets into what Mr. Conaway was talking about a moment ago. What makes the Federal Government believe that we in our super wisdom can take away the private property right of that individual rancher who finds that horse to take it and receive value from if it is still of value? What makes us believe that we

can do this constitutionally, but those are the choices that you are putting on those ranchers that you are talking about.

Mr. SMITH. Thank you.

I yield back.

Mr. BOSWELL. Thank you.

The chair at this time would recognize the gentleman from Michigan, Mr. Walberg.

Mr. WALBERG. Thank you, Mr. Chairman.

I just have one question and I hope it wasn't asked before I entered the room but I will take the chance on that. Someone said that if we continue down the path that we are on presently in relation to animal welfare, specifically the horse slaughter bill, that we are basically beginning the roadmap to the end of taking meat, pork, poultry and other meats off the dinner table. Now, that is a statement I have heard numerous times in the past several weeks, and I would, Mr. Stenholm, be interested in just seeing how you respond to that. Is that a path that indeed we are taking or is that just a scare tactic?

Mr. STENHOLM. I have to say that there are those, I don't brand everyone, I don't want to say everyone on the animal welfare side is one of these. I don't say that, but there are those, and I don't see how even those that are argue that they are just for the humane treatment but we don't want to eliminate animal agriculture can square that with some of the decisions that are now being made regarding how animal agriculture shall function for the humane treatment of animals. And when you specifically look at one form of livestock, horses, you are having a major effect on the economy of an industry that is \$39 billion by itself, over \$100 billion in economic activity, and when you remove the floor price for the unwanted horse, which is what you do when you remove the process buyer, you are reducing the value of all horses in the United States of which we have economists at universities that have estimated somewhere between \$100 and \$200 per horse. That is a pretty good blow to an industry. Now, there will be those that say well, that is just horses, horses are different. They are not different. Horses are livestock. They are different to you if you own the horse and we make it very clear, if you own a horse and do not wish it to be processed for human consumption, we are for you, don't sell your horse, euthanize it yourself, take it to a renderer. If you are more comfortable having your horse piled on top of a garbage heap after it has been euthanized rather than having it consumed in countries that do it, we are for you. That is called private property rights. All we are saying is, it is a slippery slope, and remember, the same folks are out to eliminate zoos because it is inhumane to keep animals in pens. You have to be the judge. And I just say, let us be careful before we take the first step down the slippery slope. Let us have everyone with a smile on their face acknowledge, I am for the humane treatment of animals. I believe Wayne Pacelle, you will hear from the Humane Society, is for the humane treatment of animals. I believe that. But we have different opinions of what the facts are of humane treatment. That is the political side of this that has really gotten on a slippery slope and with the 300 million Americans who only see what you have seen on your Internet and the movies that are being shown about how

horses are slaughtered, how they are brought to market, how they are mistreated, if that is all you see, you tell me where the votes are going to be and why you are having such a difficulty with your own constituency dealing with this one. And when you have \$100 million to spend on the campaigns and the politics and the media, get ready for the slippery slope to take off.

Mr. WALBERG. I appreciate the response.

I yield back.

Mr. BOSWELL. Thank you.

The chair recognizes the lady from Ohio, Congresswoman Schmidt.

Ms. SCHMIDT. Thank you, sir. I didn't have any questions.

Mr. BOSWELL. Okay. That is fine. That completes our first round of questions. Does anybody on either side have other questions?

Okay. With that, I would thank you, Mr. Stenholm, we appreciate your testimony and we would ask that the second panel would come to the table.

I thank the second panel for coming to the table, and by matter of introduction, we have beginning Mr. Wayne Pacelle, President and CEO of the Humane Society of the United States, Washington, D.C. Welcome, Wayne. Glad to have you here. Dr. Gail Golab, Ph.D., DVM, Associate Director of Animal Welfare Division, American Veterinary Medical Association. We have Mr. Steven Leary, DVM, Assistant Vice Chancellor of Veterinary Affairs, Washington University, on behalf of the National Association of Biomedical Research of St. Louis, Missouri. We have Mr. Gene Gregory, President of United Egg Producers from Alpharetta, Georgia. We have Mr. Guillermo Gonzalez, Owner, Sonoma Foie Gras, on behalf of Artisan Farmers Alliance, Sonoma, California. And last but not least, finally, Mr. David Martosko, Director of Research, Center for Consumer Freedom of Washington, DC.

So with that, we welcome you all. We appreciate you being here. We would like for you, Mr. Pacelle, to please begin when you are ready.

STATEMENT OF WAYNE PACELLE, PRESIDENT AND CEO, THE HUMANE SOCIETY OF THE UNITED STATES, WASHINGTON, DC.

Mr. PACELLE. Thank you, Mr. Chairman, and thank you for inviting me to testify. I am Wayne Pacelle, President and CEO of the Humane Society of the United States.

I feel a little bit unusual in this circumstance, having heard Congressman Stenholm. Congressman Stenholm is a respected member of the community in Washington and Texas, served a long time, but what he did was seek to caricature animal advocates. I represent just one organization, one of 10,000 organizations that exist in this country, charitable organizations that work to alleviate suffering and protect animals from needless cruelty. Just our organization has 10 million supporters, which is one of every 30 Americans in the country. Mr. Stenholm and some of the others whom you will hear from today are seeking to caricature the entire cause of animal protection as a bunch of folks who want to stop zoos and meat eating and all animal research, and it is false. If you look at the issues that the Humane Society works on, we work on particular abuses that are out of step with prevailing public sentiment

in this country. Look at every issue that we are behind in this Congress and you will see strong support among the American public for our position. Unfortunately, historically, and we hope that this committee marks a break from the past. This committee has completely abrogated its responsibility to have proper oversight on animal welfare issues. This is the first hearing on animal welfare other than an animal fighting bill in 2000 that has been held on production agriculture since 1989, 18 years, and this committee which has authorized and responsibility for animal welfare programs hasn't had any action on these issues. The USDA unfortunately has also grown very close to the industry and we have an unregulated situation where there are basically no protections for farm animals at the Federal level in production agriculture. There is a humane slaughter act that the humane community pushed and there is a transport law that was first passed in 1873 that the USDA had not enforced until HSUS pushed for its active enforcement.

I just want to mention a couple of examples to talk about how our policies truly are sensible and how we hear this hysterical exaggeration about the consequences of the adoption of our preferred set of policies. One is the issue of gestation crates. These are 2-foot by 7-foot cages that breeding sows are housed in for their entire gestation period, for the pre-birthing period, and they are taken out of the gestation crate just before giving birth and then they give birth in a farrowing crate, then they are put back into the gestation crate. They may endure 7, 8, 9, 10 successive pregnancies in a 2-foot by 7-foot cage in which they cannot turn around. These are curious animals that like to root around in the mud. When this issue was put to voters in Florida, when it was put to voters in Arizona, the industry, Mr. Stenholm and others said this will be the demise of the pork industry, it will be the end of animal agriculture in terms of hog production. And what we have seen after voters overwhelmingly approved the measures in both States was that the largest pig producer in the world, Smithfield, has voluntarily agreed to phase out gestation crates over a 10-year period.

We also heard apocalyptic comments about downed animal protection. You know, downers are livestock too sick or injured to walk and a number of members of this House have pushed to stop the policy of abusing downed animals and dragging them into slaughter houses for processing for human consumption. It was Mr. Stenholm on the Floor of the House who said in 2003 that no sick animal, no BSE-positive animal, no mad cow can ever get into the food supply, and it was just 6 months later that a downer cow with BSE found its way into the food supply. The consequence of that was pretty severe but it wasn't severe in terms of the animal welfare issues. It was severe in terms of the economic impact of the industry because 44 nations closed their doors to American beef products. The USDA passed an administrative rule to ban downers in 2003 and we have seen no adverse impact of a downer ban being imposed.

And we can go on and on. This canard about horse slaughter, there were 350,000 horses being slaughtered in the early 1990s. Now there is about 100,000. Where did these 250,000 horses go? They have been absorbed into this country because there are a net-

work of sanctuaries and there is also the matter of responsible ownership of animals and how people who are taking animals, certainly horses, have a responsibility to care for them, and euthanasia is an option on site rather than transporting them 1,000 or 1,500 miles.

In terms of specific policy proposals, Mr. Chairman, there is a bill called the Farm Animal Stewardship Purchasing Act that deals with some of the worst abuses and intensive confinement livestock agriculture including gestation crates, veal crates and battery cages. We are seeing tremendous change in the private sector already. I have mentioned some of the public policy changes.

Maple Leaf Foods, the largest pig producer in Canada has said it will stop using gestation crates. Two of the largest veal producers, Strauss Farms and Marcho Farms, have said that they are going to stop crating young male veal calves, and the head of Strauss called the crates inhumane and archaic.

In terms of battery cage production, which is the predominant egg laying system, each bird under the United Egg Producers standards gets 2/3 of an 8-1/2 by 11 sheet of paper to live her life in, 8-1/2 by 11, 67 square inches. This is the living space for these animals. Now, we can talk all about radical animal rights activism, we can hear caricatures of the animal welfare movement but the fact is, if this is acceptable as a living space for an egg laying hen, then, this is not the world I am living in. The public is appalled by the idea that animals are intensively confined for such long periods during their lifetimes. We are advocating that the Congress include poultry under humane slaughter.

Mr. BOSWELL. The rest of your testimony, Mr. Pacelle, will be placed in the record but time has expired and we appreciate your enthusiasm, so—

Mr. PACELLE. May I just close?

Mr. BOSWELL. You may make a short closing remark if you wish and then we will move on.

Mr. PACELLE. Thank you. We are very hopeful that the Congress will include an animal welfare title in the farm bill. This is an issue that has been long ignored. When the committee ignores it, the issue gets addressed in other committees in this Congress. It is time for this committee to address these issues.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Pacelle appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you.

Dr. Golab.

STATEMENT OF DR. GAIL C. GOLAB, PH.D., DVM, ASSOCIATE DIRECTOR, ANIMAL WELFARE DIVISION, AMERICAN VETERINARY MEDICAL ASSOCIATION, SCHAUMBURG, ILLINOIS

Ms. GOLAB. Mr. Chairman and members of the subcommittee, thank you for the opportunity to provide comment on behalf of the American Veterinary Medical Association. The AVMA comprises more than 75,000 members and represents approximately 86 percent of the Nation's practicing veterinarians. Animal welfare is of primary importance to the veterinary profession and therefore primary importance to the AVMA.

This hearing will highlight some differences that exist among stakeholders with regard to how we believe animals should be used and cared for. An important underlying truth, however, is that most people in the United States believe it is acceptable to use animals for food and fiber as long as the welfare of those animals is good.

But what is good welfare? When evaluating animal welfare, it is important to be clear what people mean. Animal producers tend to cite elements of good health and performance as evidence of good welfare whereas animal activists are often most comfortable when animals are allowed to live in natural environments. This dichotomy of use is a result of different experiences leading to different value frameworks. The AVMA believes animal welfare science is an important tool that can be used successfully to bridge these dichotomies.

Although the degree of importance attributed to each element making up an animal's welfare state may vary, the AVMA believes no assessment is complete unless all elements are considered. It is not satisfactory, for example, to judge the welfare of an animal on the basis of its physical health without regard to whether it is suffering or frustrated nor is it appropriate to conclude that an animal that can engage in species-typical behaviors has a good state of welfare without also evaluating its health and biologic function. Veterinarians by virtue of their broad-based training are extraordinarily well positioned to integrate and bring the relevant elements of animal welfare science to the table to assist key decision makers like yourselves in making good decisions.

Two issues currently under the microscope of animal welfare advocates can be used to demonstrate the power of animal welfare science to help make decisions and ensure positive animal welfare outcomes. These issues are space allowances and cages housing laying hens and usage of station stalls to house pregnant sows. With respect to cages, the egg industry pulled together a multidisciplinary, multistakeholder advisory committee and charged them with making recommendations for revision of that industry's animal care guidelines. After conducting a scientific review, this advisory committee suggested cage space needed to be increased. By phasing in space allowances according to science-based parameters, hen welfare improved and economic benefits were also realized. This experience taught us two important things: first, that science could be used to help define and resolve an animal welfare problem, and second, that science should be used to help draft animal care guidelines rather than being called in after the fact.

The use of gestation stalls is an example of where animal welfare science can point out fallacies and simplistic solutions. Comprising individuals representing expertise in multiple disciplines and multiple stakeholder interests, the AVMA's task force on the housing of pregnant sows conducted a comprehensive review of the scientific literature on housing systems with the intent of determining whether gestation stalls were appropriate. In this case, the science couldn't identify a particular system as being unequivocally superior but it did provide information suggesting that simply banning gestation stalls was probably not a quick and easy solution to improving sow welfare overall.

Animal welfare is an increasing public interest but the American public has little direct connection with the actual process of raising animals for food and fiber. As a result, sometimes people become fixated on forcing changes that they think will improve animal welfare when in reality that might not be the case. At the same time, the public's desire for inexpensive, high-quality food products can create conflicts between human and animal interests and the industry's efforts to meet those demands and remain profitable. Pulling together societal expectations and industry needs means that guidelines for animal care must be both science-based and dynamic.

Common sense and science depend on each other to reach sound conclusions on animal welfare. In acting on recommendations regarding animal welfare, the AVMA hopes Congress will ensure that, one, sound science serves as a basis for any recommended interventions; two, actions are consistent with the reason for the intervention and are based on a comprehensive risk assessment; three, responses are proportionate and a complete assessment of costs and benefits is performed; four, decisions are made in partnership with key stakeholders; and five, resulting actions will promote a sustainable agricultural industry as well as meet societal expectations. I have submitted a written statement with additional comments and materials for the subcommittee to consider and I ask that this information be included in the record of these proceedings.

On behalf of my profession and our association, I sincerely thank you for the opportunity to appear today.

[The prepared statement of Dr. Golab appears at the conclusion of the hearing:]

Mr. BOSWELL. I recognize Mr. Leary.

STATEMENT OF STEVEN L. LEARY, DVM, ASSISTANT VICE CHANCELLOR, VETERINARY AFFAIRS, WASHINGTON UNIVERSITY, ON BEHALF OF NATIONAL ASSOCIATION FOR BIOMEDICAL RESEARCH, ST. LOUIS, MISSOURI

Mr. LEARY. Thank you for allowing me to testify today and for conducting this hearing on animal welfare. By the way, Mr. Chairman, I was born and raised in Des Moines and graduated from Iowa State. It is nice to see you here.

I am testifying today on behalf of the National Association for Biomedical Research. NABR is the only national nonprofit organization dedicated solely to advocating sound public policy that recognizes the vital role of humane animal use in biomedical research, higher education and product safety testing. Founded in 1979, NABR provides the unified voice for the scientific community on legislative and regulatory matters affecting laboratory animal research. NABR's membership is comprised of more than 300 public and private universities, medical and veterinary schools, teaching hospitals, voluntary health agencies, professional societies, pharmaceutical and biotechnology companies and other animal research-related firms.

Animal research has played a vital role in virtually every medical advance of the last century for both human and animal health. Ample proof of the success of animal research can be found in the

vast body of Nobel Prize-winning work in physiology and medicine where 68 awardees since 1901 have relied at least in part on animal research. Thanks to animal research, many diseases that once killed millions of people every year are either treatable or have been eradicated all together. Six of the discoveries related to cancer using animals were recognized with the Nobel Prize, among them bone marrow transplantation, cloning of the first gene and the discovery that a normal cell could have latent cancer genes. Animal research for animal health has also resulted in many remarkable life-saving and life-extending treatments for animals. Pacemakers, artificial joints, organ transplants and vaccines contribute to longer, happier and healthier lives for animals. Through research with animals, sciences are learning more every day.

Key findings from a recent national public opinion survey on animal research found overwhelming support. In fact, 81 percent agree with medical and scientific research using laboratory animals if they believe it will help alleviate suffering from a serious disease. Animal research is still a requirement.

Research on animals is in many cases an obligation that prevents humans from being used as medical guinea pigs. The Declaration of Helsinki states that medical research on human subjects should be based on accurately performed laboratory and animal experimentation. Responsible regulation is a very important component of oversight to instill public confidence in animal research. Congress already has provided the mechanism for assurances of proper care and treatment of laboratory animals with the 1966 enactment of the Animal Welfare Act and multiple subsequent amendments. For example, the 1985 amendments require the establishment of the Institutional Animal Care and Use Committee, or IACUC. The IACUC, which is taken very seriously by each research institution, is an internal committee that is charged with reviewing, approving and monitoring research protocols. IACUC approval for a proposed research project must be acquired before any government funds can be secured and any animals used.

Many institutions have gone above and beyond what is required of them by the law. Ninety-nine of the top 100 NIH awardee institutions have voluntarily sought accreditation with the association for Assessment and Accreditation of Laboratory Animal Care.

In addition, a number of non-animal procedures and tests have been developed to supplement animal research. Computer modeling and in vitro testing serve as valuable adjuncts to basic animal research but there is still no replacement for animal research.

In conclusion, we are all challenged with that delicate balance of ensuring the public trust and the highest standard of care for laboratory animals with a regulatory mandate that still allows the freedom of inquiry so important to medical discovery. We who are directly involved with animal research share this challenge and concern. In fact, it is that very concern which has drawn many of us to choose careers in veterinary medicine or medical research. We too have family members who contract diseases. We too have pets that become ill. For these reasons, we are dedicated to finding ways to cure both human and animal ailments. In the words of the esteemed Dr. Michael E. DeBakey, chancellor emeritus of the Baylor College of Medicine and director of the DeBakey Heart Center:

“These scientists, veterinarians, physicians, surgeons and others who do research in animal labs are as much concerned about the care of the animals as anyone can be. Their respect for the dignity of life and compassion for the sick and disabled in fact is what motivated them to search for ways of relieving the pain and suffering caused by diseases.”

Thank you, Mr. Chairman and members of the subcommittee again for this opportunity to testify.

[The prepared statement of Dr. Leary appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you, Mr. Leary. We will recognize Mr. Gregory.

STATEMENT OF GENE GREGORY, PRESIDENT, UNITED EGG PRODUCERS, ALPHARETTA, GEORGIA

Mr. GREGORY. Thank you, Mr. Chairman. My name is Gene Gregory and I am the President of United Egg Producers. I have worked for UEP for the past 25 years. Earlier in my career, I was in the egg business working for Corn Belt Hatcheries in central Illinois for more than 20 years. About 90 percent of all the eggs in the United States are produced by our UEP members. We are a farm cooperative and we also administer a program of animal husbandry standards called the UEP Certified Program, which I will discuss later.

UEP prides itself on being a forward-looking, proactive organization. We have helped our industry respond to environmental concerns, animal diseases and other challenges. We approach animal welfare in the same spirit. It is increasingly important to our customers in food retailing and food service and to American consumers. Unfortunately, this is also a subject that lends itself to emotional, unsubstantiated allegations and extreme tactics.

If we reduce animal welfare to emotion or subject views of what feels right, we will base the care of animals of nothing more than opinion and endless argument. That is not good enough. Instead, we need to use science. That is why in 1999 UEP commissioned an unpaid scientific advisory committee to review the animal welfare standards we had at the time and advise us about science-based changes we should make. The chair of that committee, Dr. Jeffrey Armstrong, is a dean of the College of Agriculture and Natural Resources at Michigan State University. He brought together nine other scientists and together they recommended significant changes in egg production practices. Today about 85 percent of our industry has implemented these standards including an increase in the amount of space for each bird in cage production systems with the increase ranging from 26 to 40. Dr. Armstrong has written on behalf of the entire committee saying we believe these guidelines set the baseline for humane care.

The committee's recommendations became what is now the UEP Certified Program. This program features a trademark seal approved by the Federal Trade Commission and the USDA that producers that can place on their egg cartons if they adhere to the UEP Certified guidelines. Every participating producer is subject to an annual third-party audit by the USDA's Agriculture Marketing Service or Validus Services, and if a producer wants to be a part

of the UEP Certified program, all of that producer's operations must conform to our animal care standards. We are confident that our program reflects the best science. Many of the scientists on our committee have also helped developed standards for major food service chains such as McDonald's and Burger King. Our program also has been endorsed by the Food Marketing Institute representing the Nations' major food retailers and the National Council of Chain Restaurants.

At UEP, we are in favor of consumers having choices including cage-free, free-range and organic eggs which some of our members produce. However, we vigorously dispute the proposition that only free-range or cage-free production is humane. We disagree with that view and so does our scientific advisory committee. Cage housing systems protect birds from predators and diseases such a highly pathogenic avian influenza. Cage systems also may reduce pecking and other aggressive behavior including cannibalism. The way eggs are handled in cage systems may also reduce the chances that the outside of the egg will be contaminated with its feces, offering a food safety benefit. If consumer choices are restricted as some animal rights activists would like to do, the consequences would be higher food costs for low-income Americans and a greater strain on our land resources. If all U.S. production had to be free range, consumers would have to pay an additional \$4.65 billion every year for eggs and we would need to find additional land resources roughly the size of the State of Delaware.

Frankly, there is nothing our industry could do short of all declaring bankruptcy and leaving the farm that would satisfy some of the activist groups. UEP has been a target of these groups, even as we have tried to implement the best science-based guidelines for the care of laying hens.

UEP asks the members of this subcommittee to help us educate your colleagues about the importance of animal agriculture and the shortsightedness of legislation that would harm our industries. We ask you to resist amendments to the 2007 Farm Bill that would harm animal agriculture including efforts to set new and arbitrary standards for Federal procurement. The marketplace is the appropriate place to establish science-based standards that will allow consumers to make their own choices.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Gregory appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you, Mr. Gregory.

Mr. Gonzalez.

STATEMENT OF GUILLERMO GONZALEZ, OWNER, SONOMA FOIE GRAS, ON BEHALF OF ARTISAN FARMERS ALLIANCE, SONOMA, CALIFORNIA

Mr. GONZALEZ. Good morning, Chairman Boswell, Ranking Member Hayes and members of the subcommittee. My name is Guillermo Gonzalez. I am a farmer and the owner of Sonoma Foie Gras. I am here today on behalf of the Artisan Farmers Alliance, a new group that represents the three farms in the United States that produce foie gras. Thank you for the opportunity to set the record straight about our farming practices and to share with you the

struggle of our three small farms to stay in business in the face of an aggressive assault by extremist animal activists.

Foie gras is French for “fat liver.” It dates back to ancient Egypt where they depicted the hand feeding of waterfowl in colorful relief paintings. Over the centuries, it became an integral part of French cooking. As you may be able to tell from my accent, I am not French. I was born and raised in El Salvador. In the 1980s I moved to France to learn traditional foie gras farming techniques. Then in 1986, I moved to Sonoma County, California, and began to produce foie gras and other duck products. I operate a very small farm set in a walnut orchard southeast of Stockton in California’s great Central Valley. Last year I raised 50,000 ducks. To put this in perspective, a modern poultry plant processes more birds in a single 8-hour shift than I do in an entire year.

On my farm, we still use very traditional methods and I am proud of our operations. As anyone who has ever worked in animal agriculture will tell you, there is no one who cares more about animal welfare than farmers. My entire livelihood depends on the health of my flocks. The peer-reviewed scientific studies support our methods and conclude that the feeding does not create abnormal stress in ducks, and in each of the last 2 years the American Veterinary Medical Association has reviewed the foie gras issue and rejected calls to label it inhumane. Last year the AVMA sent a blue ribbon panel to review firsthand the operations on a foie gras farm.

While we farmers focus on the objective science, we are attacked on the basis of emotional appeals. Of course we understand that some people will choose not to eat our product just as some people will choose not to eat beef or chicken or fish. That is their right. But what about the rights of other individuals to make their own decisions about what they do or do not eat?

Huge multimillion-dollar organizations are trying to limit consumer choices and drive us out of business. They have tried to ban the sale of our USDA inspected and approved products in many jurisdictions and they have filed countless lawsuits against us in an effort to drive us out of our land and into bankruptcy. In many cases, activists have gone well beyond the law in their zeal to impose their views on others. My own farm and the two other U.S. foie gras farms, both in upstate New York, have been broken into and vandalized repeatedly. They trespass, damage our property, steal our animals and sometimes do much worse.

In 2002, my wife and I took our retirement savings from years of hard work and decided to open a restaurant in Sonoma, California. As the construction was in progress, violent animal activists broke into the restaurant’s historic building, filled the drains with concrete and turned on the water faucets. They scrawled on the wall “stop or be stopped, death, scum, torturer.” Perhaps even worse for me as an immigrant, they spray-painted “Go home.” The restaurant was ruined and we lost our savings. Bad as it was, I am lucky compared to my business partner. Activists stalked him and his family including his small child. Secretly, they videotaped them in their daily routines. One day his wife found a wrapped package containing the tape in their front yard with a note saying “We are watching you.”

These stories highlight a disturbing trend. Acting in the name of animal rights, some seem to have forgotten the human rights of farmers. Animal rights groups need to realize that their inflammatory rhetoric has real consequences. They call me a torturer. Mr. Baur's own written testimony today equates animal agriculture with slavery.

This subject of animal welfare needs less heat and more light. We need a discussion based on science, fact, reason and experience rather than emotional anthropomorphic appeals. This is increasingly important as fewer and fewer Americans have a personal experience with agriculture. The truth is that food doesn't come from supermarkets. It comes from the hard work of farmers and we ought to respect farmers for the hard work they do, not demonize them.

Thank you for this opportunity to speak with you today.

[The prepared statement of Mr. Gonzalez appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you, Mr. Gonzalez. We would like to recognize now Mr. Martosko.

**STATEMENT OF DAVID MARTOSKO, DIRECTOR OF RESEARCH,
CENTER FOR CONSUMER FREEDOM, WASHINGTON, DC.**

Mr. MARTOSKO. Thank you, Mr. Chairman and members of the subcommittee for inviting me here today. I am David Martosko, Director of Research at the nonprofit Center for Consumer Freedom. We are based here in Washington and it is managed by Berman and Company, a public affairs and association management firm. Support for the center comes from members of the general public and from private industry including restaurant and food companies.

I am very happy to see so many people here today who actually know something about animal agriculture but I must urge you to be skeptical of organizations that propose to extend human rights to animals. Groups like these do include the Humane Society of the United States, Farm Sanctuary, People for the Ethical Treatment of Animals, PETA, and PETA's quasi-medical affiliate, the Physicians Committee for Responsible Medicine. These groups are all led by strict vegans who discourage Americans from eating any meat no matter how humanely it is raised. Now, that is not a caricature, that is a fact. When the topic of discussion is how to make livestock farming better, the complaints of radical vegans should be seen for what they are, an attempt to dismantle animal agriculture, not improve it. Their true agenda is to put livestock farmers out of business and we should all recognize their ulterior motives.

Let me express this to you in political terms. What if Rush Limbaugh suggested that the Democratic National Committee should invite him into its planning meetings or what if Cindy Sheehan put her own name forward to moderate a Republican Party debate? Now, the last thing Cindy Sheehan wants is for the GOP to improve itself. She wants its marginalized and made less powerful. The same is true about Mr. Limbaugh and the DNC and it is also true of HSUS and the entire livestock food chain including farmers, ranchers, packers, restaurants and retailers. Encouraging the input of people who want to crush you is a strange way of seek-

ing sensible reform. And keep in mind that despite its name, the Humane Society of the United States is not affiliated with any local humane society anywhere in the United States. Now, few Americans know this. So HSUS uses public goodwill that it doesn't deserve in order to raise millions, and all that money gives HSUS the power to unfairly attack just about every segment of animal agriculture.

I was really pleased to hear Mr. Gonzalez speaking just before me, and look what has happened in the case of foie gras. HSUS and Farm Sanctuary aren't pushing for animal welfare reform, they want abolition. They are trying to outlaw a kind of animal protein that many people enjoy. Now, I have never tasted foie gras but who are these people to decide I shouldn't have the chance to try it? When zealots ban books because of their politics, millions of us rise up. Why isn't banning food for political reasons viewed the same way? And what is next? A speakeasy where a secret password will be required to get a veal cutlet? Wouldn't that be ironic too? Veal farmers spend tons of money paying veterinarians to audit their farms. They provide a purpose for male dairy calves that would otherwise be destroyed at birth. HSUS and Farm Sanctuary ought to be promoting veal but they would rather see it disappear to make room for a vegan utopia and besides, it is good for fundraising.

In 2005, after the Humane Society of the U.S. released its guide to vegetarian eating, one manager of the group told the animal rights movement magazine that his organization's goals include, and I quote, "promoting vegetarian eating." And Mr. Pacelle said HSUS was "doing a guide to vegetarian eating to really make the case for it." Just last week HSUS ranked U.S. cities according to what it calls a humane index, and one part of the index which they call humane eats, it is a scorecard, it judges how humane a city's dining options are by counting just one thing: the number of vegetarian restaurants per capita. That is all they care about. HSUS is judging that only meatless eating should be considered humane. You see, no matter how much farmers take their animals' welfare into account, animal rights leaders won't be satisfied until all animal protein disappears from our diets. The truth is that HSUS and PETA share the same long-term goals: no meat, no dairy, no animal ag, period, more rights for animals, fewer for you and me. HSUS is basically PETA with a nicer wristwatch and fewer naked interns.

Now, please don't misunderstand me. My organization is not an anti-vegetarian group. We are interested in protecting all dietary choices including those of the tiny segment of Americans who choose to be vegetarians. It is a free country. But when groups with huge budgets mislead Americans about food they don't believe we should be allowed to choose, that is not fair. For instance, right now on HSUS's website, they overstate the fat content of chicken by over 500 percent in order to discourage people from eating it. That is not fair. Now, I can almost understand why animal rights groups spread this kind of misinformation. If you believe that a veal calf or a breeding sow or a lab rate is worth the same as my mother or your daughter, then of course it is remarkably easy to invent moral justifications for cutting factual corners or breaking

election finance law as Farm Sanctuary did hundreds of times in the 2002 Florida elections, or even in the case of ones spokesperson for the Physicians Committee for Responsible Medicine, advocating the murder of people who don't agree with you.

I will leave you with this last thought. Congress could require U.S. farmers to supply every pig, chicken, duck and cow with private rooms, daily rubdowns, video iPods, organic meals catered by Wolfgang Puck. You could do all of this but it still wouldn't satisfy activists who actually believe farm animals have the right not to be eaten no matter how they were raised.

Thank you very much for inviting my testimony.

[The prepared statement of Mr. Martosko appears at the conclusion of the hearing:]

Mr. BOSWELL. Well, thank you, Mr. Martosko. You made several pretty strong statements. Are you saying that Mr. Pacelle and his organization do not want any human consumption of meat or animal?

Mr. MARTOSKO. Yes, absolutely, and their own literature and their own website points this out. Mr. Pacelle said that the reason they came up with the vegetarians guide was——

Mr. BOSWELL. I am reclaiming my time. Thank you.

Mr. Pacelle, is that correct?

Mr. PACELLE. No, it is absolutely incorrect as are a laundry list of other statements from Mr. Martosko, who today is attacking the Humane Society. On other days he attacks Mothers Against Drunk Driving for its efforts to keep people who are inebriated off the road, public health——

Mr. BOSWELL. You are expanding. Because of time——thank you. So you——

Mr. MARTOSKO. Mr. Chairman, we support a program——

Mr. BOSWELL. Reclaiming my time. Hold on a second. I think you mentioned several times in your testimony that the organization prefers more humane methods of raising and slaughtering animals for consumption, so is it therefore true that the society has no problem with those who eat meat?

Mr. PACELLE. Ninety-five percent of our members are meat eaters, Mr. Chairman, and——

Mr. BOSWELL. So you have no problem with that?

Mr. PACELLE. No. If you look at the——

Mr. BOSWELL. Let me move on to another question because of time. Thank you very much.

I was a little surprised in earlier testimonies regarding the amount of dollars accumulated by your organization and so a question comes to my mind, do you have sanctuaries scattered across the country? Do you have investments in those?

Mr. PACELLE. Mr. Chairman, we have \$5 and \$10 and \$15 and \$20 donors, Americans from every State in the country, and as I mentioned, 10 million of them. They scrutinize all programs. All of our programs are advertised on our website and other materials. This is a program——Mr. Martosko and others are always fond of saying we don't care for animals. This is an entire guide about out animal shelter——

Mr. BOSWELL. No, come on. The question is, do you have sanctuaries for animals across the country or in——

Mr. PACELE. We have three facilities that are entirely animal-related facilities. What we do is, we help shelters run better across the country. We don't run every shelter. There are thousands of them across the country.

Mr. BOSWELL. But you do have shelters?

Mr. PACELE. We have several different kinds of shelters. We have an entire veterinary services program that goes into rural areas and last year handled 40,000 dogs and cats in the most rural areas in the country, just that one program, which is a small part of our program.

Mr. BOSWELL. Okay. Last question and I will yield to Mr. Hayes. It has been called to my attention that the Animal Enterprise Terrorism Act in the last Congress that protected animal producers and families from extremist animal rights activists, your organization did not support that. Is that true?

Mr. PACELE. We have long opposed any illegal actions related to promoting animal protection. I have spoken on it publicly, and the people that have been condemned here today for going beyond the bounds of the law, we have joined in the course of criticizing. We were concerned about—

Mr. BOSWELL. So you did support the—

Mr. PACELE. Because it had overreaching provisions that would have checked what we believe are protected speech activities.

Mr. BOSWELL. So you did not support it then?

Mr. PACELE. Not in the form. We wanted to support it but we could not in the form that it was moved out of the committee. There was no markup on the bill. There was no hearing that allowed for any examination of those First Amendment questions.

Mr. BOSWELL. Okay.

Mr. PACELE. But on our website is a strong statement against violent and illegal activities, and that is core to what we do.

Mr. BOSWELL. I appreciate that.

Mr. Hayes.

Mr. HAYES. Thank you, Mr. Chairman. I will reserve my time. I don't have a question right now.

Mr. BOSWELL. Mr. Kagen.

Mr. KAGEN. Thank you everyone for being here. With all this talk about food, I am getting kind of hungry, so I am going to just ask some yes or no questions. Mr. Pacelle, I would just like to know, do you live in the city or in the country? Because where I come from, if you come from the city you don't understand things are born and die every day. If you live in the country, you understand the whole circle of life. Do you live in the city?

Mr. PACELE. I live in a suburb.

Mr. KAGEN. And do you have pets in your house?

Mr. PACELE. Yes.

Mr. KAGEN. And so you are not eating your pets, you are not recommending people eat their pets. Am I correct?

Mr. PACELE. Correct.

Mr. KAGEN. And do you eat meat from chickens or eggs or cows?

Mr. PACELE. I am a vegetarian.

Mr. KAGEN. Okay. So you don't feel comfortable with the slaughtering of animals for consumption. Is that a fair statement?

Mr. PACELE. Excuse me?

Mr. KAGEN. You don't feel comfortable——

Mr. PACELLE. Personally?

Mr. KAGEN. Correct.

Mr. PACELLE. I choose not to do it, yes.

Mr. KAGEN. Okay. And I am a person that feels that how you spend your money either as an individual or as a family or a Congress is a reflection of your values so in terms of percentages of your organization's budget, what percent of your budget for the Humane Society do you spend for the direct care of animals?

Mr. PACELLE. We have the highest rating on the charity navigator regulatory group. It is a 4-star rating.

Mr. KAGEN. I don't know what that regulatory group is but I am just looking for a number.

Mr. PACELLE. We are not only a direct care group. Other groups would like us to spend all of our money caring for animals. We work on policy issues. We work on a wide range of other issues. We work with corporations——

Mr. KAGEN. I understand that, but what I am looking for is a number.

Mr. PACELLE. I couldn't give you the percentage. We spend millions on direct care—millions. We take in—last year we had revenues from average Americans, not from the government, of \$130 million. We spend millions on direct care of animals.

Mr. KAGEN. So that would be 1 percent, 2 percent?

Mr. PACELLE. No. It depends which year. During Katrina——

Mr. KAGEN. Maybe you could study that and get information to me. I would be very interested in that.

Mr. PACELLE. I would be happy to.

Mr. KAGEN. And that is the end of my time, so I yield back. Thank you.

Mr. BOSWELL. Thank you very much.

The gentleman from Iowa, Mr. King.

Mr. KING. Thank you, Mr. Chairman. I appreciate this hearing. I appreciate the testimony. This is a big issue facing all of us as we go forward to write this new farm bill.

As I listen to this testimony, I direct my first question to Mr. Pacelle and that is, I would ask you if you could point out the statutes that you are referring to when you state that it is illegal to consume horseflesh in America.

Mr. PACELLE. I don't believe I ever said that.

Mr. KING. You are on record as doing that and so I would ask——

Mr. PACELLE. Well, I would like——

Mr. KING. —if you could provide—go ahead, Mr. Pacelle.

Mr. PACELLE. No, I would like the context of the comment. It is often that people take comments out of context.

Mr. KING. Okay. This is a context of a complete article that you have posted on a website that has no source titled "King Watch" and so it is some of the information that you provided in my district that is by my position false and so I want to give you an opportunity to speak to that, but what I will do is, since you don't know about the facts of this, I would ask you to submit to the record a correction of that if you had an opportunity to do some research, because I think it would be important for this panel to un-

derstand if there are any laws out there in local jurisdictions that you might have been referring to at the time that might have passed, you might have forgotten. But I think we have established that case.

But I wanted to spend my time more——

Mr. PACELE. Well——

Mr. KING. Oh, no, I am completed.

Mr. Martosko, your testimony here today was emphatic enough to I think bring everybody's attention to this issue and I would ask you, as you looked at the organizations that you named that you say are determined to eliminate the livestock production industry in this country, there are a lot of threats to the livestock industry. We have diseases, 1, regulations, another, environmental regulations in particular. You have activist groups that are involved in legislation and litigation and BSE in the case of livestock. In fact, 1 of the organizations states that swine is also a sort of BSE and I don't find that to be the case. But of all of the things that threaten livestock, what is the greatest risk to the livestock industry in your opinion?

Mr. MARTOSKO. In my opinion, the greatest risk right now is the possibility that the Congress will take seriously the advice of people who have sworn never to eat meat in crafting policy that will damage farming.

Mr. KING. And I would ask Mr. Gonzalez, what is your greatest concern to the overall livestock industry or particularly your own, which I have not had the opportunity to try either.

Mr. GONZALEZ. My greatest concern is that national market for meat and poultry products can break down if every city and town starts banning USDA-approved products.

Mr. KING. Thank you.

Dr. Golab, at least the implication, if not the statement, has been introduced into this record or made that swine can carry BSE. Do you have any knowledge of that?

Mr. GOLAB. I am not aware that there has been direct evidence of that up to this point in time.

Mr. KING. In fact, I would point out there is a British study that fed concentrated quantities of BSE-carrying material to swine back when they had their—are you familiar with that study or at least have you read of it?

Mr. GOLAB. No, I have not seen that study.

Mr. KING. Any studies that I can find establish that there is no connection, no link, no transfer from swine to any other animal that might be subject to potentially BSE.

I also wanted to make a point that was just interesting to me. Mr. Chairman, I think you might enjoy this. I look back on some of the things that pop up in my mind as we have these discussions about particularly animal husbandry and I am thinking about back in the 1970s when, and I am pulling this off of memory, but when John McKay was coaching the UCLA Bruins to national championships, they had a center there named Bill Walton, about 6'11, a red-haired vegetarian. He did a good job as an All American center in basketball and I believe they won at least 1 national championship under him. He went on to play for the Seattle SuperSonics, by my recollection. But his legs wouldn't hold up and they went to

specialist after specialist, and finally 1 particular doctor said to him, you need to increase your fluids, you can't play 4 or 5 games a week; 1 or 2 was fine when you were in college but you are in the pros now and you need to increase your protein. So he recommended that Bill Walton increase his diet and take on beer and steak. Now, I am kind of in favor of those things and it is reported in the news that increasing that protein diet by going to that more protein concentrated including Pacific salmon was the first year that he had a good year and his legs held up. So I want to hold up the livestock industry and ensure that we can watch all kinds of competitive sports across America for a long time to come. I am interested in your industry and I am interested in our entertainment as well.

Thank you, Mr. Chairman, and I would yield back.

Mr. BOSWELL. Thank you, Mr. King.

Just a question to the panel at large, and I would like to ask this. I know I have gotten contacts, a lot of efforts made throughout the industry whether it is all different types of agriculture production that you are putting a lot of effort into the science and study to try to give appreciation to the needs of animals and healthy environment and so on. Does anybody want to make any comment of what you are actually doing to try to meet the concerns that have been brought up to us today? Anybody?

Mr. PACELLE. Mr. Chairman, there was just a study that came out of Iowa State University from, it was the Leopold Center and Iowa State study about sows in hoop barns as an alternative to gestation crates, and I believe that sort of work is happening around the country and it is showing that not only is it more humane for the animals but it is more efficient in terms of the productivity of the pigs and it is better from a manure management standpoint. All this talk, you know, I never bring up vegetarianism. The only thing I ever bring up vegetarianism is when people like Mr. Martosko and others try to caricature us. If you look at every policy reform that we advance, it is about making life a little better for creatures who are less powerful than we are, and this research validates that elemental notion that has always governed agriculture before it got so intensive: give an animal a little space, give an animal a little opportunity to turn around.

Mr. BOSWELL. Any other members? Mr. Gregory?

Mr. GREGORY. Mr. Chairman—

Mr. BOSWELL. Mr. Gregory, just in your area because I am acquainted with a gentleman named Van Zetten. Now, you may know him, Blair, but he tells me, knowing this meeting was coming up we had a discussion and talked about the efforts that are made in the egg-laying industry to provide what the consumer wants, and I would like for you to address that a little bit from your perspective. Is it across the industry this happening or is Blair the only 1 that is doing it?

Mr. GREGORY. First of all, he is a friend of yours and mine so I will tell him that you asked about him. Blair is in the egg products business and his customers are companies that buy eggs as an ingredient to make other food items. So the ingredient-buying food manufacturing business has expressed an interest in their suppliers meeting animal welfare guidelines nearly at the speed by

which retail groceries have done so. Our program is open and available and voluntarily people come to it and so we have said to Blair, whenever your customers are ready for it, we are happy to work with you, and we think that will happen one day.

Could I say one other thing, Mr. Chairman, while we have the opportunity? I am really proud of our egg industry because I really believe that we can find solutions to most anything. Most any challenge that we are faced with, we try to resolve, and we try to do it in a way that we are critical about what we do. We think it is an example of how we have done it in animal welfare as with the science-based committee of which Dr. Golab is one of those committee members. We are doing the same thing now to try to solve environmental problems. We have a scientific panel headed by Dr. Hong Wa Shin at Iowa State. But you had asked a question earlier about what is our greatest concern. I actually believe we can solve almost every problem there is in our business except the thing that I am most fearful of is animal activists. They literally want to put all of animal agriculture out of business and they have broken into our facilities. They have presented distorted video, and when they talk about this university or this retailer or so and so making a switch to cage-free eggs, please understand, our producers also produce cage-free eggs and organic eggs and so we are not disparaging to any kind of system. We think there are advantages and disadvantages to all. But most retailers, most university dining facilities, et cetera, don't willingly make those choices. They make those choices after having been intimidated by some of the animal activist groups that are in this room today. So make sure that you understand that this doesn't happen just out of the goodwill of the people to do this. It comes through intimidation of the marketplace.

Thank you, Mr. Chairman.

Mr. PACELE. Mr. Chairman, can I answer that since it is kind of directed at us?

Mr. BOSWELL. My time has run out. I will see if Mr. Hayes has a question and we will go from there.

Mr. Hayes?

Mr. HAYES. Thank you, Mr. Chairman.

Dr. Golab, there are some implications beyond what we have talked about today. For example, in your medical veterinary opinion, ending the use of antibiotics in the livestock and poultry industry, how would such a ban, a blanket ban, affect the welfare of livestock on our farms and ranches and other associated issues?

Ms. GOLAB. I am sorry. I didn't hear the last part of that.

Mr. HAYES. Okay. Blanket ban on antibiotics in livestock, what other implication besides the livestock, include that as well, would be created by banning antibiotics in treating livestock?

Ms. GOLAB. Well, if you take a look at what happened over in Europe when a certain proportion of antibiotics administered to livestock were prohibited, what you saw was that the amount of antibiotics administered to livestock for treatment purposes went up considerably. At the same time what you did not see is human resistance go down, which is what the primary concern has been with the use of antibiotics in livestock. What we see as veterinarians is increased disease, increased mortality. That is our principal

concern at that point when you start eliminating preventive uses in particular.

Mr. HAYES. I appreciate the comment and I think the point to be made is, some of these extreme positions that are held have not only unintended consequences but they are not victimless positions.

Mr. Gonzalez, we applaud you for your efforts as a small businessman, immigrant to this country. You have raised some issues. Mr. Gregory has also raised issues. I think it is important because this Congress has passed the Animal Enterprise Terrorism Act, which if you think about, we should have never had to do because people should never have done the things that prompted us to have to do this, and I am particularly sensitive to you as an individual and a farmer, not an association. Are there other instances—and by the way, organizations are opposed and lobbied against the Animal Enterprise Terrorism Act, which is somewhat hypocritical with some of the statements that have been made here today. Have you had other experiences that you did not mention in your limited time for testimony that you think are valuable to this ongoing discussion?

Mr. GONZALEZ. Well, I want to support Mr. Gregory's statement in terms of changes being made in the marketplace as a result of intimidation and coercion. The particular case happening with the foie gras market is that all the restaurants are being blanketed with letters being sent by these organizations telling them that if they do not withdraw the product from their menus, they are going to be picketed, and obviously no restaurant, especially high-end restaurants, enjoys or wants their customers to be bothered with picketers on the outside and this is happening on a regular basis. Obviously, and this is probably the most important part of my testimony is, an invitation to these animal rights groups to tone down, to dial down their inflammatory rhetoric because nobody can tell when—it takes only one person to snap and it is very risky at the individual level, especially in our case of the foie gras producers that we are very clearly identified, and the way they portray us in the public eye is really putting our lives and our families at risk. So I made a respectful invitation to civility in this issue in order to tone down the rhetoric because it can have real consequences. The hate mail that I have received is regular. Just before the moment I was taking off to come to this meeting, I received one that you don't know who is going to be ticked off by this. I can go on and on but basically that is my main message.

Mr. HAYES. I appreciate your presence here today.

Mr. GONZALEZ. Thank you.

Mr. HAYES. The business of hate mail is extremely serious, but the fact that your restaurant was destroyed before it was ever completed kind of eliminated the picketing and I think it is important that the public knows that.

Thank you, Mr. Chairman. I yield back.

Mr. BOSWELL. Thank you.

The chair recognizes the gentleman from Michigan, Mr. Walberg.

Mr. WALBERG. Thank you, Mr. Chairman.

Let me ask Dr. Golab, as a person who works with animals and handles the science side of this issue, what does current science say

about the treatment of sows, cows, cattle and other animals that are processed for consumption?

Ms. GOLAB. Well, I think that the single biggest issue that we take home, and this is important to me because I concentrate across issues rather than concentrating on a particular species, basically what it comes down to is that every single production system has its advantages and disadvantages, and one of our biggest concerns I think as an association and as a profession is when you take those systems and you try and piecemeal them, and what I mean by that is, you take pieces of a particular system and you try and take actions on those pieces rather than considering the system as a whole. When you do that, you can create situations where you have changed a piece of a system but the rest of the production has not caught up with a change. For example, if you were to suddenly move from stall housing systems for gestating sows to group systems without consideration for the type of animal that you have in that system, the individuals that are managing those animals, how that animal is fed, you could actually make the welfare of that animal considerably worse rather than better, and that is pretty true across the system irrespective of whatever piece of it you select. And so our great wish is that these would be considered as comprehensive systems, and if changes need to be made, because the public is uncomfortable with something, do it in such a way that we phase in those changes and we make sure that we retain the advantages of the particular system that we are presently using but resolve its disadvantages.

Mr. WALBERG. How do we compare with other nations?

Ms. GOLAB. I am sorry. What?

Mr. WALBERG. How do we compare with other nations in the handling, the processing, the care for animals?

Ms. GOLAB. I think in terms of other nations, you have to look at it in the context of what the philosophy is in those nations. The fact of the matter is, the way that animals are viewed differs and it is also a fact that depending upon the amount of resources that you have, depends how much you can devote to things like animal welfare. Certainly I think in comparison with industrialized systems, we are certainly among the best, if not the best, at what we do. Certainly in less industrialized nations, they are doing the best they can, I think, but they have to devote their resources and allocate those as necessary, and right now they are not able to provide as much resource in terms of animal welfare.

Mr. WALBERG. I want to move on with a few more questions as long as time remains here, and specifically asking Mr. Gregory, during the depression my father made it through as a chicken farmer and learned the value of the egg and I watched him in my young life train us in the value of the egg whether we liked it or not and sometimes devouring raw eggs because he still thought they were good for him, he lived to a ripe old age as well. But what do you do specifically to maintain the welfare of your animals, and especially considering these animals are your livelihood and source of revenue in the industry that you represent? I guess I am looking for specifics that show your intentions and show the lengths you go.

Mr. GREGORY. Well, first of all, sir, I am not an egg producer. I am the President of the United Egg Producers Association. So I would speak for what we ask of our producers to do, and that is that we believe that egg production can be humanely produced in cages or in cage-free systems, organic systems, whatever it may be, providing that the farmer, the producer is following the recommendations of respected scientists that knows the well-being of the animals. We encourage all of our members to follow those kind of guidelines, and if they do, we believe that their animals will respond kindly to them as well.

Mr. WALBERG. Thank you.

I yield back.

Mr. BOSWELL. Mr. Goodlatte, do you have questions? Or Mr. King has one. I will let you get organized, whichever.

Mr. GOODLATTE. I just want to set the record straight on something that concerns me greatly because animal welfare obviously is a very important issue but also food safety is a very important issue as well and it was asserted by Mr. Pacle in his testimony that there was a downer cow with BSE that got into our food supply. That is absolutely false, and one of the reasons why we have the system that we have to protect consumers is to make sure that kind of thing does not happen. In his testimony, he suggested that the BSE-positive cattle had entered the food supply. Due to the large number of overlapping firewalls, no cattle testing positive for BSE have entered the food supply in the United States. I think this small example justifies Mr. Stenholm's testimony regarding the scare tactics used by animal rights activists to invent facts to support their extreme agenda, and we will submit information from the USDA of every cow that has been discovered in the United States with BSE, and there are only a few of them, to show that in each instance, the cow did not enter the food supply. And of course, a further safety measure is that the specified risk material in these animals is removed prior to the processing anyway so that portion that would contain any such ingredient would not get in anyway. But notwithstanding that fact, there is no cow that has entered our food supply, and I just want to make sure that the record reflects that so that the American consumer knows that our beef supply is indeed safe.

Mr. BOSWELL. Mr. Goodlatte, would you yield on that point?

Mr. GOODLATTE. I would be happy to yield.

Mr. BOSWELL. I appreciate you making those comments. A concern of mine for some time of course has been the same thing that we have shared, you and I have talked about and others on the committee about BSE, et cetera, and all animals aren't the same, and concern has risen caused by some that the same thing applies to pork. That is just not so. Even efforts have been made to inject in tests, I am told, with BSE and it didn't take. And I want to ask for you to yield to make this comment. As a young person, I used to feed and haul a lot of hogs to market and I had somebody ask me one time well, what goes on when a pig or a hog just lays down, and some would call that a downed animal, and I said well, first off, you understand it has been proven they are very smart animals. They have an intellect that is unusual when it comes to animals. And to get my point across, I finally said I will tell you what,

as a person that dealt with that, they protest, they lay down. And the person said, well, what do you do then, and I said well, we are trying to load them to go to market, I said, we put a person on each ear and the tail and give them encouragement and maybe they just stand up and go. Now, a little on the light side of it, I get down to the Kansas City market, I was just a young fellow at those times, didn't have anybody to help me but sometimes they decided to protest versus get off the top deck getting off the truck, and guess who had to go back up in there and get them out after healing them for 2 or 3 hours? I had a lot of involvement in that, but it is true, the hog, the swine, there has never, ever been a case of anything that would be remotely connected to BSE according to the many scientists and people that I have talked to and the people in the business. They are smart animals and they will do things like that to make you think they might be sick and they are not sick at all, and there is no evidence of it, and I may be overstretching the comment by saying they protest but that is exactly the way I see it to understand what they will do, having dealt with them over the times of my life.

So thank you for yielding. I yield back.

Mr. GOODLATTE. Thank you, Mr. Chairman. I have got to leave and I just want to point out, Mr. Pacelle and I disagree on the whole downed animal issue and I understand his position. I think it is incorrect because I think you correctly note that there are a multitude of reasons why an animal might be downed, and there are provisions in the law to assure that an animal that is downed and may be diseased does not get into the food supply. An animal that might have a broken leg or something like that under the old provisions would still be suitable for slaughter. The disagreement we had was over whether it should be all-encompassing like that and that an animal that had those kind of problems would still get into the food supply and an animal that is diseased shouldn't get into the food supply under any circumstances whether it is downed or not. But the important thing here is to make very clear that in no instance of the very small number, I am not sure of the exact number, the 3, 4, 5 cows with BSE that have been found in the United States, none have entered the human food supply, and I just think it is important to set the record straight on that issue so that any coverage of this hearing makes it clear that the food supply, that the confidence of the American consumer in the safety of their beef is not any way impaired by that.

I thank you very much for allowing me to make that one point.

Mr. BOSWELL. Well, thank you, and I would say this in credit to Mr. Pacelle or anybody else in the room: If you have a concern about BSE or downed animals, we all do. Nobody objects to that. We all do, and I think that is across the country, so I think that is something we absolutely agree on but we just have to use the science and be factual about it.

This pretty much wraps up this panel. Is there anybody that wants to have the last—Mr. King?

Mr. KING. Thank you, Mr. Chairman. I think it is important that we end this panel and this important section of this hearing on the right tone. So sometimes I listen to testimony, a question will pop up in my mind, and I think I have to have an answer to that. The

question that popped up in my mind was, can a vegan or a vegetarian, can they eat a carnivore, and as I rolled that question around in my mind, the very agile staff that we have comes up with an answer for me that I would like to share with this committee, and the answer to that is yes, that there are five plants, at least that we know of, that are carnivores themselves and we are all familiar with the Venus Flytrap but if you go across the range from the consumption of a small insect whereas the largest one is a Raja pitcher plant, they can actually digest mice. So I would think there would be a way to get some retribution by making a salad out of these five carnivorous plants.

But I also wanted to make a confession just to end up my time here and that is that I am also a vegetarian, that I eat recycled, concentrated, enhanced vegetables in the form of meat. Thank you, Mr. Chairman. I yield back.

Mr. BOSWELL. I would like to close this panel at this time and thank every one of you for your patience and your contribution and the manner in which you presented things you feel strongly about. Thank you very much. We would excuse you at this time and ask the third and final panel to join us at the table. As you are getting situated, let me say to the third panel, thank you for your tolerance and your patience. You have waited a long time, and we don't want you to think you are any less important for being here because sometimes they even say the best is last. I don't know if that would be applicable here but nevertheless, we are pleased to have you here.

By introduction, I would introduce Mr. Gene Baur, President of Farm Sanctuary, Watkins Glen, New York; Mr. Paxton Ramsey, Member, National Cattlemen's Beef Association, Devers, Texas; Ms. Barbara Determan, National Pork Producers Counsel, Early, Iowa, I know where that is; Ms. Leslie Vagneur Lange, National Director, American Quarter Horse Association from Greeley, Colorado; and Ms. Karen Jordan, DVM, Owner of Large Animal Veterinary Services on behalf of the National Milk Producers Federation, Siler City, North Carolina. Welcome to the panel.

Mr. Baur, would you please share with us.

**STATEMENT OF GENE BAUR, PRESIDENT, FARM SANCTUARY,
WATKINS GLEN, NEW YORK**

Mr. BAUR. Mr. Chairman and members of the committee, thank you very much for holding this hearing to address farm animal welfare. It is an area of growing concern across our country and that is why we are seeing companies like Whole Foods develop more humane standards and where companies like Smithfield are starting to move away from certain practices that have been common. My name is Gene Baur. I am the Oresident and Cofounder of Farm Sanctuary. We operate two sanctuaries for farm animals, one in New York, one in California. I also have a master's degree on agricultural economics from Cornell University. So I have spent a fair bit of time taking care of animals. I have firsthand experience taking care of animals. Our shelters actually began when we would find living animals literally thrown in trashcans or living animals left on piles of dead animals behind stockyards.

What has happened as we have pushed to produce more food more cheaply is that animals have become increasingly commodified. Animals are not being seen as living, feeling creatures and they are seen more as production units, and I am glad to hear that this assumption that if animals are productive, their welfare is good, is now being questioned. In fact, as Dr. Golab pointed out, there are competing interests on the farm. In some instances, animal welfare is actually in conflict with animal production. To produce egg-laying breeds of hens, hatcheries discard millions of unwanted male chicks every year. I have photos of baby chicks in dumpsters. I was at a hatchery once and watched living chicks put on an auger, sent into a manure spreader to be spread on the field as manure. As Dr. Temple Grandin has said, and she is one of the Nation's and in fact the world's leading livestock handling experts, bad has become normal oftentimes what happens on farms. I also want to just say that I don't believe that farmers are bad people. I don't believe that people who are throwing living animals in trashcans or confining them in these devices which I believe are inhumane, I don't believe that those individuals are cruel or intentionally causing harm to animals but I believe people have become jaded, and the industry has looked to maximize production and it has come at the expense of animal welfare.

Science has shown us what we can do but it has not asked the question, what we should do. Ethics is the issue we are dealing with here and that is why these issues are so emotional. Animal advocates are very upset about what they see happening to animals and I also understand that animal producers sometimes feel threatened and feel that they are being called cruel. That is not an easy thing to hear. But I would like to point out again that these are not people intentionally causing harm or wishing to cause harm. Nobody wants to cause harm. We all like to see ourselves as humane citizens. But what is happening on farms is, in the view of myself and Farm Sanctuary's members and most U.S. citizens, what is happening on farms is unacceptable. Most people do not feel that it is right to keep breeding pigs in 2-foot-wide crates for years. They feel that it is wrong to just throw living animals in trashcans or leave them on piles of dead animals.

When we address how animals are raised, we need to look at the ethical issues. Science is important, that needs to be brought into the equation but ethics is also important, and that is one of the things that we haven't really heard very much about here. What is humane? What is appropriate? What do we stand for as a people and as a society? Do we think it is okay for living chicks to be thrown on an auger and dumped into a manure spreader to be spread on the field as manure? Do we think that is appropriate? And I would also just say from the legal standpoint, farm animals are excluded from the Federal Animal Welfare Act and they are also excluded from many state anticruelty laws. So this idea of throwing these live animals away could in some cases be considered legal, and in fact, we had a court case in New Jersey where there were a couple of live hens that were thrown into a trashcan as manure. The egg industry's lawyer actually argued in court that legally the birds could be treated like manure. The judge said isn't

there a difference between live birds and manure? And the attorney said no, Your Honor.

So it has gotten to such a point that cruelty is defended and I think this hearing will hopefully shed some light on some of the real conditions and I really appreciate the opportunity to be here. Thank you.

[The prepared statement of Mr. Baur appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you. We would now recognize Mr. Ramsey.

**STATEMENT OF PAXTON RAMSEY, MEMBER, NATIONAL
CATTLEMEN'S BEEF ASSOCIATION, DEVERS, TEXAS**

Mr. RAMSEY. Thank you. Good morning, Mr. Chairman and members of the committee. My name is Paxton Ramsey and I am the 4th of 5 generations on my family's ranch in south Texas where we raise cattle and horses, and I am honored to be here this morning on behalf of the American rancher to confirm the importance of animal welfare in our industry.

Each morning on ranches across the country, over a cup of coffee in the barn, cowboys are feeding, grooming, shoeing horses, putting orphaned calves on a nurse cow as they meet and prioritize their duties of the day. A plan is devised and each man departs for the day in a dirty pickup with a pair of fencing pliers, a sandwich, medicine and a fresh horse in his trailer. Our goal is to as thorough and efficient as we can in checking and handling our portion of the livestock with animal welfare and profitability in mind. This includes providing adequate water, minerals and vitamins based on age, condition, sex and time of year. A man once told me that ranching is an art and should be handled in a business-like way. Poorly tended animals will cause a ranch to go under, the same ranch the world is counting on for food.

The longstanding commitment to the health and welfare of our animals is probably not something we talk about enough in public because it is not something that we have to make a conscious decision to pursue. Good care of our animals is second nature to us and it is not something we do because it is popular or newsworthy. We do it because these animals depend on us and we cannot fail them.

If I may, allow me to take you a few miles off the highway where a young man has been working since before we all ate breakfast to locate a sick calf. He and his horse have just exhibited a harmony beyond words in roping this calf and giving the appropriate shots needed to prevent the signs of pneumonia from spreading. Picture the heat, the thorns, the dust, the potholes and many more pitfalls that this team has endured to get through rough country just to doctor one little old calf that neither you nor I will ever know about if he dies. Is it really worth all the work, risk and danger? What if the market value of that calf is at an all-time low? It is worth doing when no one will ever know if he turns his back and rides away? Yes, sir, it is. Do you know why? Because that young man promised his forefathers and his children that he would. Being a good steward is the job that he asked for and his integrity and the welfare of his animals are not to be compromised.

Stewardship requires work. The cattle and horses of our family ranch count on us to adequately care for them as much or more

than we count on them to take care of us. It is not only our moral obligation, it has also proven to be a more profitable way of business. We have learned through years of experience that if you take care of your pennies, your dollars will take care of themselves. A stressed animal that goes to market produces a substandard product. An animal that was raised without proper management practices will not produce high-quality meat.

As a member of the National Cattlemen's Beef Association and the Texas and Southwestern Cattle Raisers Association, I rely on them to help ensure that animal welfare is taken seriously throughout our industry. NCBA has worked with USDA, land grant universities, county agents, vets, animal scientists and cowboys to determine the effects of handling and care on livestock. That knowledge has helped the industry to develop new processes, procedures and equipment that improve animal welfare. For example, NCBA has long taken these principles and practices from the grass roots level and added the expertise of many associated entities to develop producer-led initiatives such as the Beef Quality Assurance Program and the cattle industry's guidelines for the care and handling of cattle.

Created in 1987, BQA provides guidelines for livestock care and handling and nutrition and veterinary treatment. Emphasis on education helps producers identify the day-to-day ranch management practices that influence the production of safe, wholesome beef. BQA incorporates current FDA, EPA and USDA regulations as well as HACCP principles. Today BQA influences more than 90 percent of U.S. cattle.

The BQA producer code of cattle care gives the following guidelines for cattle producers: provide adequate food, water and care to protect cattle health and well-being; provide disease prevention practices to protect the health of the herd including access to veterinary care; provide facilities that allow safe, humane and effective movement and/or restraint of livestock; use humane methods to euthanize sick or injured livestock and dispose of them properly; provide personnel with training to properly handle and care for cattle; make timely observations of livestock to ensure basic needs are being met; provide transportation that avoids undue stress caused by overcrowding, excess time in transit or improper handling during loading and unloading; keep updated on advancements and changes in the industry to make decisions based on sound production practices and consideration to animal well-being; and finally, not to tolerate people or practices which willfully mistreat animals.

In addition, the cattle industry's guidelines for care and handling cattle, which were developed in 2003, are a comprehensive set of the best practices for every aspect of the cattle production. Some of the best practices include: low-stress cattle handling; effective shelter and housing; careful loading and transporting; and tips on reducing heat stress.

As you can see, ladies and gentlemen, animal welfare is given great consideration every day in my business. Not only is proper care and handling something we practice, it is also regulated by state and federal law. As such, we look forward to working with Congress to ensure that state and federal agencies such as APHIS have all the resources they need for the inspection of regulated fa-

cilities that handle livestock. In addition, we hope to work with you to continue efforts that ensure we have plenty of enthusiastic and talented vets entering large-animal practices.

In closing, years of practical experience have shaped the practices we as cattlemen use to care for our livestock. It is not just something we talk about, it is something we do every day. I assure you, no one looks out for the welfare of our animals more than we do because it is an integral part of ensuring the industry remains as healthy and as vibrant as our cattle. On behalf of NCBA and the American rancher, I appreciate your time here today.

[The prepared statement of Mr. Ramsey appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you, Mr. Ramsey.
The chair recognizes Ms. Determan.

**STATEMENT OF BARBARA DETERMAN, NATIONAL PORK
PRODUCERS COUNCIL, EARLY, IOWA**

Ms. DETERMAN. Good morning, Chairman Boswell and Ranking Member Hayes and other members of the subcommittee. I am Barb Determan. I am a 4th-generation pork producer from Early, Iowa, and I am a Past President of the National Pork Producers Council.

First, I want to make a very clear, definitive statement to this committee and to Congress. American's pork producers recognize our moral obligation to provide for the well-being of our animals and we raise our pigs in a humane, compassionate and socially responsible manner. Any production practice that falls short of this high performance standard is totally unacceptable and will not be tolerated by our industry. In addition to our moral obligation, pork producers' livelihoods depend on the well-being and performance of their pigs. Through my own farm experiences and the countless number of people that I have met through my work and travels as an NPPC officer, I have learned that one thing is very constant among pork producers. We are in this business because we love working with pigs. None of us would do anything that would be knowingly harmful to the pigs' well-being but remember, these are food animals, not household pets.

Today I will tell you how American's pork producers are addressing the well-being of our pigs through compassionate swine care, humane sow housing, responsible use of antibiotics and safe transportation. In 1989, pork producers established the Pork Quality Assurance, PQA, food safety program. Major meatpackers require our producers to have PQA certification. While producers have long used humane well-being practices, the industry further developed animal care guidelines in the early 1990s and we made them into standards as new knowledge about animal care became available. More recently, the industry developed and implemented the Truckee Quality Assurance Program for those who handle and transport market hogs. The majority of packing plants also require truckers to be TQA certified. All three of these efforts were among the first of their kind in the livestock industry and were developed in cooperation with animal well-being experts from land grant universities, practicing veterinarians and other scientists.

In 2002, producers endorsed an updated U.S. producer code of practice that calls for us to: provide facilities to protect and shelter

our pigs; provide personnel with training for proper care of our pigs with zero tolerance for mistreatment of our pigs in their care; provide access to good quality water, nutritionally balanced diets; provide prompt veterinary medical care when required; and maintain adequate biosecurity to protect the health of our herd.

In 2003, the industry updated its Swine Care Handbook which is the foundation for the Swine Welfare Assurance Program, called SWAP. It is an educational and assessment program that looks at 10 specific areas of animal care. Now the principles of SWAP are in the industry's ongoing and groundbreaking Pork Quality Assurance Plus Program which does include certification, on-farm assessments and third-party audits. There was no pressure to implement these programs other than our belief to do the right thing. All our animals, even those raised for food, deserve to be provided with care and decency, and we do that 24 hours a day, 7 days a week, 365 days a year.

With regard to sow housing, the pork industry agrees with the position of the American Veterinary Medical Association, the American Association of Swine Veterinarians and other organizations, which recognize gestation stalls and group housing systems as appropriate for providing for the well-being of sows during pregnancy. Science and practice suggest that both individual and group housing have advantages and disadvantages. That is why we strongly believe the skill of the individual taking care of the pigs is the ultimate determining factor in the well-being of sows and market pigs. Healthy, well-cared-for animals are raised in almost any system as long as the care of the animal is the top priority. Science and farmer experience also tell us that mandating any one type of sow housing or simply changing for the sake of change is not necessarily in the best interest of the pig.

We do not believe Congress has the understanding or the expertise to decide on farm practices for our production. We also believe that includes the use of antibiotics to treat injured or sick pigs and that prevent wound infections, pain and suffering. Pork producers use antibiotics in consultation with their veterinarian in a responsible manner. In fact, the industry created the Take Care, Use Antibiotics Responsibly program to enhance producers' awareness of antibiotic use. Banning antibiotics because of some misconception or outdated information related to the antibiotic resistance in humans will only jeopardize the well-being of our animals. It is clear that antibiotic resistance in humans would not end if antibiotic use on farms were eliminated. One peer-reviewed study estimates that 96 percent of antibiotic resistance in humans is due to the human use of antibiotic and not from the consumption of meat products. In addition, the FDA has a rigorous science-based approval process for animal antibiotics that addresses human health concerns and sets withdrawal times for each antibiotic use.

I am proud to be part of an industry that on our own has developed and implemented world-class programs that help pork producers raise and care for their animals in a humane, compassionate and socially responsible manner. We oppose legislation that dictates our production practices or that bans products and practices that help us care for our pigs and we oppose including an animal welfare title in the farm bill.

Again, thank you for letting me testify on behalf of the Nation's pork producers and I will be happy to answer any questions at the appropriate time.

[The prepared statement of Ms. Determan appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you very much.

Ms. Lange.

**STATEMENT OF LESLIE VAGNEUR LANGE, NATIONAL
DIRECTOR, AMERICAN QUARTER HORSE ASSOCIATION**

Ms. LANGE. Good afternoon, Mr. Chairman and members of the subcommittee. My name is Leslie Lange. I am the National Director for the American Quarter Horse Association from my home State of Colorado. It is AQHA's hope that by providing this testimony, commonsense legislation can be addressed that will not adversely affect horse owners, horses or the industry at large.

There are many examples of people who believe they are working for positive changes yet they are in fact irreparably damaging the agricultural industry. Threats received by Colorado's own beloved, century-old National Western Stock Show and Rodeo and protests at rodeos across the country by militant animal rights groups are just a few examples.

Today I want to focus on what has occurred recently as a result of the closure of some horse processing facilities in the United States. The American Quarter Horse Association represents a broad base of members who are involved in many different areas of the industry. The primary concern of these members, my fellow directors and staff is ensuring that the welfare of the horse is paramount to all other considerations. I would like to have added to the record a copy of AQHA's rulebook that addresses humane treatment. I want the record to reflect that AQHA does not favor slaughter as a way of dealing with America's unwanted horses. However, the association's board does recognize that the processing of unwanted horses is currently a necessary aspect of the equine industry. Some have publicly mischaracterized AQHA as not being for the horse and that could not be further from the truth. If it weren't for the horse, AQHA would not exist.

Additionally, it has been improperly stated that the majority of horses that go to slaughter are American Quarter Horses. To be accurate, the processing facilities do not know the breeds of these horses.

As a breed registry, the association's primary role is to record the pedigrees of American quarter horses. It is not AQHA's role to restrict a breeder's right to breed their horses. In fact, courts have ruled that in certain cases, it is a restraint of trade for the association to do so.

The three areas I would like to comment on are long-term care for horses, funding for enforcement and an equine welfare system and how the industry is handling the unwanted-horse issue without the government reacting to animal rights activists or celebrities who are out of touch.

Earlier this year when the horse processing facilities were closed, AQHA warned that if this were to occur without addressing long-term-care solutions, some horses would needlessly suffer. Their

owners would not have a way to sell a horse they no longer wanted nor could afford to keep. An unwanted horse is one that has become a burden rather than a joy to its owner. Examples of these problems, AQHA took a call from an irate salebarn owner who found himself in possession of a handful of horses that the owner had simply abandoned because he couldn't even get the consignment fee for them in the auction. The association received a call from a feed store in Mississippi that was approached to help feed 70 horses that had been abandoned. An AQHA member from Montana mailed pictures of a 3-year-old gelding that died of starvation because its owner simply walked away. And in my home State of Colorado, 23 horses were locked in a barn and abandoned. The owner told authorities he could no longer afford to take care of these horses because of rising prices and plummeting value.

Certainly, all owners should care for their animals properly. Unfortunately, not all do because they can no longer afford to. While many business owners and animal lovers have a soft spot for these abandoned horses now, at some point the gravy train is going to run dry and horses are already becoming victims.

Activists and misguided legislation circulating around Washington relating to horse slaughter are having a powerful impact on the very animal meant to be protected. Whether or not we want to admit it, economics comes into play. The slaughter market determines the base or floor price for horses. When that bottom falls out or is removed, as it has been, it simply stands to reason that it will adversely affect the horse industry and the horses themselves.

I make my living off the horse industry, and even at the upper end where I train and compete, owners are beginning to feel the effects of the bottoming of the horse industry. When the floor is removed, the entire industry begins to fall, and as we are seeing, values are beginning to decline.

I would like to add to the record the American Horse Council's Economic Impact of the Horse Industry.

The other economic issue deals with how are we going to care for 90,000 horses each year entering the equine welfare system. By most assessments, it would take an additional 2,700 bona fide rescue facilities. By providing only the most basic care of hay and water, it will cost \$171 million to care for 90,000 unwanted horses displaced as a result of banning horse slaughter in the United States.

Staff at AQHA called the hometowns of each of the members of this subcommittee. Of the 18 municipalities contacted, only one had the facilities to take in displaced horses. We have a long way to go.

As a result of the closing of the Nation's processing facilities, today there are more horses on the market causing the value to plunge. Low prices have consequences, and while slaughter is not pretty, it does provide a humane, economical way for an owner to relinquish an unwanted horse.

The option of sending a horse for processing must remain available to those who need it so long as measures ensuring humane transportation and treatment of horses are in place. Today those rules exist, and in the United States we protect the dignity of even the most unwanted or unusable horse. Once an animal is taken outside the borders, we lose those standards of care.

The good news is, the horse industry is addressing the issue without government intervention through the Unwanted Horse Coalition. The Unwanted Horse Coalition, which was established in 2005, is working to eliminate America's unwanted horses. Their goal is not to pay for the care of unwanted horses but to reduce their number and improve their welfare. Through education and hard work, we are addressing this problem without creating inadvertent problems like this ban has.

Ladies and gentlemen of this subcommittee, I love horses and I love how good the agriculture industry has been to me. If you are serious about helping horses and the good people who make their livelihood off the livestock industry, I hope you will do what is right to end this problem. It is not about passing laws that have unintended consequences; it is about being realistic, doing what is right for horses and feasible for taxpayers.

Thank you for your time today.

[The prepared statement of Ms. Lange appears at the conclusion of the hearing:]

Mr. BOSWELL. Thank you for your testimony.

Ms. Jordan.

STATEMENT OF KAREN JORDAN, DVM, OWNER, LARGE ANIMAL VETERINARY SERVICES, ON BEHALF OF NATIONAL MILK PRODUCERS FEDERATION, SILER CITY, NORTH CAROLINA

Ms. JORDAN. Thank you for inviting the National Milk Producers Federation to testify before you today. My name is Karen Jordan and I am a practicing large-animal veterinarian from Siler City, North Carolina. My husband and I also own Brush Creek Swiss Farms, where we milk 75 registered Brown Swiss and raise about 70 replacement heifers. Currently I serve as Vice-Chair of the Animal Health Committee of National Milk and Chair of the Cattle Health Committee of the National Institution for Animal Agriculture.

My testimony today focuses on the animal care that our U.S. dairy farmers provide every day for their animals and the incorporation of new technology as it becomes available to improve the welfare of our animals. Dairy farmers know that improving animal welfare pays back on a daily basis. Every day, regardless of the size of the operation, dairy farmers invest time and money in providing the best health care, housing and nutrition that is available. While specific animal care practices vary depending on the geographic region and climate, proper animal care is practiced throughout the industry.

Simply put, what is good for our cows is good for our businesses. In 2002, National Milk Producers and the Milk and Dairy Beef Quality Assurance Center came together to develop the Caring for Dairy Animals Technical Reference Guide. This is a comprehensive set of dairy animal well-being guidelines that covers all aspects of dairy animal care. The Milk and Dairy Beef Quality Assurance Center also offers a third-party auditing component of the program and many dairy farmers choose to go through own farm audit to verify their best management practices.

These guidelines have been recognized by the Food Marketing Institute and the National Council of Chain Restaurants. The guidelines were developed using the most current animal well-being research and these guidelines have been extensively reviewed by dairy animal welfare experts and are endorsed by the American Association of Bovine Practitioners. At the inception of the guidelines, a strong promotional effort led by National Milk was initiated and these guidelines were widely distributed to dairy farmers, veterinarians, dairy nutritionists, milk cooperative field staff and others who interact with dairy farmers on a daily basis.

The dairy industry has not only addressed animal care standards for the milking cow but also for dairy calves, replacement heifers and for veal calves. Farmers that raise replacement heifers utilize the Raising Quality Replacement Heifers guidelines. The American Veal Association has developed the Veal Quality Assurance Program, which provides stringent guidelines for animal well-being and care and requires multiple yearly onsite visits from an accredited and licensed veterinarian to document compliance.

Several years ago, the New Jersey Department of Agriculture was mandated to develop and adopt regulations governing the minimum standards for the humane treatment of domestic livestock. The same Caring for Dairy Animals Technical Reference Guide was a set of dairy animal welfare guidelines that the State of New Jersey used to develop the dairy component of their standards.

There are also other dairy animal welfare verification programs that states or dairy organizations have developed. For example, the States of California and New York have quality assurance programs that have a dairy animal welfare component to them.

In addition to animal care guidelines, the dairy industry also supports new research in the animal well-being area. As new appropriate technologies and/or animal care practices arise, they are recommended to producers, and in the past decade animal welfare research has led to many improvements in cow comfort. Because of this research, farmers have applied the improvements gained from the research into their management practices. Today many farmers provide their cows with fans and sprinkler systems to keep them cool and comfortable. Farmers also install rubber mats for their cows to stand on as well as clean, comfortable bedding such as sand and rubber-filled mattresses for their cows to lie on. Routine herd health programs are also a part of all dairy farmers' daily management.

Through a combination of modern production technologies and experienced gained across generations of dairying, today's milk producers know how to maximize cow comfort and well-being in order to achieve the record levels of milk production that you are seeing today. National Milk Producers continues to work with other dairy organizations to promote the animal care guidelines to our dairy producers.

As you can see, U.S. dairy farmers have been very involved in the welfare of their animals and dairy farmers want to provide the utmost care for their animals. Because of all the industry efforts, we respectfully request that you oppose any proposed farm animal welfare legislation as part of the 2007 Farm Bill. Dairy farmers'

livelihood is already based on well-cared-for and healthy animals to produce wholesome, nutritious dairy products.

Thank you for providing me with the opportunity to testify on behalf of the National Milk Producers Federation, and I have a copy of the guidelines that I have referred to during this testimony that I would like for this to be made part of the record.

[The prepared statement of Ms. Jordan appears at the conclusion of the hearing:]

Mr. BOSWELL. Well, thank you, Ms. Jordan, for an excellent testimony.

We will move to our questions now. I guess it is a learning process for me, but Mr. Baur, if I could start off with, is Farm Sanctuary an animal welfare or animal rights organization?

Mr. BAUR. We are both. We encourage people to consider eating in a compassionate way, which would include a vegan lifestyle, but we also work to stop cruelty so we recognize that each person has to make their own food choices though.

Mr. BOSWELL. Okay. I am trying to understand your goals. Is it to end animal agriculture?

Mr. BAUR. No, our goals are to prevent suffering, to prevent cruelty. We are not anti-farmer; we are anti-cruelty.

Mr. BOSWELL. So you just said you are a vegetarian or a—

Mr. BAUR. I am a vegan, yes, but we recognize that each person has to make their own choice in terms of what they eat.

Mr. BOSWELL. Out of curiosity, and I am not picking on you, but would you like to see an end to raising and the slaughter of animals for food?

Mr. BAUR. Personally, I think it is a violent—killing animals is a bloody, violent thing and I frankly feel kind of bad for those who have to do it, so in my ideal world and what I dream about, yes, that is what I would like to see. I also recognize that I am individual with my own dreams and each of us have our own dreams but we as a society need to decide what is appropriate, and I think that is where we are currently not acting appropriately. We are doing some very bad things to animals.

Mr. BOSWELL. I am curious about, if I could, where does Farm Sanctuary get its funding. Do you get it from HSUS? Do you receive funding from them?

Mr. BAUR. No, the vast majority of our support comes from our members. We have 150,000 supporters across the U.S.

Mr. BOSWELL. But back to my question, do you get any funding from HSUS?

Mr. BAUR. We were involved with a rescue of chickens from Katrina and we did get a donation from HSUS for that particular rescue but that was a one-time thing and—

Mr. BOSWELL. But how about other help? For example, PETA, do you get any—

Mr. BAUR. No, we have never gotten any funding from PETA.

Mr. BOSWELL. Well, thank you very much.

I would like to address this question to some of the others. I am aware that a lot of quality assurance activity goes on within your industries, beef, pork, dairy, I think it does with horses as well so would you just, to enlighten us a little bit, give me just a little bit of what you are doing to try to put this forward.

Mr. RAMSEY. If I may, Mr. Chairman, I think it varies from region to region as each ranch requires certain activity to ensure welfare of animals. I know that NCBA has worked hard to establish its Beef Quality Assurance Program and it is a recommended procedure to all of their members. However, our ranch personally, for example, we actually have to go above and beyond that to some degree.

Mr. BOSWELL. But you have an education program, if I remember.

Mr. RAMSEY. Yes, sir.

Mr. BOSWELL. I think it is very good. I am going to give you a chance to tell the folks about that.

Mr. RAMSEY. Yes, sir. I think it promotes an activity among all ranches to be in touch with their veterinarians, to be in touch with what is a good vaccine program to prevent any unnecessary sickness or death. But it is very—

Mr. BOSWELL. Barbara?

Ms. DETERMAN. The Pork Quality Assurance Program, like we said, has been around since 1989 and anybody who handles hogs, and especially on our farm, goes through PQA training, even down to my teenage daughter has gone through Pork Quality Assurance training. And what that is, is an education process with a certified veterinarian who walks us through the education process of how to handle the pigs. The PQA Plus Program that is going to be introduced this year to producers now includes the animal welfare component to it too which will have an assessment as well as third-party audit within that. Most of the major packers in the pork industry require producers to be PQA certified.

Mr. BOSWELL. Ms. Jordan or Ms. Lange, either one, your quality programs?

Ms. JORDAN. For the dairy industry, our Caring for Dairy Animals Technical Reference Guide has been well circulated through our different dairy magazines. It has been made available to the field staff for different member cooperatives for distribution to our dairy farmers.

Mr. BOSWELL. Thank you.

Ms. LANGE. In the equine industry, it is obvious that we don't consume a large amount of horsemeat in the United States but the American Quarter Horse Association does have over \$6 million in contributions in equine research for the health and well-being of the equine animal, and as I spoke in my testimony, the Unwanted Horse Coalition is working to provide a place other than slaughter for horses that are unwanted or unusable. We have brochures that we have put out addressing those unwanted-horse issues and what the options are besides slaughter to try to address the unwanted-horse issue.

Mr. BOSWELL. Thank you very well.

Mr. Hayes.

Mr. HAYES. Thank you, Mr. Chairman.

Ms. Jordan, would you outline briefly the guidelines employed by veal raisers to improve and to ensure animal care?

Ms. JORDAN. I am sorry. I would have to get back to you on that. I don't have access to that document.

Mr. HAYES. How about your personal experience? That is all I am asking about.

Ms. JORDAN. Well, personal experience, our book has—we usually keep them on the farm for 7 to 10 days and then they are usually sold locally and they are handled just like as if they were a heifer calf, and we are trying to get them started out just as well as any of our heifer calves are started out.

Mr. HAYES. Is Johnson's still in Siler City?

Mr. JORDAN. Johnson's Restaurant?

Mr. HAYES. Yes.

Ms. JORDAN. Yes, sir, best hamburgers.

Mr. HAYES. We could convert some vegans there, I believe.

Ms. Determan, thank you for coming by yesterday. Talk briefly about the downers and the ban that is proposed under H.R. 661. What impact would that have and is that practical and realistic?

Ms. DETERMAN. Well, as Chairman Boswell explained, pigs sometimes just protest, and so the pigs when we are unloading them at the slaughter plant, sometimes we have—they just get stubborn and especially if it is warm, they will just lay down, and that could possibly eliminate a lot of pigs from our supply because this is just a trait of theirs. By eliminating pigs who are perfectly healthy and pose no threat to the food supply would be a huge impact on our industry. But more importantly, they are safe and they are good, quality product to go to consumers who need to feed their families.

Mr. HAYES. Mr. Baur, do you think Roe v. Wade should be overturned?

Mr. BAUR. I haven't honestly given it a lot of thought. I mean, we are here to talk about farm animals. Well, Roe v. Wade, I mean, that is—I honestly don't have a position on it.

Mr. HAYES. Okay. Mr. Chairman, thank you. A couple things. I would ask unanimous consent that Mr. Stenholm's May 23 letter to Mr. Pacelle be entered into the record today, and I would also from personal experience like to add to the testimony that as a great fan, my wife and I of PBR, the bulls are treated much better than the cowboys, exemplary across the board. Also, the circus, as a grandfather, I have never seen better care for animals and in the quarter horse industry, the dairy farmers, poultry—Mama, don't let your baby grow up to be a cowboy. You did a great job, Mr. Ramsey. They are doing a good job.

So thank you for the hearing, and I will yield my time in case some other questions need to be asked. You need to think about that Roe v. Wade, Mr. Baur. It is interesting, given your position.

Mr. BOSWELL. Well, thank you, Mr. Hayes.

Mr. King.

Mr. KING. Thank you, Mr. Chairman, and I will move quickly.

Ms. Determan, when I was a young boy, we farrowed pigs with wooden panels in the barn, pitched straw over them and bedded the sows in that. They had the pigs, got up, laid back down, laid on them, sometimes they ate them. How many pigs did we wean per litter then and compared to 20 years ago when we came with farrowing crates compared to today with gestation crates? What has happened to the survivability of those pigs?

Ms. DETERMAN. Survivability of the pigs has greatly increased, first of all. Second of all, I had the same experience. I grew up on

a pig farm too so I had the same experience of having those pigs get laid on and other things happened. But mainly the survivability has increased from anywhere from 2 to 3 pigs per litter, and that is per litter, not yearlong but per litter. So it has been a very—I have had experience both ways and I will tell you that the individual care that I can give to each animal in a stall is extremely important for me as a producer to be able to take care of each animal individually, not only care-wise but also make sure they get the right feed and the whole works.

Mr. KING. But today you see a wean average approaching 10 pigs per litter?

Ms. DETERMAN. Yes.

Mr. KING. And when I was a little boy, what was that number, what would you—just a guess.

Ms. DETERMAN. Less than seven. Now is 10.

Mr. KING. That is about how many pigs' lives one would sacrifice if they went back to a more natural way of doing this.

I yield back the balance of my time. I thank the chairman and thank the witnesses.

Mr. BOSWELL. I understand Mr. Walberg has no questions.

Mr. Hayes, we are going to ask you if you have any closing remarks before we wrap up here. Seeing none at this moment, I would like to say this for my part: excellent panel. Thank you very much, Mr. Baur, Mr. Ramsey, Ms. Determan, Ms. Lange, Ms. Jordan, I appreciate you taking the time and coming and sharing with us and helping us discuss this issue of animal welfare. I think overall as we think of what has happened here these last 3 hours or so, that it has been an open opportunity to put things under glass, if you will, out in daylight and talk about it. One thing I have learned and appreciate very much is that folks are concerned about animal welfare, they are serious about it, but I also learned very much that a lot is being done in the industry to address this, and I want you to know that we appreciate that.

As a participant myself, I have grown up trying to do that so I think that you are doing the right thing and we want you to know we appreciate it. I am concerned particularly about the downed animal situation that some misinformation is out there and we have to make sure that is corrected. I rely on a lot of you in the industry and those who practice medicine in the industry to help us out on that because I think it would be devastating to the pork industry, for example, if they would be falsely accused of sick animals when they are not sick animals. I have got too much grease on me from the past. I know better. So I would trust that we would work together on that particular point because it seems to keep coming back from time to time and I think it is an education process, so I would hope that today has facilitated that. That is what we have tried to do.

I am going to bring this to a close and say this for the record. Under the rules of the committee, the record for today's hearing will remain open for 10 days to receive additional material and supplemental responses from witnesses to any question posed by a member of the panel. This hearing of the Subcommittee of Livestock, Dairy and Poultry Subcommittee is now adjourned. Thank you very much.

[Whereupon, at 1:25 p.m., the Subcommittee was adjourned.]

Chairman Leonard Boswell
Opening Statement
Subcommittee on Livestock, Dairy, & Poultry
Hearing to review the welfare of animals in agriculture
May 8, 2006

I would like to thank everyone for joining me here today and give a special thanks to our witnesses for offering their insight into the current welfare issues surrounding animal agriculture. I look forward to hearing your testimony.

Having spent most my life involved in animal agriculture I understand many of these issues first hand. I have worked with a variety of animals—from dairy cows, to feeder pigs, to my current cow-calf operation and we have always had a couple of horses on the farm, even today – so these issues are not showing up on my radar for the first time.

We will hear from all sides of the issue today with two primary questions in mind: what is the status of animal welfare in American agriculture and what is the industry currently doing to address the concerns of consumers.

On the first question, as animal agriculture has grown over the past 50 years, I believe our views on animal welfare have advanced as well. Today we will hear from the industry about the science-based self regulation that the poultry, cattle, hog and many other livestock producers have developed to ensure that welfare standards remain current and reflect consumer concerns.

My experience in agriculture has shown me what happens when producers treat their animals poorly. Take for example dairy cows: if these animals are not properly fed, watered and sheltered, their milk production decreases which could mean the difference between staying in business and closing your doors. Mistreated animals simply will not produce, and that is not good for the animal or the farmer.

On the second question, I believe that the industry has already taken steps to address some consumer concerns. With the recent boom in demand for organic agriculture, it is

clear that more and more consumers are focusing on not only what their food is, but where it has come from and how it was grown and raised. Burger King, Wendy's, Ben & Jerry's, and all Wolfgang Puck restaurants also now expect their suppliers to meet certain animal welfare standards.

I welcome these changes in the industry: from cage-free to free-range chickens, consumers deserve the choice. If someone is willing to pay \$3 for a dozen eggs to ensure that they come from chickens that lived in certain conditions, they should have that option. Similarly, if someone decides to use products from conventionally raised animals, they should have that choice as well, so long as the operation is up to federal, state, and industry standards.

These voluntary, market-driven changes may or may not be enough to fix problems in the industry. However, there may still be more that we can do. That is why hearings like this are important. We need to consider all options and must ensure that existing laws are being enforced before we move too quickly to write new ones. Creating new laws before the current ones are properly enforced is not the solution.

I hope this hearing will not simply focus on problems, but solutions as well. We need solutions that not only protect animals, but also ensure a safe, plentiful, and affordable (per capita 1. least expensive; 2. safest; 3. plentiful) food supply. Animal agriculture is a multi-billion dollar industry in the United States, which not only helps feed those of us in this room, but people around the world. In a sense we ALL have a vested interest in agriculture, the consumers as well as the farmers and producers.

The subject of today's hearing is for some a highly emotional one, and I am glad to have witnesses from all sides of the debate so that we can have a candid, respectful, and productive discussion on the welfare of animals in American agriculture.

At this time I would like to turn it over to my good friend and colleague, Robin Hayes from North Carolina for any opening remarks he would like to make.

Opening Statement of Ranking Member Robin Hayes
Subcommittee on Livestock, Dairy and Poultry
Hearing on animal welfare
May 8, 2007

Chairman Boswell has called today's hearing to discuss animal welfare issues affecting America's livestock and poultry producers. I am pleased that we will be hearing from the former Ranking Member of this Committee and someone who is a great friend to U.S. producers, Congressman Charlie Stenholm. We welcome you here today and know that you will bring us insightful words of wisdom regarding animal welfare and the challenges that lie ahead for animal agriculture. I am sure Mr. Stenholm would agree that it is our job as Members of this Committee, representing our agriculture constituents back home, to stand strong for our producers and stand up to anyone wishing to put them out of business.

I must applaud the animal agriculture industry for the great strides they have made over the years to address animal welfare. Producers have been proactive in the humane treatment of animals by implementing industry-led standards and guidelines based on the latest scientific recommendations for animal welfare management systems. Farmers and ranchers, not activists, should be dictating animal husbandry practices. I am pleased to see representatives of the scientific and research community as well as livestock industry are here to share with us the programs and measures they have in place to ensure animals are treated with the utmost of care.

Mr. Chairman, with the farm bill looming, I would like to express my concern about the timing of this hearing. I think we all recognize that we are in the middle of working on the farm bill and the hearings we have should directly relate to farm bill issues, especially considering the time constraints we are under. Given the fact that I do not believe these issues should be included in the farm bill, I question the timing of this hearing. I believe everyone would be better served if we addressed these issues outside of the farm bill venue so that they can receive the attention they deserve.

Having said that, I do appreciate the witnesses' time in being here today.

Congressman Nick Lampson
Opening Statement, May 8, 2007

Subcommittee on Livestock, Dairy, and Poultry
Hearing to review the welfare of animals in agriculture.

Good morning, thank you all for being here today. I am pleased to see representatives from across the industry here today. I look forward to hearing from producers, veterinarians and activists. I'd like to reiterate that all who are here care about the welfare of animals, I am glad that we have the opportunity to have a frank and open discussion.

I understand that many of those in the industry have set their own guidelines and have successfully practiced self-regulation, from the Pork Quality Assurance program to the United Egg Producers Certified program. I look forward to hearing honest assessments about how far the industry has come and what more can be done to ensure that animals are treated humanely.

As an avid outdoorsman, I have a deep respect and understanding of the protections we must provide for animals, and we as a nation have a responsibility to prevent unnecessary suffering of animals.

Congress can lead the way by conducting oversight and setting and enforcing standards to ensure the protection of animals and the safety of our nation's food supply.

Statement to be Submitted for the Record
Congressman Steve King
Subcommittee on Livestock, Dairy, and Poultry—hearing to review the welfare of
animals in agriculture
May 8, 2007

Carnivorous plants-

Venus Flytrap- If an unwary insect walks across the hairs on a Venus Frytrap, touching two or more of them in succession, the leaf will close quickly enough to prevent its escape. Unable to escape between the hair-like teeth at the edge of the leaf, the helpless insect is slowly digested and absorbed by the leaf. Glands on the leaf surface secrete several digestive enzymes that help to decompose the insect. Once the insect has been digested sufficiently, the leaf re-opens for another victim.

Nepenthas-They attract insects with the odor of nectar. The motion of the insect to struggle and escape stimulates digestive glands to release a digestive acid. This acid is so strong that a midge will disappear within hours. The largest of these, the Rajah pitcher, is able to digest mice!

Drosera (sundrew)- The sundew relies on first trapping its prey with its sticky, glandular hairs before it slowly rolls up the edges of the leaf. It does not fold like the Venus fly trap, but it can effectively enclose small flies with the numerous hairs.

Cephalotus-Smooth ridges make insects lose its footing, slipping into the digestive liquid pool inside the pitcher. If an insect isn't caught immediately by the pool, it will tend to buzz around in the pitcher and will tire enough so that eventually it will fall into the digestive liquid pool at the bottom of the pitcher.

Sarracenia- The sarracenia lures flies by the decaying amino acid odor of already trapped prey. Once the fly enters the hollow leaf, it confronts a waxy surface leading to a pool of water. Although a fly can often escape the surface of water, the pitcher plant reduces its chances by supplying a wetting agent that wets the fly's wings and prevents it from flying. Even if the fly succeeds in escaping the surface of the water, it is confronted by the steep sides of the leaf and, being unable to fly straight up, is forced to crash into the walls of the leaf. The leaf wall is more challenging for the fly than the wall of a house. Eventually the exhausted fly succumbs to the solution at the bottom of the leaf and the low pH slowly digests its tissues.

Opening Statement of
Agriculture Committee Chairman Collin C. Peterson
House Committee on Agriculture
Subcommittee on Livestock, Dairy and Poultry

Public Hearing to review the welfare of animals in agriculture
May 8, 2007

Thank you, Chairman Boswell for recognizing me to speak and for holding this hearing. I also want to thank the witnesses for testifying here today.

The welfare of animals is a primary concern for many Americans, and this includes producers and consumers of animal agriculture. Defining animal welfare is not a simple thing, and we must rely on science and experience to evaluate the well-being of animals.

This is not to say that we cannot identify some practices that are clearly objectionable. For example, I sponsored and championed legislation several years ago to ban cockfighting.

Currently, there are laws on the books that protect the welfare of animals in agriculture. The Humane Methods of Slaughter Act, enforced by the USDA, sets standards for humane handling and slaughter of livestock. USDA has inspectors who regularly monitor animal welfare in facilities nationwide every day. It is important that we conduct oversight to

ensure that USDA has adequate resources to enforce the animal welfare standards that are currently on the books.

In addition to existing government regulations on animal welfare, many animal agriculture groups have developed guidelines for producers that use a science-based approach to establish standards for animal care. These standards and best practices help producers raise healthier, more productive animals.

The men and women involved in animal agriculture care a great deal about the welfare of the animals they produce, and their livelihood is based on their ability to raise healthy animals. While it is important to develop standards and guidelines to help producers meet the welfare needs of their animals, they must be based on science rather than emotion.

I hope that the witnesses can provide us with new ideas and practical solutions that can improve animal welfare. It is important for animal agriculture and welfare organizations to work together to address these issues, and I hope that this hearing will help encourage that kind of dialogue.

Chairman Boswell, thank you again for holding this hearing, and I look forward to the testimony from our witnesses.

Opening Statement of Rep. Bob Goodlatte
Ranking Member, House Committee on Agriculture
Subcommittee on Livestock, Dairy and Poultry
Hearing on animal welfare
May 8, 2007

Mr. Chairman, I'd like to take this opportunity to welcome each of our witnesses today and to thank them for their time and effort in addressing the complex issues of today's hearing.

In my conversations with the Chairman Peterson, he has laid out a very challenging and aggressive schedule for the pending Farm Bill. For that reason, I am curious why we are having this particular hearing at this particular time.

While we all share the same values in regard to animal welfare, the practical application of those values requires significantly more time and thoroughness than this hearing affords. Additionally, this hearing lacks participation of the sheep industry or the packers including the poultry, pork and beef sectors, or animal exhibitions, such as zoos, circuses, marine animal parks, rodeos, or companion animal representatives. I think that if we are to have a complete record on this topic, we need to hear from all of them as well.

Like all Americans, I support the humane treatment of *all* animals, including those in our nation's farms and stockyards, research facilities, processing plants, exhibitions, and our homes. It is our responsibility to be good stewards of the animals under our charge. Let me clear on this point: I know that I speak for my colleagues on this Committee when I say that inhumane treatment of animals will not be tolerated.

In conversations I have had with farmers and ranchers across the country, it is clear that the animal agriculture industry shares this strong belief and appreciation for the animals in their care. These farmers work alongside their animals day in and day out. These animals are the very livelihood of farmers in the Sixth District of Virginia and elsewhere. For that reason, the animal agriculture industry continues to develop practices on its own that meet the evolving scientific research on animal welfare.

As we discuss these issues going forward, I will continue to take my guidance from the men and women involved in animal agriculture, trusting in the knowledge that they both care about their animals and understand the challenges associated with their care.

Mr. Chairman, I look forward to the testimony of today's witnesses and their responses to our questions.

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Testimony of

Congressman Charles W. Stenholm

to the

**House Committee on Agriculture
Subcommittee on Livestock, Dairy, and Poultry**

May 8, 2007

**Congressman Charles W. Stenholm
Ericksdahl, Texas**

Chairman Boswell, Ranking Member Hayes, and Members of the Committee, I appreciate the opportunity to testify here today on behalf of all animal agriculture. There is an old saying that there are two things you should not see being made: laws and sausages. This Committee has the job of making laws about sausages – laws that help animal agriculture in protecting animal welfare.

If you eat or wear clothes, you are affected by agriculture. The industry remains an important part of the United States economy, and according to the U.S. Department of Agriculture (USDA), animal products account for the majority (51 percent) of the value of U.S. agricultural products, exceeding \$100 billion per year. As a farmer and rancher, I believe in the significance of the agriculture industry and in the value animal agriculture producers put on the safety and welfare of their livestock.

The Kentucky Derby was this past weekend, and I'm sure many of you watched it. With over 130 years of racing history at Churchill Downs, it is clear that the owners, trainers, and riders of the Derby care about the welfare of their animals. I'm sure many of you went to zoos as a child or will bring your children and grandchildren to one this summer. In fact, more people attend zoos every year than all sporting events combined, and the caregivers at zoos nationwide care about the welfare of their animals. Many of you probably remember the first time you saw the circus and may attend when it comes here. The Ringling Brothers and Barnum & Bailey Center for Elephant Conservation has one of the most successful breeding programs for endangered Asian elephants outside of Southeast Asia. They care about the welfare of their animals. Just like these groups of animal owners, production agriculture has not been given the credit it is due by animal "rights" activists, and we, too, care about the welfare of our animals. There is one thing that everyone agrees on: all animals should be treated humanely from birth to death.

Background

You will hear testimony today from several livestock producer associations, and they all care about the same thing: **ensuring the health and well-being of their animals is their number one priority.** The livestock industry has worked hard both from a legislative standpoint and through industry guidelines to improve animal welfare conditions. Animal agriculture constantly works to accept new technologies and science and apply them to the industry, investing millions of dollars every year to ensure the wellness of their livestock. Producers recognize the need to maintain animal welfare regulations for the safety and nutrition of their livestock, for the conservation of the environment, and for the profitability of their operations. But those regulations should be **based on sound science from veterinary professionals that best understand animals, working together with legitimate animal use industries.**

Many of the livestock groups have quality assurance programs in place. For example, the New Jersey Legislature and Department of Agriculture commissioned Rutgers in 2003 to perform a study on veal calf production, and experts at the land grant university concluded that the Veal Quality Assurance program and the principles behind it were scientifically sound. The poultry industry also continues to work on a united front to maintain a high level of oversight on animal welfare issues that ensures all employees practice the industry guidelines that were adopted. The animal agriculture industry continues to strive to improve animal health and welfare through scientific research, educational outreach, advocacy, legislation, and regulations.

Society of Untruths

While the livestock industry has a long history of supporting animal welfare, many activist groups such as PETA, the Humane Society of the United States (HSUS), and Farm Sanctuary have used falsehoods and scare tactics to push their hidden agendas of fundraising and systematically abolishing all use of animals, including production agriculture, zoos, circuses, and sporting events. These groups campaign for animal “rights,” which is not synonymous with animal welfare, using half-truths or complete deception. For example, according to the American Veterinary Medical Association (AVMA), Farm Sanctuary charged veal farmers in New Jersey of malnutrition practices because of the absence of fiber in their calves’ diets. However, a coalition of dairy farmers, animal nutrition specialists, and dairy extension specialists at Rutgers University testified that it is typical to not give calves fiber because it is not healthy for a calf’s developing digestive system.

These groups also fail to mention the millions of dollars in fundraising and assets that drive their misguided goals. HSUS has accumulated \$113 million in assets; has a budget three times the size of PETA’s; and according to the ActivistCash website, has more than enough funding to finance animal shelters in all fifty states, yet only operates one animal sanctuary, Black Beauty Ranch in Texas, which is at full capacity. According to the *Wall Street Journal*, two offshoots of HSUS spent \$3.4 million on Congressional elections and ballot initiatives, which is more than Exxon Mobil Corp. And there is an ongoing investigation by the Louisiana attorney general to determine if the \$30 million in HSUS fundraising during the Hurricane Katrina crisis has been handled appropriately.

These activist groups use the platform of animal “rights” to advocate for regulations so strict that they will put animal agriculture out of business (which is their real goal). A video recently circulated to Members of Congress and a video produced by HSUS make numerous false claims against the livestock industry. For example, the videos suggest that horses are inhumanely transported on double-decker trailers. However, a law exists that has banned the use of double-decker trailers for transporting horses on their way to slaughter, and if a horse does arrive on one of these trailers, the processing facilities will not accept it. In addition, numerous truck drivers invested in new trailers that comply with the law, and animal agriculture stepped up once again to improve animal welfare conditions.

Another example of the misleading rhetoric by animal “rights” activists involves the process of “captive bolt” euthanasia. The previously mentioned videos claim that captive bolt is not humane. However, the 2000 report of the AVMA’s Panel on Euthanasia specifically approves the use of captive bolt as a humane technique of euthanasia for horses. It is also an approved method of euthanasia for pork, cattle, and lamb. The captive bolt method meets specific humane requirements set forth by AVMA’s Panel on Euthanasia, USDA and the HSUS Statement on Euthanasia because it results in instantaneous brain death, and it is generally agreed to be the **most humane** method of euthanasia for livestock.

Watching the end of life for any living creature is not a pleasant experience, even when performed in the most humane manner. However, these groups continue to use human emotion and sensationalism to pry on the public’s sensitivity in order to reach their goal of abolishing animal agriculture.

Protect America’s Farmers and Ranchers

Unfortunately, we all know mistakes happen and laws are broken. I will not try to convince you otherwise. But when these unfortunate incidents occur, appropriate actions should be taken. **We should not get in the habit of creating arbitrary, uninformed, and emotionally based regulations** on an industry who’s livelihood depends on the health and well-being of its animals. We should not tie the hands of researchers and investors that continually seek improvements in animal welfare practices, and we should not tie the hands of producers who work night and day to ensure the quality of life of their livestock so they can provide this country and others with the most abundant, safest, and most affordable food supply in the world.

Professional experts such as the AVMA, AAEP, and USDA continue to have their expertise questioned by animal “rights” activists who line their own pockets with donations secured by exploiting and distorting the issues. These groups throw sensationalistic and often staged photos in the faces of those who do not understand it and ask them to give money to save the animals. But what they do **not** do is use their millions of dollars in fundraising to build animal shelters, provide research for new technologies and procedures or provide **truthful** information to consumers about the animal agriculture industry. Emotions run high, and with continued antics by activist groups the ultimate outcome will be devastating. If animal “rights” activist groups continue to be successful like we have seen in recent months with the closing of U.S. horse processing facilities, abandonment of animals will increase, animal welfare will decline, honest and legal businesses will close, America’s trade balance will worsen, jobs will disappear, family heritage and livelihood will be stolen, and the best interest in the welfare of animals will be lost.

As the Agriculture Committee, it is your job to keep science and best management practices at the forefront of your decisions when developing legislation. Emotional, feel good policy is not reasonable for the agriculture industry. As a Committee, you are tasked with providing the type of environment for your agriculture constituents that allows them to have a manageable, profitable, and healthy livestock industry.

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May 8, 2007

Testimony by Wayne Pacelle

President & CEO

The Humane Society of the United States

Before the Committee on Agriculture Subcommittee on Livestock,
Dairy, and Poultry

on the Subject of the Welfare of Animals in Agriculture

1300 Longworth House Office Building

Thank you, Mr. Chairman, for the opportunity to testify on the critically important topic of the welfare of animals used in agriculture. I am Wayne Pacelle, president and CEO of The Humane Society of the United States (HSUS), the nation's largest animal protection organization with 10 million members and constituents – one of every 30 Americans.

I wish to thank Committee Chairman Collin Peterson and Subcommittee Chairman Leonard Boswell for convening this hearing and inviting me to testify, and also wish to thank the ranking members, Representative Bob Goodlatte and Representative Robin Hayes, for their help and participation. This hearing is a welcome development, and Chairman Peterson is in particular to be commended, since the Committee has not conducted a serious hearing on an animal welfare issue since 2000, even though animal welfare is clearly within the jurisdiction of this Committee. This Committee in previous years has taken a hostile posture toward animal welfare legislation, and the effects have been obvious. First, we have fallen short as a caring nation in providing the most basic protections to sentient creatures, and we are sorely and embarrassingly lagging behind Europe on animal welfare policy. Second, because of the Committee's hostility under previous leadership to even the most modest animal welfare legislation, advocates of this legislation have sought to redraft and rework the legislation to be handled elsewhere in the Congress, and this has ironically diminished this Committee's influence on animal welfare matters.

But the Committee has gotten off to an admirable start in this Congress by conducting this hearing and also by taking action on H.R. 137, legislation that increases penalties for interstate transport of animals for fighting. The Committee quickly discharged that legislation, expediting House consideration of the measure. The President has signed the animal fighting bill, and this is an important policy advance for animal welfare.

The issue of the inhumane treatment of animals bred and raised for human consumption or for agricultural use has been of serious concern to The HSUS and other animal welfare organizations for decades. Soon after its founding in 1954, The HSUS worked to help enact the Humane Methods of Slaughter Act, and has continued to advocate for more protection for animals during production, transport, and slaughter. Our staff has long included animal scientists and experts in the various fields of animal agriculture, and we have participated in national and international conferences on the issues surrounding farm animal welfare. Our senior scientist with our farm animal welfare staff, Dr. Michael Greger, recently published an acclaimed book, *Bird Flu: A Virus of Our Own Hatching*, on farm animal welfare issues as they relate to avian influenza. Dr. Greger has also met with the U.S. State Department and a number of poultry scientists regarding avian influenza and intensive animal production issues, and he served on an ad hoc committee the USDA convened for the emergency culling of birds. The HSUS is a member of the International Coalition for Farm Animal Welfare which reports to the Permanent Animal Welfare Working Group of the OIE; we advise Whole Foods Market in the development of its multi-tiered welfare standards; and we have recently advised both Oxfam and the World Bank's International Finance Corporation on their farm animal welfare guidelines. In addition, The HSUS conducts ongoing rural veterinary and disaster relief programs that provide assistance to animals in agriculture.

Farm Bill's Role in Animal Welfare Protection

The Farm Bill provides a logical opportunity for Congress to make important advances in animal protection by enacting broadly supported legislation in a number of key areas. Historically, the Farm Bill has served as a vehicle for enactment of some important animal protection legislation.

For example, in 1985, with public interest in the welfare of animals rising, especially in the wake of several scandals involving mistreatment of animals in research laboratories, long-developing proposals for an improved inspection system under the Animal Welfare Act found a natural home in the Farm Bill.

Championed by Senator Robert Dole and Congressman George Brown, the Improved Standards for Laboratory Animals Act was incorporated as part of the Farm Bill on December 12, 1985.

In 2001, the full House and Senate approved a number of animal protection measures with very broad bipartisan support in their respective Farm Bills – provisions dealing with animal fighting, downed animals, humane slaughter, and puppy mills. In a slap at animal welfare groups and the larger Congress, the House Agriculture Committee at that time worked actively to eliminate all of these provisions, with only the loophole-closing provisions on animal fighting retained in the 2002 Farm Bill conference. As a result, several of these issues are still awaiting final action in Congress several years later, and we believe that the 2007 Farm Bill provides an opportunity to finish the job.

Animals in Our Society

Animals play an important role in our society, and the bond we form with them is undeniable. More than 63% of all American households include pets – that is almost 70 million households with animals. In 2006, Americans spent more than \$38 billion on care and food for those animals, demonstrating a high level of devotion and compassion for their pets. Animal welfare has become a priority for Americans both with regard to their pets and for all animals. Consumers are increasingly concerned with ensuring that animals used for food and other products are treated humanely and with concern for their welfare.

All of the public attitude survey work conducted by The HSUS indicates that Americans care not just for the welfare of pets, but for all animals, even animals raised for food. Unfortunately, in the past several decades, agribusiness practices have become increasingly harsh and inhumane. Today's factory farms often treat animals as little more than meat-, milk-, and egg-producing machines – treating them as commodities, rather than sentient creatures.

For example, nearly 300 million U.S. egg-laying hens live in barren, wire battery cages so restrictive that the birds cannot even spread their wings. With no opportunity to engage in many natural behaviors, including nesting, dust bathing, perching and walking, these birds endure lives wrought with suffering.

Dr. Bernard Rollin of the Department of Animal Science at Colorado State University states that “Virtually all aspects of hen behavior are thwarted by battery cages....The most obvious problem is lack of exercise and natural movement....Research has confirmed what common sense already knew – animals built to move must move.”¹

But common sense doesn't always prevail and basic movement is not provided for animals on factory farms. In fact, the United Egg Producers recommends that each caged hen be afforded only 67 square inches of floor space – less space than a letter-sized sheet of paper on which to live for her 18 months before she's spent and slaughtered.

The entire European Union is phasing out barren battery cages by 2012, and European egg producers are already required to disclose on the carton if their eggs were laid by hens confined in cages.

At the same time, millions of breeding pigs in the U.S. are confined in two-foot-wide gestation crates, unable even to turn around. Pigs confined in these crates suffer immensely, unable to exercise or engage in nearly any of their natural behaviors. The forced immobilization takes a serious physical and psychological toll, leading to both leg and joint problems along with psychosis resulting from extreme boredom and frustration.

¹ Rollin BE. 1995. *Farm Animal Welfare: Social, Bioethical, and Research Issues* (Ames, Iowa: Iowa State Press, p. 120.

Numerous animal scientists oppose these cruel crates. Colorado State University animal scientist Dr. Temple Grandin states, "Gestation crates for pigs are a real problem...Basically, you're asking a sow to live in an airline seat...I think it's something that needs to be phased out."²

The entire European Union is phasing out gestation crates by 2013, and Florida and Arizona, thanks to voter-approved ballot initiatives, are phasing out the practice, as well.

Similarly, young male calves raised for veal are tethered inside individual crates or stalls so small the animals can't even turn around during their entire 16- to 18-week lives before slaughter. The cruelty of the veal crate is already well established. It's an issue this committee actually debated 18 years ago as a result of public outcry. During that hearing, Texas A&M animal scientist Dr. Ted Friend testified about a USDA-funded study on veal calf welfare:

Our results show that calves have a very strong drive to move or exercise that is blocked by chronic close confinement. The studies also found that maintaining calves in close confinement causes adverse physiological effects that alter metabolism and reduce the ability of the calf's immune system to respond to disease. All of these are changes in the body that are indicative of chronic stress.

The crated calves required approximately five times more medication than those in the less confining environments.

We also found that all of the symptoms of chronic stress were eliminated after the calves were removed from the crates....

To summarize, our studies found that maintaining calves in crates is physically detrimental to the calf, something that is common knowledge in the industry.

The Congress should have acted in 1989 on the issue, but it didn't. Since then, the entire European Union has banned veal crates and Arizona voters just made their state the first in the U.S. to do the same.

Another example of egregious cruelty is that of the foie gras industry. Ducks and geese are repeatedly force-fed grossly unnatural amounts of food through pipes thrust down their throats to make their livers fatty and diseased for production of foie gras.

According to the American Veterinary Medical Association, "Birds are force-fed mostly corn to create lipidosis, which expands their livers to several times their normal size."⁴ In fact, the massive intake of this unnatural amount of food can cause the liver to swell up to ten times its normal size. In other words, factory farmers deliberately induce a disease in order to produce this so-called "delicacy."

The Scientific Committee on Animal Health and Animal Welfare (SCAHAW) is the European Union's most authoritative scientific body on farm animal welfare. Members include a dozen professors of veterinary medicine and animal science from across Europe. Not surprisingly, after a thorough

² Comments Temple Grandin made during a Q&A session on January 9, 2006 at Manhattan Columbus Circle, 10 Columbus Circle, New York, NY. They can be heard at:

<http://nycanimalrights.com/Temple%20Grandin%20Animals%20in%20Translation.htm>

³ June 6, 1989 testimony on the Veal Calf Protection Act (H.R. 84) before a joint hearing of the Subcommittee on Livestock and Poultry, and Dairy and the Subcommittee on Department Operations, Research, and Foreign Agriculture. Page 36.

⁴ "Farm visits influence foie gras vote," AVMA News, September 1, 2005. Available at: <http://www.avma.org/online/news/javma/sep05/050901q.asp>

investigation, SCAHAW concluded that the force-feeding that is routine in the foie gras industry “is detrimental to the welfare of the birds.”⁵

While the federal government has yet to address the most pressing concerns about the treatment of farm animals, major corporations are responding to consumer demand and implementing reforms that are helping to improve animal welfare.

In just the past month, Burger King announced its commitment to buy 5 percent of all of its eggs from producers who do not confine hens in battery cages and 20 percent of its pork from gestation-crate-free producers by the end of 2007. It has also implemented a purchasing preference for cage-free eggs, gestation-crate-free pork, and chicken meat from plants using Controlled Atmosphere Stunning (CAS). Wendy’s just issued a statement asserting that it would encourage its pork suppliers to move away from gestation crates.

Restaurant chains aren’t the only corporations moving away from the worst animal agribusiness practices. Smithfield Foods and Maple Leaf Farms, the largest pork producers in the United States and Canada respectively, recently announced that they are both phasing out their confinement of breeding pigs in gestation crates. And Cargill, another major pork producer, reports that more than half of its sows are being raised in group pens as opposed to gestation crates.

Two of the largest veal producers in the United States, Strauss Veal and Marcho Farms, are now ending their confinement of calves in veal crates. In a written statement, the CEO of Strauss Veal even went so far as to call veal crates “inhumane and archaic.”⁶

Celebrity chef Wolfgang Puck just implemented a wide-ranging animal welfare plan for all of his restaurants from airport Gourmet Express cafés to Spago, including an end to his use of eggs, pork, and veal from animals confined in tiny cages and crates.

We’ve also seen grocery chains such as Whole Foods Market and Wild Oats Natural Marketplace refuse to sell eggs from caged hens, while AOL and Google refuse to serve these battery-cage eggs in their corporate cafeterias. Ben & Jerry’s has also implemented a phase-out of its use of battery-cage eggs in its ice cream. And more than 150 U.S. schools are now using cage-free eggs in their cafeterias – all of these universities making the switchover within the last three years.

The trend is apparent: Many of the common animal agribusiness practices are completely out of step with the moral sensibilities of most Americans, and corporate America is responding. The Congress should no longer lag behind America’s food retail sector. Corporate reform is no substitute for legislative action. There needs to be a level playing field among all producers, so that some farmers are not allowed to take a moral shortcut and gain an unfair economic advantage. The Farm Bill presents an opportunity to address this issue and provide long overdue standards in American agriculture on animal welfare. It is not acceptable to leave farm animals with virtually no legal protection from even the most egregious cruelty and to subvert animal welfare to efficiency. All animals—even those raised for food—deserve to be provided with care and decency.

⁵ European Commission, Scientific Committee on Animal Health and Animal Welfare (SCAHAW). 1998. Welfare aspects of the production of foie gras in ducks and geese (December 16, p. 65).

⁶ February 6, 2007 email from Randy Strauss to Wolfgang Puck Companies. Also available at http://www.hsus.org/farm/news/ournews/strauss_and_marcho_veal_crates.html

The refrain from apologists for the status quo that productivity is an indicator of welfare sounds logical, but this argument breaks down upon more careful examination. Animals will breed and grow even if they are suffering. With the genetic selection of rapid growth characteristics for almost all breeds of commercially raised animals, it is apparent that animals will reproduce and grow even if they are severely confined and if their welfare is severely compromised. In short, there has been a decoupling of rapid growth of the animals and sensible animal care.

There are two important bills pending that would help address these concerns.

Farm Animal Stewardship Purchasing Act

The Farm Animal Stewardship Purchasing Act (H.R. 1726), introduced by Representatives Peter DeFazio and Christopher Shays, would require that those producers supplying food to the federal government – for the military, federal prisons, school lunches, and other programs – meet a basic set of modest welfare standards for farm animals.

It must be noted that, with more than 10 billion farm animals raised for meat, eggs, and dairy products in the U.S. each year, federal law does not provide *any* protection for these animals while they are on the farm. Congress decided nearly half a century ago, with the Humane Methods of Slaughter Act of 1958, that farm animals must have a decent death, but there is not a single federal law requiring that chickens, pigs, cows, or other farm animals have a decent life.

The Farm Animal Stewardship Purchasing Act is modeled after the original Humane Methods of Slaughter Act, which also began to address a serious problem through government purchases. H.R. 1726 doesn't mandate industry-wide compliance, but instead applies only to those producers who voluntarily choose to do business with the federal government. Based on publicly available data, we estimate that this may involve approximately 1% of total meat, eggs, and dairy products sold in the U.S.

H.R. 1726 enables the federal government to help lead the way by example, rather than by imposing new regulations on industry. The Act will stimulate markets for producers using higher welfare standards and ensure that billions of federal tax dollars are spent in a manner consistent with American values.

This legislation is simple and cost-effective because its provisions are self-executing. The Farm Animal Stewardship Purchasing Act will be enforced via the General Services Administration's existing government procurement procedures, along with other standards such as wage and labor requirements and fuel economy standards for government vehicles. The Act will not require any new USDA regulations or action.

The bill requires producers who supply farm animal-derived products to the federal government to ensure that the animals have space to turn around and extend their limbs, have adequate food and water (no routine force-feeding or starvation), and receive adequate veterinary care, including prompt treatment or humane euthanasia when sick or injured. These extraordinarily modest standards mean that federal suppliers cannot engage in the most inhumane current industrial farming practices – intensive confinement in battery cages, gestation or veal crates, forced molting of laying hens through starvation, forced feeding for foie gras, hauling of downed animals to slaughter or leaving sick or injured animals to languish without treatment or humane euthanasia.

Just as Congress saw fit half a century ago to give farm animals a merciful death, it's time for Congress to begin addressing the most inhumane conditions they face during the longest period of their lives.

Downed Animal and Food Safety Protection Act

The other pending farm animal welfare bill that we urge Congress to enact this year is the Downed Animal and Food Safety Protection Act (H.R. 661), introduced by Representatives Gary Ackerman and Steve LaTourette. “Downed animals” – those too sick or injured to stand and walk on their own – pose serious risks to public health. At least 12 of the 14 cases of BSE (bovine spongiform encephalopathy or “mad cow disease”) to date found in North America have reportedly involved downed animals. (The only cases not identified as downers were a Canadian cow exhibiting “abnormal locomotion and posture” who was euthanized and a Canadian cow who was dying.) Just last week another downed cow in Canada was confirmed to be BSE-infected.

Non-ambulatory cattle are not the only downer animals who may jeopardize the health of Americans. Scientific studies have pointed to the possibility that pigs, whose diet can include ground-up cattle remains, may harbor a porcine form of mad cow disease. In addition, downed farm animals in general may pose increased risks of transmitting dangerous infections such as E. coli and Salmonella – which kill thousands of Americans every year – as these animals often lie in bacteria-laden waste and have higher levels of intestinal pathogens due to stress. The USDA does not routinely test downed animals for these illnesses at slaughter plants.

Besides the grave public health risks, many Americans are concerned about the animals’ welfare. Downed animals of any species suffer terribly. Often dragged by chains, pushed by bulldozer, or otherwise forcibly moved to slaughter, downers may be left to languish for days without food, water, or veterinary care.

Just two weeks after the first known case of BSE in the U.S. was reported in December 2003, the USDA announced an administrative ban on the use of any downed cattle for human food, providing an important safeguard for consumers and animal welfare. The livestock industry’s trumped-up predictions that a downer ban would devastate the industry have proved entirely unfounded, just as we predicted, and we are now three years into the administrative ban.

Nevertheless, some in the industry have been pushing to have this rule weakened. They argue that downers with injuries pose no threat to public health – even though at least three of the identified cases of BSE in North America so far (including the cow in Washington state whose meat went on to markets and consumers in various states in 2003) have involved cows believed by authorities to be downed due to injury. The fact is, it’s very difficult for an inspector to properly determine why an animal is down, and injury and illness are often interrelated – a broken leg may simply be the observable result of the weakness, abnormal gait or disorientation associated with an underlying disease. Major consumer groups including Consumers Union and Consumer Federation of America, support groups for victims of food-borne illness such as Safe Tables Our Priority (S.T.O.P.), Creutzfeldt-Jakob Disease Foundation, and CJD Voice, food safety organizations, companies such as McDonald’s and Wendy’s, and many others have pointed out how reckless it would be to have a system that relied on inspectors attempting to distinguish injured downers from ill downers (see, for example: http://www.hsus.org/web-files/PDF/Letter_opposing_HR4121.pdf).

Moreover, regardless of the reason an animal can’t walk, dragging or hauling that animal to slaughter is utterly inhumane. To those who say, “It’s just a broken leg so there’s no problem,” I’d ask, “Have you ever broken your leg?” Treating an animal with a fracture this way is unconscionably cruel. A comprehensive ban on approving meat from any downed animal is also needed to help ensure that producers take extra care to keep animals from becoming downed in the first place. Dr. Temple Grandin – advisor to the American Meat Institute and others in the meat industry – has noted that as many as ninety percent of all downers are preventable. It is precisely the cases that involve broken bones and

other injuries that are the most preventable with improved animal husbandry and handling practices on the farm and during transport. A no-downer policy promotes better husbandry practices, and prevents animals from going down in the first place.

Allowing downers to be slaughtered is not only risky and inhumane, it is also at odds with the larger economic interests of the industry. It makes no sense to increase the degree of economic risk for a multi-billion-dollar livestock industry in order to wring a few dollars from a small number of downers. According to the USDA, even before its administrative ban took effect, downers comprised just 0.4% to 0.8% of all cattle slaughtered annually in this country. Most responsible producers try to keep their animals from getting sick or injured, and euthanize any who do become downers while they're still on the farm. That's what the public wants – even before the first identified mad cow case in this country shined a media spotlight on the issue, a September 2003 Zogby poll revealed that 77% of likely U.S. voters opposed using downers, and 81% were concerned that sending downed animals to slaughterhouses could put consumers at risk.

In fact, if the Congress and the industry had heeded The HSUS's request to impose a downer ban prior to the 2003 finding of a BSE-positive cow, the effect on the industry would not have been as severe. With the BSE-positive finding in Washington state, 44 nations closed their markets to American beef. Secretary Johanns and his staff have spent countless hours attempting to restore international confidence in the American beef supply, and had the United States had a safeguard in place in the form of a no-downer policy – as a firewall against an infected animal being processed for human consumption – that effort would not have had the same degree of difficulty. The United States should have heeded the data from Europe showing a clear correlation between downers and BSE. It was a classic case of the industry, and its allies in Congress, being penny-wise and pound-foolish, in attempting to exact a profit from these abused and suffering animals.

Some industry opponents argue that downed animals must be sent to slaughterhouses in order for the USDA to conduct disease surveillance. But the USDA itself stopped relying on inspections of crippled cows during slaughter, opting instead for surveillance on the farm and at rendering plants. It simply makes no sense to transport live animals at high risk of transmissible diseases to facilities where their meat can be erroneously approved as safe and enter the food supply. While there were as many as 200,000 downed cows a year, there were more than 1 million dead stock on farms – five times the number of downers, yet there was no clamor by industry to test any of these animals.

We commended the USDA for imposing its interim administrative downer ban in January 2004. That ruling was enormously well received by the public. Of approximately 22,000 comments submitted to the agency, more than 99% supported maintaining and strengthening the ban, with most asking that other species be included (for a report on the comments received by the agency, see http://files.hsus.org/web-files/PDF/2004_06_16_rept_USDA_comments.pdf). But the USDA still has not issued a final rule to implement its policy, and a 2006 report by the agency's Office of Inspector General revealed major gaps in enforcement. From a sample of 12 slaughterhouses checked during a 9-month period, the IG found that 29 downer cows had been slaughtered for human food. The IG noted the lack of documentation on the animals' fitness for consumption and observed that the animals had been transported by forklift.

The Downed Animal and Food Safety Protection Act is long-overdue legislation. In 2001, the Senate and the House each approved provisions, as part of their Farm Bills, requiring humane euthanasia of downed animals, but this language was removed in conference. The Senate approved an Akaka amendment to the FY 04 Agriculture Appropriations bill in November 2003 barring USDA approval of meat from downers for human food, but that provision was also dropped in conference. And the Senate approved an identical amendment to the FY 06 Agriculture Appropriations bill in September 2005 that was likewise removed in

conference. It's time to enact a permanent and comprehensive downer ban, for the sake of public health and animal welfare.

Poultry Slaughter

One other key farm animal welfare issue that we hope Congress will address this year is the need for more humane methods of slaughter for poultry. As noted before, federal law dating back to the 1950s has required that animals be rendered "insensible to pain" before the slaughter process begins. This modest requirement reflects society's belief that animals, including those raised for food, should not suffer unnecessarily.

The Humane Methods of Slaughter Act covers cows, pigs, sheep, and other livestock, but the USDA has not interpreted it to cover poultry. This gap in coverage is particularly outrageous because poultry – chickens, turkeys, ducks, and other birds – now make up more than 95% of animals killed for food in the U.S. (a far higher proportion than in the 1950s when the law was originally passed). In other words, 9 billion birds each year are slaughtered without even the most minimal requirement for a merciful end.

Chickens and turkeys at slaughter plants are typically collected manually by workers at an intense pace (up to 180 birds per minute) and shackled upside down by their legs on a fast-moving mechanized line. Still conscious, they are dragged through an electrified vat of water designed to immobilize them, passed over a neck slicer, bled out, and then dropped into scalding water to loosen their feathers. Due to the speed of the assembly line and their own desperate motions, some birds are not immobilized, but aspirate the feces-laden water and drown. Others miss the neck slicer and are literally scalded to death.

While discussing electric immobilization systems, University of Georgia poultry scientist Dr. Bruce Webster stated, "The current dumping-shackling-electrical stunning process is a dinosaur"⁷ and suggested that using gas mixtures that cause less suffering is the future for the poultry industry.

It is not only animal scientists and animal welfare advocates who see the need for change. Even poultry slaughterers are beginning to recognize that the conventional method of poultry slaughter involves needless suffering. In a press release, Nebraska-based MBA Poultry stated, "There have been numerous studies conducted that lead us to believe that the typical electrical stunning systems used in the U.S. can cause severe welfare problems for millions, and possibly billions, of birds each year."⁸

In addition to this systematic suffering, the lack of legal coverage for humane treatment also allows egregious abuse to occur. Horrifying cruelty was exposed in 2004, as workers were captured on film repeatedly, deliberately stomping on chickens, kicking and hurling them against a wall apparently for "fun" at a Pilgrim's Pride facility in West Virginia. Pilgrim's Pride is the second largest poultry processor in the country. While several employees were fired in response to the particular abuses revealed on film and resultant media attention, this case starkly highlights how far matters can go awry without appropriate rules and government oversight. Even in the face of overt cruelty, the USDA claimed that it could not bring any enforcement action against the plant for violations of the federal humane slaughter law. Similar abuses were revealed in undercover footage taken in 2005 at a Tyson Foods chicken plant in Alabama and in 2006 at a Butterball turkey plant in Arkansas.

⁷ "Experts link bird welfare to company culture," Meatingplace.com Daily News, January 28, 2005.

<http://meatingplace.com/MembersOnly/webNews/details.aspx?item=13755>

⁸ "MBA Poultry announces installation of CAS system to improve Animal Welfare," MBA Poultry press release, January 3, 2005. Available at <http://www.smartchicken.com/itm.html>

It's time for Congress to amend the Humane Methods of Slaughter Act to explicitly include poultry. In doing so, Congress must not lock in the current technology by designating it "humane" as a matter of law. The promising new approach referenced by Dr. Webster and already in use in a few U.S. facilities and more in Europe, offers "win-win" benefits for industry's bottom line and for animal welfare. With a process called Controlled-Atmosphere Stunning that uses gas, poultry can be killed with dramatically less suffering before they are removed from their transport crates, reducing the handling of live birds and the potential for abuse. When done properly, birds do not detect the gas and are rendered unconscious with minimal suffering. U.S. poultry processors have shown some interest in this approach because of the potential for cost-savings and greater productivity – as fewer birds are lost to bruising and broken bones – as well as for improved worker safety and employee retention.

And Dr. Grandin, widely regarded as a leading authority on the welfare of animal during slaughter, also supports a switch, listing numerous animal welfare benefits and concluding, "The U.S. poultry industry should move toward controlled-atmosphere stunning."⁹

We look forward to working with the Committee to correct this gaping hole in animal welfare protection.

Other Animal Welfare Issues for Consideration

Puppy Mills and Imports

The issue of inhumane treatment of animals kept and bred for sale to the public as pets has long been a concern to The HSUS and other animal welfare organizations. We have conducted investigations and provided support for local communities, prosecutors, law enforcement, and the USDA in order to prevent or remedy the inhumane treatment of dogs and cats in large-scale dog and cat breeding operations. Documented problems at major breeding operations include a lack of veterinary treatment, long-term confinement, unsafe and dilapidated housing, inadequate protection from the elements, excessive breeding, and a lack of basic sanitation.

Two areas of critical importance need to be addressed by legislative action: the importation of puppies to the United States and the lack of oversight of retail sales leading to serious cruelty and consumer concerns.

We are deeply distressed by the problem of importing puppies from other countries to the U.S. for use in the pet trade. Not only are we in no need of puppy imports, with a healthy dog and cat breeding industry in the United States and some 2-3 million dogs and cats euthanized in our shelters annually, but the process of importing these very young animals is inherently and grossly inhumane. A growing number of breeders in China, Eastern Europe, and other countries see the U.S. as a potential market, and are mass producing puppies with no humane regulations or oversight. There is little regulation or oversight of these imports. It is difficult for the USDA to determine the origin of dogs and cats coming into the U.S. and trace their pathway, allowing for better control of disease, behavioral problems and inhumane treatment. One incident reported by CNN last March detailed how puppies had their bellies cut open and heroin was placed inside as a transport method used by a Columbian heroin ring. At least ten puppies were discovered at a Columbian farm raided as part of an enforcement action. The U.S. Drug Enforcement Administration reported that six of the puppies had more than 6.6 pounds of liquid heroin in their stomachs. More commonly, the problems associated with shipping newly born puppies to the U.S. in cargo holds are that many arrive either dead or seriously ill and unable to recover from the rigors of such travel, while others become ill upon arrival. They will often be shipped by rail or truck to the airport

⁹ Temple Grandin, "Hatching innovations in poultry stunning," MEAT&POULTRY, July 1, 2005

in a foreign country and then subjected to long flights in cargo holds, housed as a group. This is inordinately stressful to puppies under 10 weeks old, and it encourages the spread of disease among the litter. One veterinary clinic associated with John F. Kennedy Airport in New York reports as many as 10-15% of puppies are dead on arrival. Some importers hold the puppies for 10 days prior to sales to new homes to ensure that all those puppies who will not survive die before the new owner takes title, masking the level of suffering and death involved in these imports.

It is difficult to obtain detailed information on the import of puppies to the U.S. because of the lack of oversight and documentation, but John Hoffman of the French Bull Dog Rescue Network estimates that at least 5,000 Bulldogs and French Bulldogs are being sold over the Internet and imported into the U.S. annually, and a total of at least 10,000 puppies are imported to the U.S. each year. The Center for Disease Control Office at the Los Angeles International Airport estimates that approximately 600 puppies are received at LAX per month. Most come from former Soviet bloc countries such as Russia, Ukraine, Hungary, Poland, Latvia, and Lithuania.

Our second area of concern regarding dog and cat breeding is the lack of coverage for breeders in the U.S. who sell directly to the public via the Internet or other means. Under the USDA's interpretation of existing federal law, only those breeding operations selling puppies or kittens at wholesale are licensed and inspected. Licensing and inspection not only provides a safeguard for animals to help prevent inhumane treatment, but it also empowers the USDA to take action when animals must be removed from abusive situations. Another critical function of the inspection process is that it provides citizens with basic information regarding cruelty or inhumane treatment at some facilities and patterns of neglect or abuse.

However, under current law, this coverage and protection is denied to the tens of thousands of dogs and cats kept at breeding operations that sell directly to the public. Historically, "retail" operations, those who sell directly to the public with no broker, have been deemed exempt as "pet stores" by the USDA. Ostensibly, the pet store exemption is based on the fact that pet stores aren't breeding animals, so they need not be regulated to ensure humane breeding conditions. Moreover, Congress may have felt that pet stores are open to the public and their conditions are readily apparent to consumers, allowing for informed decision-making, as consumers would notice the effects of chronic abuse and neglect.

Unfortunately, with the advent of the Internet, including its use for commercial purposes, large-scale breeders have taken advantage of this pet store exemption, shifting to a retail-based business using the Internet to sell puppies and kittens and sidestep any federal oversight. As a result, we have witnessed a growing trend in cruelty cases involving breeders who sell their animals over the Internet. Essentially, we have a group of people who are required to play by federal standards when selling animals wholesale, and a growing group of people who play by their own set of rules because of a massive loophole in the law and the regulatory process.

A small sample of these cases reveals a disturbing pattern of neglect and abuse directly traceable to the retail pet store exemption:

- In 2000, a Lyles, Tenn. investigation uncovered 164 dogs kept with no food or water and in squalid conditions at the home of a retail dealer exempt under the pet store provision.
- In Shelby, Mont., a 2002 raid by local officials resulted in the seizure of 171 dogs and 10 cats from an Internet dealer when they were discovered living in four inches of feces, emaciated, dehydrated, and suffering from severe ear infections, intestinal parasites, and malnutrition.
- In 2003, another 250 dogs were discovered in knee-deep feces and crammed together in rabbit hutches at the home of an Internet dog dealer in Union County, N.C.

- In 2004, investigations revealed a retail Internet dealer in Berry, Ky., where 108 dogs were literally covered in feces, had frozen water bowls, and one dog was discovered frozen solid.
- In a 2004 Macomb, Mo. case involving an Internet dealer, 147 live dogs and four dead dogs, all with severely matted fur, were found in dilapidated wire cages, covered in feces, many with eye ailments, hair loss, deafness, blindness, and tumors.
- In 2005, 151 dachshunds and Springer spaniels and one cat were found, many described as “skin and bones” at the home of a retail dealer in Vero Beach, Fl.

None of these operations was subject to the regulatory authority of the USDA under the Animal Welfare Act because these facilities sold their dogs and cats directly to the public, evading coverage through the “retail pet store” exemption. This list will continue to grow until we take action to close this loophole in the Animal Welfare Act. We are deeply disturbed by this new kind of dog breeder – those who breed large numbers of animals and sell them over the Internet.

In most states, there are no laws requiring licensing or inspection of these breeding businesses. Those states that do have laws vary in their coverage and oversight. It is nearly impossible for states to plug the loophole in federal law, given the use of interstate commerce instrumentalities by these businesses. Animals are bred in one state, sold over the Internet, and shipped by air to the pet purchaser several states away. This interstate commerce also makes it nearly impossible for breeders to be held accountable if a puppy becomes ill or dies. Without any inspecting agency to report problems to, these animals and the families who purchase them are left completely unprotected.

The existence of this loophole is a crisis for consumers, as well as for the animals unfortunate enough to be commercially sold through a breeder using the Internet. The HSUS has seen, over the last several years, a substantial increase in the number of cases reported to us from puppy buyers who have purchased a dog over the Internet only to have their puppy become ill or die within weeks of purchase. We receive hundreds of calls from consumers annually, and have been able to document the harm this growing, unregulated business has inflicted on consumers, as well as the animals. Young children who form a close bond with their puppies experience their own form of grief when these animals become sick and die. Some puppies, raised in intense confinement and isolation, are unable to adapt to life in their new home because they have not been properly socialized. Consumers cannot see the first stirrings of disease and behavioral problems in animals purchased over the Internet and only discover these problems after they have lived with a puppy for weeks or months.

Their tragedy is compounded when they feel forced to surrender the animals to a shelter or to euthanize their new pet. Because the breeding business may be located several states away, consumers are often unable to recoup any financial losses for the exorbitant veterinary bills and other expenses related to puppy mill puppies. Local communities bear the brunt of this loophole for Internet breeders when many of these animals are ultimately seized by or surrendered to chronically under-funded municipal shelters or animal control operations. For consumers who are concerned for the welfare of the other dogs and puppies at the breeding business site, based on the condition of their puppy upon arrival, there is often no agency to which they can report their concerns. While The HSUS works to educate puppy buyers about ways to locate reputable breeders who properly care for the dogs they keep and the puppies they raise, there needs to be a government agency available to enforce standards for humane care and handling for all major breeders.

It simply does not make common sense to exempt large breeding businesses because they are employing new and unforeseen technology to evade oversight. Legislation addressing these problems will provide tremendous benefits to consumers, to animal shelters and rescue groups, to the breeding community as a whole, and to the thousands of animals produced annually at commercial breeding facilities.

Class B Dealers

In 1966, public outrage in response to the theft of pets for research and the neglect of laboratory animals led to the passage of what is known today as the Animal Welfare Act (AWA). But over 40 years later, illegally acquired dogs and cats are still being bought by Class B dealers who sell them to laboratories for experimentation. "Random source" dogs and cats are collected from auctions, flea markets, and "bunchers" (unlicensed dealers who gather animals through free-to-good-home ads or outright pet theft) and sell them to Class B dealers. These animals are often handled abusively – exposed to harsh weather extremes, denied sufficient food, water, and veterinary care – and hauled across state lines, making it nearly impossible for their families to find them. The USDA is spending more than \$250 million per year trying to regulate these last 15 dealers who sell random source dogs and cats. Three of these dealers are currently under investigation by the USDA for apparent violations of the AWA. The Pet Safety and Protection Act (H.R. 1280/S. 714), championed by Representatives Mike Doyle (D-PA) and Phil English (R-PA), and by Senator Daniel Akaka (D-HI), would finally put an end to this corrupt activity by prohibiting the sale of random source dogs and cats to laboratories by Class B dealers.

An estimated 90,000 dogs and cats are bought by research laboratories and veterinary schools in the U.S. each year. Approximately 70% of the animals come from breeders (Class A dealers), 20% come from random sources through Class B dealers, and 10% come directly from pounds. At least 31 of the top 50 research universities in the U.S. do not currently use random source dogs and cats for research – many have a strict policy against their use. According to Dr. Robert Whitney, former Director of The National Institutes of Health (NIH) Office of Animal Care and Use:

...the quality of procurement and care of random source animals from Class B dealers creates many problems in the public perception for biomedical research community, and potentially research itself. Despite the small number of animals obtained from these sources, their use portends many more problems than the benefits which might be derived. The continued existence of these virtually unregulatable [sic] Class B dealers erodes the public's confidence in our commitment to appropriate procurement, care, and use of animals in the important research to better the health of both humans and animals. This bill... is a moderate, sensible approach which will continue to provide access to dogs and cats for research..."¹⁰

During Dr. Whitney's 20-year tenure at NIH, random source dogs from Class B dealers were never used in intramural research; this is still the case at NIH.

The Pet Safety and Protection Act prevents stray animals, who may be lost family pets, from ending up in laboratories, and protects companion animals from theft by removing the financial incentive to steal and sell them to research. In no way does this legislation hamper biomedical research, as it preserves the other currently available sources of dogs and cats for research; it does stop unscrupulous individuals from turning quick profits off randomly acquired animals.

In an undercover investigation by Last Chance for Animals¹¹, video footage revealed bunchers admitting to stealing pets in order to sell them to C.C. Baird, one of the nation's most notorious Class B dealers.

¹⁰ Letter from Dr. Robert Whitney to the Members of the U.S. Congress in support of the Pet Safety and Protection Act., June 12, 2006.

¹¹ Video footage obtained at a Trade Day and Flea Market in Ripley, Mississippi, by an investigator hired by Last Chance for Animals, 5/22/2001.

After hundreds of violations of the AWA for fraudulent health records, acquisition of stolen pets, and failure to provide veterinary care or meet even the most basic humane requirements, Baird was fined the largest penalty ever assessed for violations of this law, and shut down permanently. In this investigation, one dealer touted, "I know a few boys that go into rich neighborhoods... they get some of them rich peoples' dogs and they don't even know what happened to 'em," while another admitted, "[W]ell, let's face it, it's not legal, you know. I took stolen dogs to him ...I think well – that could be a child's dog. You know – that could be a pet, ya know... Hey, a buck's a buck."

Random source dogs and cats from Class B dealers are poor subjects for sophisticated modern research. They have not had standardized breeding, care and upbringing, and consequently have an uncertain genetic background, medical history and current condition, and temperament for living in an institutional setting. These circumstances make them poor candidates for medical experiments. Many random source dogs and cats end up in training and educational programs where suitable alternatives are available. There simply is no evidence that the absence of the Class B system would impede education, testing, or research.

Again and again, we hear about inhumane treatment of random source dogs and cats at Class B dealer facilities. The remaining 15 Class B dealers that sell these animals to research continue to be a cause for great concern among animal welfare organizations, and a strain on the USDA's limited resources. The HSUS urges swift consideration of this legislation to finally put an end to this deceptive cruelty.

Animal Welfare Act Amendments

In January, a sales demonstration on a live dog at an Ohio medical center exposed a glaring weakness in the AWA. The dog was induced with an aneurysm so that the surgeon could demonstrate a new medical device. Two dozen of the device manufacturer's salespeople watched the demonstration, and some non-medically trained salespeople participated in the hands-on exercise. According to news reports, the surgeon thought it would be "fun" for the sales representatives to use the device; the exercise had nothing to do with the advancement of medical science. The procedure was repeated several times on the dog, who was later killed. Although the hospital's Institutional Animal Care and Use Committee and the USDA condemned the demonstration, the AWA doesn't expressly prohibit such uses of animals.

Representatives Steve Israel and Mark Kirk have introduced a bill to prohibit the use of live animals in sales demonstrations. Also under this new bill, research institutions that violate the AWA would face maximum fines of \$10,000 (the current maximum fine under the AWA is \$2,500). Fines would also be calculated based on the number of animals affected per violation, rather than just the number of violations. In its September 2005 audit report, the USDA's Office of Inspector General recommended these changes after it determined that many research facilities consider the current penalty system merely a cost of conducting business – and not a strong deterrent to violating the law.

This bill would also reinstate a former requirement, in effect until May 15, 2000, that the USDA provide Congress with an annual report that includes the identities of all USDA-licensed research facilities, exhibitors, and other establishments; the nature and place of all USDA-conducted investigations and inspections, as well as reports received by the USDA from research facilities; recommendations to improve the administration of the AWA; and suggestions concerning air transport of live animals. Congress must have the necessary information to hold the USDA accountable for its enforcement of the AWA.

Conclusion

There is a backlog of reforms needed to improve the lives of animals used for agriculture, the pet trade, and research and testing. Rather than pursuing a piecemeal approach, this Committee, and the entire Congress, should handle these matters in a separate title in the Farm Bill focused on animal welfare. Humane treatment of animals is an important matter to millions of Americans, and the issues I've outlined today would all be important components of comprehensive legislation regarding our nation's animal welfare and agriculture policies. Again, we appreciate the opportunity to offer testimony today and to work with you in developing a bill that achieves much-needed reforms for animal welfare. Thank you.

TESTIMONY OF

**Gail C. Golab, PhD, DVM
Associate Director, Animal Welfare Division
American Veterinary Medical Association**

**Concerning a
Review of the Welfare of Animals in Agriculture**

**Before the
Subcommittee on Livestock, Dairy, and Poultry
Committee on Agriculture
United States House of Representatives**

May 8, 2007

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to provide input on behalf of the American Veterinary Medical Association as you consider how the welfare of agricultural animals might best be assured. The AVMA currently comprises more than 75,000 members, representing approximately 86 percent of the nation's practicing veterinarians.

Animal welfare, not surprisingly, is of primary importance to veterinarians and to the AVMA. Animal welfare, in fact, was identified as one of the AVMA's top five critical issues during its recent strategic planning process. In fulfillment of one of the goals established for this critical issue, the AVMA has developed and published its overarching Animal Welfare Principles¹ (Appendix A), which serve as a guideline for the AVMA in making decisions and initiating actions on animal welfare concerns. The Association is also dedicating substantial resources to proactively address the veterinary profession's abiding interest in animal welfare. One aspect of those increased resources is a revamped and expanded volunteer Animal Welfare Committee; another is the creation of a Division of Animal Welfare dedicated to this topic. I serve as the Associate Director of that Division.

This hearing is likely to highlight some differences that exist among stakeholders with regard to how we believe animals should be used and cared for. An important underlying truth is that most people in the United States believe it is acceptable to use animals for food and fiber, as long as the welfare of those animals is good.² The AVMA has indicated its explicit agreement with this approach via the first of its eight Animal Welfare Principles.

But what is good welfare? When evaluating animal welfare, it is important to be clear about what people mean when they say this. Animal producers tend to cite elements of good health and normal biologic function (e.g., adequate weight gain, reproductive efficiency) as evidence of good animal welfare, whereas animal activists are often most comfortable with a vision that allows animals to live in natural environments. The dichotomy between the two groups is a result of different experiences leading to different value frameworks.³ These differing value frameworks are used by each group when they judge how animals should or should not be used and cared for.

Veterinary medicine is a scientific discipline. That means veterinarians are most comfortable making data-based decisions. Animal welfare can present challenges, because, as I just mentioned, its decisions involve a value component, and science is not set up to make moral determinations. The AVMA Animal Welfare Principles recognize this. However, animal welfare science is a problem-solving discipline and, as such, it can often contribute information that can help us find solutions when existing systems or proposed changes do not appear to work within our value framework. In short, it serves as a kind of golden parachute. When questions or concerns are raised by society about animal care, animal welfare science attempts to answer those. Animal welfare science is a new and applied science that has emerged from existing scientific disciplines, such as physiology, neurobiology, ethology, epidemiology, and pathology. Rather than seeking specialization within those disciplines, it integrates information from them in an attempt to answer broad questions.

Although the degree of importance attributed to each element making up an animal's overall welfare state may vary, the AVMA believes no assessment of animal welfare is complete unless all pertinent elements are considered. It is not satisfactory, for example, to judge the welfare of an animal on the basis of its physical health without regard for whether it is suffering or frustrated; nor is it appropriate to conclude that an animal that can engage in species-typical or "natural" behavior(s) has a good state of welfare without also evaluating its health and biologic function. Veterinarians, by virtue of their broad-based training, are extraordinarily well-positioned to integrate and bring the relevant elements of animal welfare science to the table to assist key decision-makers in making good decisions. These skills of veterinarians, combined with the promise of a science that is multi-disciplinary and an understanding of the importance of input and buy-in by a variety of stakeholders, are what inspire the AVMA's current approach to animal welfare.

Two high-profile issues currently under the microscope of animal welfare advocates and some members of the public can be used to demonstrate the power of animal welfare science to assist not only in decision-making, but also in ensuring positive animal welfare outcomes. These issues are space allowances in cages housing laying hens and the use of gestation stalls for housing pregnant sows.

With respect to cages for laying hens, science was able to document not only a need for change, but also how this type of housing for laying hens needed to be adjusted to improve animal welfare. In the late 1990s, recognizing animal welfare as an emerging public concern, the egg industry pulled together a multi-disciplinary team comprising animal scientists, veterinarians, a public policy specialist, and a representative of the humane community and charged them with conducting a scientific review and making recommendations for revision of that industry's animal care guidelines. This multi-disciplinary team explored nearly 30 years of production and mortality data collected with laying hens housed at different space allowances. Their review⁴ suggested cage space needed to be increased from 48 square inches per hen (the dimensions recommended in a set of 1983 industry guidelines) to a range of 67 to 86 square inches per hen based on bird size. In this case, the industry guideline was not aligned with research findings or societal expectations. By phasing in space allowances according to science-based parameters, the industry discovered that hen welfare improved and economic benefits were realized through improved egg production. This experience taught us two important things: first, that science could be used to help define and resolve an animal welfare problem and, second, that science should be used initially in the drafting of animal care guidelines, rather than called in after the fact.

The evaluation of the welfare of sows housed in gestation stalls is an example of where application of animal welfare science can point out fallacies in simplistic solutions. Comprising individuals representing expertise in multiple scientific disciplines and multiple stakeholder interests, including the humane community and the industry, the AVMA's Task Force on the Housing of Pregnant Sows conducted a comprehensive review (Appendix B)⁵ of the scientific literature on housing systems for pregnant sows with the intent of determining the appropriateness of the use of gestation stalls. By evaluating information on biologic function, behavior, physical health, and production, the members of our Task Force were able to determine that current stall systems minimize aggression and injury, reduce competition, allow individual

non-competitive feeding, and assist in control of body condition. Stalls, however, also restricted movement and exercise, did not allow sows to practice normal foraging behaviors, and restricted social interaction. Current group systems were found to permit freedom of movement and social interaction, but also to hold the potential for aggressive interactions, injury, and uneven body condition if not managed appropriately. In this case, the science couldn't identify a particular housing system as being unequivocally superior (i.e., there was no quantitative way to determine how much behavioral freedom was equal to how much risk of injury), but it did provide information suggesting that simply banning a particular system was probably not a quick-and-easy solution to improving sow welfare overall. It also identified areas of focus for future improvements in sow housing design. Current AVMA policy on this issue (Appendix C)⁶ reflects the findings and recommendations of its Task Force.

There is a considerable disconnect in experience between most members of the American public and the people who actually raise animals for food and fiber. In addition, interest in animal care and welfare among the American public has been increasing. As a result, sometimes people become fixated on forcing changes that they think will improve animal welfare when, in reality, that might not be the case. At the same time, animal agriculture, responding to the public's desire for inexpensive, high quality food products, actively pursues the most efficient way to produce those products. That pursuit can create conflicts of interest, and sometimes negative impacts, when attempts are made to balance the bottom line against animal welfare.

Pulling together societal expectations and industry needs is a lesson in recognizing that guidelines for animal care benefit from being both science-based and dynamic. When animal care guidelines were originally established by the egg production industry, induced molting was a controversial subject. Molt induction had great economic benefits for the industry. It also had some animal welfare benefits in that extending the useful life of the hen meant that fewer hens were needed to produce a desired quantity of eggs. For this reason, the industry was not inclined to abandon molt induction, but recognized that current methods of feed withdrawal were not in line with public value frameworks. Certification guidelines that allowed a molt were established, but research on alternatives was also solicited and funded. When more humane methods of inducing a molt were identified, the AVMA revised its recommendations regarding molt induction.⁷ Similarly, at the advice of the egg industry's scientific animal welfare advisors, industry guidelines were changed to disallow molt induction via feed withdrawal.⁸ In this case, attention only to public pressure would have resulted in complete abandonment of a production practice that actually accrued some welfare benefits. Instead, after soliciting the assistance of scientists and veterinarians, the industry was able to move toward a more humane approach, but still retain the benefits of this production practice.

Common sense and science depend on each other to reach sound conclusions on animal welfare. Multi-disciplinary, scientific input is important when it comes to giving an account of the various problems animals may face when people attempt to manage them in accord with their use. As illustrated by example throughout my submitted testimony, components of animal care cannot be considered in isolation. Consideration of all aspects of a production system is critical in determining what changes, when implemented, will actually improve the quality of life of animals. Common sense, empathy, cultural values, and multi-stakeholder input are important when we attempt to determine what level of animal welfare risk is acceptable.

In acting on recommendations regarding animal welfare, the AVMA hopes government officials will ensure that:

- ◆ Sound science serves as the basis for any recommended interventions;
- ◆ Actions are consistent with the reason for intervention and are based on a comprehensive risk assessment;
- ◆ Responses are proportionate, and a complete assessment of costs and benefits is performed and considered;
- ◆ Decisions are made in partnership with key stakeholders; and
- ◆ Resulting actions will promote a welfare-friendly and sustainable agricultural industry.

On behalf of the American Veterinary Medical Association, my sincere appreciation for the opportunity to speak with you today.

¹American Veterinary Medical Association. Animal Welfare Principles. Available at: http://www.avma.org/issues/policy/animal_welfare/principles.asp. Accessed May 8, 2007.

²Kendall HA, Lobao LM, Sharp JS. Public concern with animal well-being: place, social structural location, and individual experience. *Rural Sociology* 2006;71(3):399-438.

³Fraser D. Assessing animal welfare at the farm and group level: the interplay of science and values. *Animal Welfare* 2003;12:433-443.

⁴Bell D, Chase B, Douglass A, Hester P, Mench J, Newberry R, Shea-Moore M, Stanker L, Swanson J, Armstrong J. UEP uses scientific approach in its establishment of welfare guidelines. *Feedstuffs* 2004; March 15.

⁵AVMA Task Force on the Housing of Pregnant Sows. A comprehensive review of housing for pregnant sows. *J Am Vet Med Assoc* 2005;227(10):1580-1590. Also available at: http://www.avma.org/issues/animal_welfare/sow_housing_tfr.pdf. Accessed May 8, 2007.

⁶American Veterinary Medical Association. Pregnant sow housing. Available at: http://www.avma.org/issues/policy/animal_welfare/pregnant_sow_housing.asp. Accessed May 8, 2007.

⁷American Veterinary Medical Association. Induced molting of layer chickens. Available at: http://www.avma.org/issues/policy/animal_welfare/molting.asp. Accessed May 8, 2007.

⁸Smith R. UEP to end feed withdrawal. *Feedstuffs* 2005; May 9.

Appendix A

AVMA Animal Welfare Principles

(Approved by AVMA Executive Board November 2006)

The AVMA, as a medical authority for the health and welfare of animals, offers the following eight integrated principles for developing and evaluating animal welfare policies, resolutions, and actions.

- The responsible use of animals for human purposes, such as companionship, food, fiber, recreation, work, education, exhibition, and research conducted for the benefit of both humans and animals, is consistent with the Veterinarian's Oath.
- Decisions regarding animal care, use, and welfare shall be made by balancing scientific knowledge and professional judgment with consideration of ethical and societal values.
- Animals must be provided water, food, proper handling, health care, and an environment appropriate to their care and use, with thoughtful consideration for their species-typical biology and behavior.
- Animals should be cared for in ways that minimize fear, pain, stress, and suffering.
- Procedures related to animal housing, management, care, and use should be continuously evaluated, and when indicated, refined or replaced.
- Conservation and management of animal populations should be humane, socially responsible, and scientifically prudent.
- Animals shall be treated with respect and dignity throughout their lives and, when necessary, provided a humane death.
- The veterinary profession shall continually strive to improve animal health and welfare through scientific research, education, collaboration, advocacy, and the development of legislation and regulations.

Task Force Report

A comprehensive review of housing for pregnant sows

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In response to a resolution ratified by the AVMA House of Delegates and at the recommendation of the association's Animal Welfare Committee, the members of the Task Force on the Housing of Pregnant Sows conducted a thorough and objective review of the scientific evidence relating to the impact on the health and welfare of keeping breeding sows¹ in gestation stalls.² During their review, members of the Task Force evaluated more than 1,500 pages of peer-reviewed science. The following comprises their report and recommendations.

Assessing Animal Welfare

When evaluating how housing affects the welfare of pregnant sows, it is important to be clear about what is meant by animal welfare. Commonly expressed concerns include the following: 1) animals should function well in the sense of being healthy and thriving; 2) animals should feel well, especially by prevention of serious pain, hunger, fear, and other forms of suffering; and 3) animals should be able to live in a manner consistent with the nature of their species.³

Task Force members recognized that scientists, including veterinarians, approach animal welfare from different viewpoints and attribute various degrees of importance to each of these concerns on the basis of their education, training, experience, and personal values and the perspectives, morals, and ethical constructs of the society in which they live and work.^{2,5} The ways in which other segments of society interpret animal welfare are likewise diverse. A study⁶ conducted in The Netherlands found that producers tended to believe that health and normal biological function were evidence of good animal welfare, whereas consumers tended to focus on the animal's ability to live a reasonably natural life. A sampling of quotations by ethicists and social critics identified suffering and other affective states as central concerns.⁷

Although the degree of importance attributed to each of these elements may vary, Task Force members agreed that no assessment of animal welfare is complete unless all elements are considered. It is not satisfactory, for example, to judge the welfare of an animal on the basis of its physical health without regard for whether it is suffering or frustrated or to conclude that an animal that can engage in species-typical behavior has a good state of welfare without also carefully evaluating its health and physiologic function. In recognition of the need for a comprehensive approach, physiologic function, behavior, physical health, and production indices were used to evaluate the effects and appropriateness of the use of gestation stalls, compared with other systems, for housing pregnant sows. Because ethical perspectives may affect how scientific data are

interpreted and because economics can affect whether and how resulting recommendations are implemented, researchers' and stakeholders' ethical viewpoints and the economics associated with conversion of housing systems were also considered during the Task Force's review.

Importance of Study Design in Evaluating Related Research

CHOOSING PAPERS FOR REVIEW

To ensure their review was focused and robust, members of the Task Force evaluated only reports dealing with sow housing during gestation (ie, systems used for farrowing or lactation were not included), required that reports to be reviewed were published in refereed journals, and gave more weight to recent reports than to older ones because changes in genetics and approaches to management and feeding have great potential to influence welfare measures. In addition, Task Force members considered the importance of appropriate replication and confounding and how information from related studies could most appropriately be combined.

REPLICATION

Conducting research on how best to house pregnant sows is difficult and expensive. Requirements for a large number of experimental animals, extensive facilities, and specialized labor for animal care and data collection make this work challenging. To reduce costs, some studies include a single gestation pen and assume that multiple animals can be sampled within the pen to achieve replication. Use of animals within a single pen is considered pseudoreplication and is less desirable than if the pens themselves are replicated.

Group pens usually house adult females of varying social status and different experiential histories. A pen is a single and unique environment, and how individual sows respond depends on conditions within the pen. Likewise, an individual gestation stall is a single unit, although a group of gestation stalls may be considered a contemporary group comprising sows with similar experiential histories. One can argue that a contemporary group of pregnant sows (ie, a collection of sows housed in several stalls and a group pen) would be a uniform block of animals that would provide the best unit to be replicated for a comparison of welfare effects; in fact, this was accomplished in a previous study.⁸

A single study including sows in an unreplicated group pen will not provide information about the welfare of sows housed in pens versus stalls with statistical certainty. However, multiple studies describing unreplicated and replicated pen treatments can be used to evaluate the effects of housing on sow welfare by considering each study as a single replicate (ie, a meta-analysis).⁹

COMBINING STUDIES

An experiment (replicated or unreplicated) conducted at a single location during one point in time examines differences between applied conditions—in this case, housing systems. These applied conditions

are commonly referred to as treatments. When the treatment is housing type (eg, individual gestation stalls vs group pens), any statistical analysis of results will automatically encompass other factors that may differ between housing types. These include, but are not limited to, differences in feeding system, floor type, bedding, management style and degree, and local environment. Because studies are conducted under particular sets of conditions, statistical conclusions from a single study apply only to that set of conditions. For this reason, the most useful conclusions will be drawn from an analysis that includes studies (replicated and unreplicated) run under many different sets of conditions but while addressing a general question (eg, the welfare effects of housing sows in stalls vs housing them in group pens). Task Force members applied these principles when conducting their review.

Evaluation by Component of Sow Response

PHYSIOLOGY

General principles—In mammals, a wide range of challenges (eg, cold temperatures, disease, and aggression) may produce a stress response involving increased secretion of hypothalamic corticotrophin releasing factor (CRF; factor or hormone) and urocortin (UCN).^{10,11} Secretion of hypothalamic CRF causes 2 parallel effects: activation of the sympathetic nervous system (including secretion of catecholamines) and activation of the hypothalamic-pituitary-adrenal axis (HPA). Within the activated HPA, the pituitary secretes proopiomelanocortin, which is rapidly cleaved to release adrenal corticotrophin releasing hormone (ACTH), β -endorphin, and other peptides. Release of ACTH into the bloodstream causes secretion of glucocorticoids. In the pig, the primary glucocorticoid secreted is cortisol. Elevation of cortisol within the blood negatively feeds back on hypothalamic CRF and ACTH to dampen the response of the HPA, unless the stressful event continues. β -Endorphin may exert analgesic and cognitive effects that may help animals cope when stressed.

Stress-induced secretion of hypothalamic CRF (and associated intermediate hormones) has important peripheral physiologic effects. Secretion of CRF will cause increased heart rate and blood pressure, reduced gut motility, dilation of pupils, and mobilization of nutrients such as glucose.^{12,13} These physiologic responses help animals survive stressful experiences, such as predatory attacks.

Elevation of hypothalamic CRF and UCN and other neuropeptides (but generally not other hormones activated via the HPA) causes significant changes in animal behavior.¹⁴ Activation of CRF receptors results in behavior associated with fear and anxiety¹⁵ as well as stereotyped behavior.^{16,17}

Stress also impacts immune system responses. In general, acute stress increases the number or percentage of neutrophils in the blood, while either not influencing or decreasing the relative number of circulating lymphocytes. The function of immune cells is also inhibited during stress. Examples include reductions in natural killer cell activity, lymphocyte response, and chemotaxis and phagocytosis of neutrophils.

Only a few studies have examined the effects of CRF on physiologic responses and behavior of pigs. In 3 published studies,¹⁷⁻¹⁹ administration of hypothalamic CRF to young pigs resulted in extreme behavioral activation; fearful behavior; and, at high concentrations, suppression of the immune system, including neutrophil function and natural killer cell activity. Whereas the role of CRF in sows has not been specifically explored, it seems reasonable to expect that its effects on sows' physiologic responses and behavior would be similar to those observed in young pigs. In other words, when central CRF is activated as part of a stress response, sows would be expected to have high heart rates; increased peripheral concentrations of β -endorphin, ACTH, cortisol, and catecholamines; and suppressed immune measures. The absence of such alterations may indicate that the situation is not causing a physiologic stress response.

Peripheral physiologic measures—Researchers have measured concentrations of stress-related hormones in the peripheral circulation of sows housed in gestation stalls, tethers, and group pens. Difficulty in replicating group pens in some studies makes interpretation of data from studies conducted by use of a single pen challenging (as explained previously). Considering only those studies²⁰⁻²⁴ in which units of analysis were replicated, no differences in serum cortisol concentrations were evident between sows housed in stalls and those housed in group pens. A previous study²¹ involving replicated units did, however, reveal that group-housed sows having low social rank had higher serum cortisol concentrations. These results indicate that these studies were sensitive enough to detect differences in serum cortisol concentrations between sows housed individually and in groups, had such differences existed.

A special type of individual sow housing system is the turnaround stall. Whereas conventional stalls do not allow sows to turn around, turnaround stalls have an unusual semitriangular shape that permits sows to turn around in about the same space as required by conventional rectangular stalls. Sows housed in turnaround stalls had lower serum cortisol concentrations than sows in conventional stalls; however, their immune measures related to the stress response did not differ from those of sows housed in conventional stalls.²⁵

Physiologic data have also been collected on pregnant gilts housed in individual bedded pens during gestation and then moved to either farrowing pens or crates.²⁶ Pregnant gilts moved to farrowing crates had higher concentrations of serum cortisol than those moved to farrowing pens. These results may indicate that moving to farrowing crates may cause a greater stress response if sows have been loose-housed during gestation than if they have previously been kept in stalls.

Among nonreplicated studies (ie, studies in which only one group pen was included), Zanella et al²⁷ found no significant differences in serum cortisol concentrations when penned and stalled sows were compared, although sows of low social rank had higher β -endor-

phin concentrations than sows with high social rank. Marchant et al²⁸ reported that sows in individual stalls had higher heart rates than did sows in a pen. In addition, Damm et al²⁹ reported no significant differences in circulating concentrations of prolactin, prostaglandin $F_{2\alpha}$, and oxytocin among periparturient gilts that had been housed in gestation stalls or pens. When sows in a single pen were categorized by dominance, sows with low social status had higher cortisol concentrations than did sows with high social status.³⁰

Conclusions—Most research to date indicates that generally accepted physiologic measures of stress are similar for sows housed in individual gestation stalls and in group pens. On the basis of information available at this time, Task Force members considered it reasonable to conclude that stall housing is not more physiologically stressful to sows than group housing.

BEHAVIOR

General principles—Behavior serves as an interface between animals and their environments and is affected by internal and external factors. Behavior can be an indicator of welfare problems (eg, poor posture may be a sign of disease) or their absence or may precipitate or help avoid negative effects on welfare (eg, interactions between dominance, aggression, and injury). The various views described previously regarding what is necessary for good welfare all incorporate behavior in some fashion. Those who emphasize the physical aspects of welfare recognize that behavior plays a role in achieving good nutrition, adequate growth, physical fitness, temperature regulation, and effective production and in avoiding injury and disease. Those who emphasize the mental aspects of welfare look for preferences as expressed through behavior and use behavior as an indicator of psychologic state. Those who emphasize a natural approach use the ability to perform species-typical behavior within a natural environment as an indicator of good welfare.

Relatively few behavioral studies specifically address gestation stalls, although some research on sows in tether systems can provide information relevant to certain aspects of individual housing in general. Areas of behavioral inquiry and concern identified by the Task Force during its review included social interactions, available space and freedom of movement, feed restriction, stereotypic behavior, aggression, and opportunities for the sow to control her environment. Data from the scientific literature indicate that stalls and tethers have roughly similar effects on behavior when it comes to social interactions, available space and freedom of movement, feed restriction, aggression, and opportunities for the sow to control her environment. For stereotypies, the comparison is less straightforward and relevant distinctions are described later in this report.

Social interactions—Evidence gained from observing the behavior of domestic pigs in seminatural environments, wild pigs, and feral pigs indicates that sows normally live in relatively small groups of familiar individuals during pregnancy and after farrowing

but isolate themselves a few days before parturition and for the first few days of lactation. Under extensive conditions, aggression is rare and affiliative behavior, such as grouping, mutual sniffing and grooming, social facilitation, and communal nesting, is common.³¹

Most housing systems currently in use for pregnant sows diverge from what is found in nature, relative to group size and composition, space allocation, and environmental complexity.³² In any social group of pigs of any size, a dominance order is formed with some sows becoming dominant, intermediate, and subordinate. Some sows, particularly those on the losing end of aggressive encounters and that occupy lower dominance status, exhibit signs of stress in groups.³⁰

Although individual housing does not conform to what is observed in nature, there is little in the literature to suggest that being housed individually is, by itself, aversive to sows as long as there is visual and other contact with other animals. In cold climates, sows naturally huddle together, and the inability to do so in individual housing systems may reduce thermal comfort. However, sows in free-access stall systems may choose to sleep in individual stalls rather than in physical contact with other sows. In some older housing systems, sows were kept in large, bedded individual pens where they could see and touch other sows through the bars of the pens. These sows often appeared to be content and comfortable even though they were housed individually. It is worth noting that pigs will work for social contact, although motivation for social contact is more elastic than motivation for food.³³

Available space and freedom of movement—Where sows are kept individually, there is the additional concern of whether housing them in narrow stalls, which restrict normal movements such as walking and turning, has negative effects on their welfare. Indeed, public concern about how sows are housed most often relates to restrictions on sows' freedom of movement. Sometimes, particularly when sows are of high parity, the space provided is actually smaller than the body size of the sow.⁹

The behavior of sows is influenced by stall size in that sows move less and take longer to lie down in smaller stalls than in larger stalls.³⁴ Although difficulty in standing up and lying down may be mostly attributable to a lack of available space in which to do so, some researchers have suggested that lameness, reduced muscle tone and mass, reduced agility, and reduced bone strength result from inactivity and contribute to the problem.^{35,37} Shifts in position may be further impeded by the hooves of the sow in the neighboring stall.

Gilts in turnaround stalls have been observed to turn a mean of 75 times every 24 hours.²⁵ Feral pigs travel 14% to 27% of the time, walking about 1 km/d, but this probably represents the travel necessary to obtain sufficient nutrition.³⁸ Most relevant to sow gestation housing concerns is a recent study³⁹ of the activity of pregnant sows in straw-bedded pens that were fed a restricted diet. These sows walked 1% to 3% of the time (approx 15 min/d) throughout gestation.

Lying increased from 54% to 73% of the time by week 15 of gestation. Thus, the activity of sows is dependent on the level of nutrients they are provided (or must seek) and the complexity of their environment. When high-quality feed and water are readily available in a comfortable environment, sows are relatively inactive.

During parturition and early lactation, restriction of movement can help reduce the risk of sows injuring their piglets; hence, whatever trade-offs may be involved, there is a rationale for restriction of movement at that time. Preventing pregnant sows from walking or turning, however, appears to serve no direct animal health or welfare purpose.

Housing sows in stalls during pregnancy may help precondition them if parturition is to take place in a farrowing crate (ie, the move to the farrowing crate may be less stressful because the environments are similar). How much sows are stressed during this move, however, may depend on how long sows are given to become accustomed to farrowing crates. With sufficient adaptation time, restlessness of group-housed sows in farrowing crates may not be a problem. However, economic pressures may prevent sows from occupying farrowing facilities for a sufficient time before farrowing and lactation. One study⁴⁰ found mixed results. Sows previously housed in groups were more restless during farrowing in crates than those housed in stalls. However, group housing had benefits for welfare during the period immediately after introduction to the crates. Sows from group pens had improved maneuvering ability and comfort and fewer skin lesions than sows from stalls.

Feed restriction and environmental complexity—Some welfare problems affecting pregnant sows are related to feeding limited amounts of concentrated diets. Concentrated diets are fed in preference to bulkier, higher-fiber diets because the latter are more costly to formulate and transport. Digestion of concentrated diets also results in production of less manure, thereby reducing the amount of manure that must be managed. If concentrated diets were not limit-fed but instead fed *ad libitum*, sows would tend to become obese and experience related health problems. Options are to increase the amount of concentrates, but below *ad libitum* levels, or to add roughage. However, if high-fiber feeds are fed in larger volumes, more manure is produced. This can be problematic if the manure management system is not designed to handle the larger volume.

Sows that are limit-fed probably remain hungry for much of the day. Limiting feed exacerbates the effects of housing because it intensifies competition for food among sows housed in groups.^{41,42} Limiting feed also appears to make sows restless and more motivated to forage for food,⁴³ a behavior that cannot be fulfilled in either stalls or pens that are not environmentally complex. In natural environments, motivation to forage leads to exploration; rooting in the soil or other substrates; and consumption of substantial quantities of roughage, such as grass or straw, other plant material, and soil. In stalls or pens without appropriate environmental complexity, hunger may lead to sows directing

seemingly abnormal movements of their snouts or mouths toward objects in their environment. For example, if a nipple drinker is present, sows may play with it continually, withdrawing or using 2 to 3 times the amount of water they would normally use.⁴⁶ Results of previously reported experiments conducted by Matthews and Ladewig³¹ indicate that motivation for food is an inelastic demand.

Pigs spend much of their time lying down. In free-range environments, they build communal nests.³¹ In pens with bedded and unbedded areas, sows lie on the bedding unless the environmental temperature is high and use the unbedded portion as a dunging area.⁴⁷ Cortisol concentrations are higher in the absence of substrate,⁴⁸ and pigs appear to react positively to complexity. A study by Olsen et al⁴⁹ concluded that provision of additional roughage and shelter, even in an already complex environment, improved pigs' welfare as indicated by reduced aggression, varied use of living area (including outdoors), varied behavior (including play), and improved regulation of body temperature.

Stereotypic behavior—A stereotypy is defined as "a repeated, relatively invariable sequence of movements which has no obvious purpose."⁴⁶ Stereotypies (such as repetitive bar biting, rooting, and rubbing on pen surfaces) may be exhibited by sows kept in tethers; stalls; and small, barren pens.

Stereotypies are more often observed in stall-housed sows than in pen-housed sows.^{50,51} Some researchers have observed similar frequencies of stereotypic behavior in sows housed in stalls and tethers.^{51,53} Others have observed more stereotypies in stall-housed sows than in sows housed by use of girth tethers⁵⁴ and more behavior involving the mouth and snout in stall-housed sows than in sows housed by use of neck tethers.⁵³ Sows show some form of oral-nasal-facial (ONF) behavior in all environments—indoors and outdoors and in pens and stalls.⁵⁶ Sows in bedded pens chew bedding and pen surfaces, and sows kept outdoors chew sticks and stones. Some repetitive ONF behavior does appear to have a purpose, such as chewing bedding or grass; however, some apparently does not, and it is this behavior that has been classified as stereotypic.^{56,57}

The proportion of the day that sows were observed to spend engaged in stereotypic behavior varied considerably among studies, from less than 1%⁵⁸ to as high as 26%⁵⁹ or 46%.⁶⁰ There was also considerable variation among individual sows (in one study,⁴⁵ the proportion of time spent engaged in stereotypic behavior ranged from 0% to 61%).

Some research suggests that stereotypies may have more to do with limit feeding and lack of opportunity for productive foraging than with restriction of movement.^{41,43,45,61,63} In one study,⁴³ sows that were housed in tethers or group pens and fed 2 amounts of feed were compared. A similar level of repetitive behavior was observed in both environments when access to feed was restricted. Stereotypies can sometimes be reduced in sows housed in stalls by providing dietary bulk.⁶⁴ This, however, was not always successful,⁶⁵ indicating that the amount and type of fiber or interactions between production system and diet may induce high-

er or lower amounts of repetitive behavior. Reduction is more likely when sows are housed in pens with bedding that also provides dietary fiber^{59,66} or when sows are provided food ad libitum.^{46,67} Simply allowing sows to turn around did not reduce stereotypic behavior.²⁵

Some early research indicated that stereotypic behavior may help sows cope with aversive environments.⁶⁰ Most subsequent work, however, indicates otherwise.^{46,68} The evidence that stereotypies convey some benefit is indirect and contradictory. McGlone et al⁵⁴ found that sows housed in stalls exhibited more stereotypies than those housed by use of girth tethers, yet they subsequently had larger litters. von Borell and Hurnik⁷⁰ found that, among sows housed in stalls that exhibited stereotypies, there was a positive correlation between frequency of stereotypic behavior and litter size. Sows that did not exhibit stereotypies, however, had larger litters than those that did. Fraser and Broom⁶⁶ concluded that "stereotypies may be a means of alleviating the effects of adverse conditions, but this is by no means fully proven," and Dantzer¹⁶ considers that in many cases, "the stereotypy has become a useless and energetically costly sign of brain function pathology. Whether or not they are of any help to the animal, true stereotypies are clearly an indicator of poor welfare." That stereotypies are an indication of welfare problems was a strong consensus among nearly all authors whose work was reviewed.^{69,71-73}

Aggression—Aggression and resulting physical injury can be a severe problem in group-housed sows, particularly when sows are kept in the large groups necessary for economically viable use of electronic sow feeders⁵⁴ or when unfamiliar sows are mixed (eg, in forming new groups). In comparison of sows housed in gestation stalls with sows housed in group pens, problems with aggression were sometimes greater in tether stalls than in group pens^{50,75} but were more often greater in group pens, compared with stalls.²³ In one case, aggression seen in tether stalls was eliminated by redesigning the partitions.^{22,76} Aggression in group housing can be reduced through improved system design⁵⁶ or by use of better management techniques.^{44,77,78}

One type of aggression of particular concern is vulva biting. This most commonly occurs between sows housed in group systems that use electronic sow feeders. When vulva biting occurs, it can be reduced, but apparently not eliminated, by improved management.^{74,81} Certain group pen designs increase the risk of vulva biting. Feeding sows sequentially rather than simultaneously is one risk factor. Sows are social animals that, in nature, eat simultaneously when in social groups (eg, as they find a food site on the forest floor). Electronic sow feeding systems do not allow simultaneous feeding of sows; therefore, the risk of vulva biting and other aggressive behaviors among sows may be increased. Vulva biting is eliminated by housing sows in individual stalls.

Opportunities for control over the environment—Sows kept under extensive or seminatural conditions exercise control over their interactions with the environment. They use separate feeding, nesting, and

defecation areas and adjust their location in accord with environmental conditions (eg, reacting to different temperatures by choosing wallows, sheltered places, or proximity to other pigs).³¹ Sows housed in stalls cannot exercise the same control over their environment. They can use only minimal behavior to thermoregulate, cannot avoid sows that are aggressive or approach those with whom grooming relationships might be established, cannot flee a fear-producing stimulus, and cannot easily choose a place to lie down that is separate from where they defecate. Sows in confinement are also unable to avoid stimuli known to be aversive, such as the loud noises associated with feeders and cleaning equipment.⁶ The welfare impact of the latter on sows, however, is unknown because they quickly habituate to repeated loud sounds.³² In general, however, lack of control over stressful components of the environment suggests a reduction in welfare.

Conclusions—Gestation stalls, particularly when used in conjunction with feed restriction, may adversely affect welfare by restricting behavior, including foraging, movement, and postural changes. Stalls, however, do not appear to reduce welfare as much as tether systems. Stereotypies related to behavioral restriction can be reduced by providing bedding, foraging material, roughage, or a combination of these. Simply providing space to turn around is unlikely to resolve these repetitive, non-purpose-directed behavior patterns. Other factors contributing to poor welfare in stalls and small, unbedded pens include lack of exercise, lack of environmental complexity, lack of rooting/chewing materials, and an inability for the sow to exert control over her environment.

One of the most effective ways to curtail behavioral problems in sow housing systems is to increase feed availability. Some researchers have suggested that feed should be provided *ad libitum*. Because feeding motivation is so pronounced in sows, however, obesity may result from *ad libitum* feeding and create other health and welfare concerns. There is no evidence that providing a bulky diet would satisfy the sow's hunger drive since it solves only one component of satiety (gut fill) and does not change nutrient concentrations in the blood and tissue. Also, greater costs may be involved in handling larger amounts of fibrous manure in ways that do not create an environmental burden.

Aggression has been reported in all types of housing systems, but it is most often worse and sometimes severe in group housing. Vulva biting, one of the most common and serious aggressive interactions, most often occurs in group pens that do not allow for simultaneous feeding of sows (eg, those using electronic sow feeders). Unfortunately, no management techniques have been identified that reliably eliminate aggression. However, improvements in housing design and good management can help minimize aggressive interactions.

HEALTH

General—Few peer-reviewed reports are available that provide useful comparative information about the effects of various housing systems on overall sow health. Several articles published by university exten-

sion services were identified, as were some non-peer-reviewed summaries of data from record databases, such as PigCHAMP,⁶ but most of these did not meet the criteria set forth by the Task Force for inclusion in this review. Overall, it appears that both herd and individual health are affected more by daily management, pathogen exposure, geographic location, and biosecurity measures than by housing type.

Injuries—Peer-reviewed injury data are available, and in separate studies, Anil et al³³ and Gjein and Larssen³⁴ determined that injury rates were higher for sows housed in group pens than for sows housed in gestation stalls. In 2003, Anil et al³³ revealed that as sow weight increased, injury rate also increased in stall-housed sows but decreased in group-housed sows. Overall injury scores, however, were significantly higher in group-housed sows, compared with stall-housed sows. Gjein and Larssen³⁴ studied foot lesions in stall- versus group-housed sows. Sidewall cracks and heel lesions were the most common types of lesions found in both housing systems, but prevalence was significantly higher in loose-housed than confined sows.

Conclusions—Limited research conducted to date combined with industry experience indicates that, except for injuries, individual sow and herd health are primarily affected by factors other than housing system. Injury rate is lower for sows housed in gestation stalls, compared with sows housed in groups.

PRODUCTION

Few peer-reviewed reports are available that provide a comprehensive comparison of sow housing systems with respect to production measures. In general, reports reviewed by the Task Force used gestation stalls as the point of reference for comparison to group housing. Gestation stalls included in related studies or reviews were either of a fixed size or were not described in sufficient detail so that the reader could determine whether stall size was varied to match sow size. The size of groups studied in group housing configurations varied, but the number of sows was always < 25. Feeding systems varied across group housing configurations. During their review of production effects, members of the Task Force considered estrus detection and weaning to estrus interval, farrowing rate, conception rate, and other production measures.

Estrus detection and weaning to estrus interval—England and Spurr³⁵ used rate of estrus detection to compare housing effects on production of sows and gilts when they were housed in groups of 8 to 12 or in stalls of fixed size. Estrus in multiparous sows was not affected by housing type, but there was an increase in the number of gilts exhibiting irregular estrus behavior in stalls. Gilts were less consistent in expression of estrus, compared with sows. Only gilts and sows exhibiting signs of estrus were placed with a boar, so failure to mate was associated with no signs of estrus.

Weaning to estrus interval was one of the more common measures compared in various housing sys-

tems. In one study,⁸⁶ multiparous sows were housed in individual gestation stalls of fixed size or in pens of 4 to 5 sows for a 2.5-year period. No postweaning housing effect on the weaning to estrus interval was observed.

Hemsworth⁸⁷ investigated the influence of housing system on the onset of estrus in weaned sows and found that the weaning to mating interval was decreased in sows in group housing, compared with those in individual housing, whereas farrowing rate was equivalent. There were significant interactions between housing system, farm, and weaning-to-estrus interval, indicating that management had an important effect on the weaning-to-estrus interval.

During a previous literature review⁸ of housing effects on sow performance, a reduced weaning-to-estrus interval was identified for sows housed in stalls versus those housed in groups. Backus et al²³ found a decrease of 0.7 to 1.1 days in the weaning-to-estrus interval for sows housed in stalls versus those housed in groups.

Farrowing rate—Multivariate analysis was used in a retrospective epidemiologic study⁸⁸ of the 1992 through 1996 records of Finnish sow units to elucidate management factors by evaluating seasonal effects on rebreeding rate, farrowing rate, age of gilts at first mating, and litter size. The most significant variation in rebreeding rate was attributable to effects of season and year. Housing dry sows in groups increased the risk of rebreeding. Mean herd size for the Finnish herds was 39 sows.

Schmidt et al⁸⁶ reported a higher farrowing rate in sows housed in groups, compared with sows housed in stalls, when multiparous sows housed in different systems were studied over a 2.5-year period.

Results of a study⁸⁹ designed to determine the effects of feeding rate and type of housing (group or individual stalls) on farrowing rate revealed interactions between season and feeding rate after mating. In addition, housing sows individually after mating improved the farrowing rate significantly during the summer-autumn period.

Conception rate—Two research groups used conception rate to compare housing systems. Lynch et al⁹⁰ compared conception rates in group, tether, and stall housing and reported that group-housed sows had a much poorer performance attributable to a combination of failure to show estrus, lower conception ratio, and loss through injuries from fighting. England and Spurr⁹¹ also used conception rate to compare housing effects on production of sows and gilts housed in groups of 8 to 12 versus in stalls of fixed size. Although gilts were less consistent in expression of estrus, compared with sows, of gilts mated, the percent conceiving did not differ significantly with respect to housing system.

Other production measures—In a previous review, McGlone et al⁹ considered litter size, piglet birth weight, and weight gain in sows housed in stalls versus groups. Results of most studies evaluated indicated that whether sows were housed in stalls or in

groups with electronic feeding had no effect on litter size. One paper reported an increase in the number of stillborn piglets in sows housed in groups with electronic feeding.

Group-housing systems that use electronic feeders have been found to be associated with reduced mean birth weight, compared with stall housing. No difference in total weight gain over the gestation period was identified in gilts housed in groups with electronic sow feeders versus those housed in stalls. However, increased individual variation in weight gain of gilts housed in groups with an electronic feeding system was observed.

Conclusions—In general, the peer-reviewed literature indicates that sows kept in stalls have equivalent production performance to sows kept in groups, with the exception of some group systems that use electronic sow feeders. Significant interactions among the effects of penning system, farm, and various production measures point to the importance of husbandry skills in ensuring sow welfare. Data from the literature support the hypothesis that there are differences in husbandry skills between farms and between caretakers that can affect production parameters equal to or more than type of housing.

Economics

In the United States, gestation stalls are the dominant housing system for pregnant sows. The industry has favored stalls over group housing because stalls increase caretaker productivity, require lower capital investment than group housing and associated automatic feeding systems, reduce sow aggression and injury, and are easier to manage than some indoor group housing systems. Recently, there has been public and scientific interest in moving toward group housing systems. Such a change comes with a price tag because some mechanism must be found to ensure that each sow in the group receives an adequate and individualized amount of feed. The required feeding systems increase construction, labor, and training costs. Legislative and regulatory mandates in some European Union countries have forced producers to move toward group housing. As a result, researchers in those countries have explored the economic consequences associated with these mandates.

In 1997, den Ouden et al⁹¹ surveyed 7 Dutch experts on the likely technical and economic impacts of a wide range of animal welfare-motivated changes to their swine production system. Results of that survey indicate that a switch from the base system (stalls) to group housing would add 2.78 Dutch florins to the cost of each finished animal. These researchers also estimated that each slaughter-ready animal costs 357 Dutch florins to produce. This suggests that a switch to group housing would add 0.78% to the cost of each slaughter-ready animal.

The European Union Scientific Veterinary Committee also explored this issue in 1997⁹² and determined that switching from stalls to group housing would cost an additional 2 eurocents/kg of finished product if producers were given < 10 years to comply or

approximately 0.6 eurocents/kg of finished product if producers were permitted to replace existing stall housing as buildings needed to be replaced. If a production cost of 1 euro/kg is assumed, this translates to finished products costing 2% or 0.6% more, respectively.

In 2000, Turner⁹³ performed a meta-analysis of 5 European studies and calculated that a switch to group housing would add 1.5 eurocents/kg to pork production costs. This translates to a 1.5% increase in cost of production and is in agreement with results of other studies.

Authors of an analysis performed for the Danish National Committee for Pig Production in 2003 reported that sows housed in groups had, overall, 0.3 live pigs/litter fewer than those housed in stalls.⁹⁴ If we assume that each litter typically comprises 11 pigs, then 0.3 fewer pigs/litter translates into a 2.7% productivity loss. The authors of this study did not provide a total cost increase, but a 2.7% productivity loss likely increases total cost by more than the 0.6% to 2% increase in production cost previously reported and does not include construction or labor and training costs.

Summary and Recommendations

Given the number of variables and large variations in performance within both group and stall housing systems for pregnant sows, no one system is clearly better than others under all conditions and according to all criteria of animal welfare. The Task Force's review of the literature indicated the following with respect to physiology, behavior, health, and production:

- ▶ **Physiology**—Overall, gestation stalls do not induce a greater physiologic stress response in sows than do group housing systems.
- ▶ **Behavior**—Sows show different behavior when housed in gestation stalls, compared with some group pens, because of restricted movement, reduced caloric consumption, reduced opportunities to forage, absence of bedding, and restricted social interaction.
- ▶ **Health**—Rate of sow injury is reduced in gestation stall housing, compared with group housing. Industry experience indicates that other aspects of health are predominantly affected by factors other than housing system.
- ▶ **Production**—Sows kept in gestation stalls have production performance that does not differ from that of sows kept in groups.

It was also clear from the Task Force's review that housing systems cannot be considered in isolation from other important factors that influence animal welfare. These include the following:

- ▶ **Management**—Some housing systems can be expected to work well at one level of management but not at another.
- ▶ **Feeding system**—When concentrated diets are used, there is a need to limit feeding to avoid obesity-related health problems, but this can create chronic hunger, restlessness, motivation to forage, and competition for food. Systems that might work well with one feeding system may not work well with another.

- ▶ **Environmental features**—Certain environmental features allow sows to occupy their time and escape from aggressive group mates. How well a housing system functions may depend on whether such features are present.
- ▶ **Type of sow**—Important genetic differences in temperament exist between sows and affect how well sows function in different housing systems. There are also individual differences. A housing system that works well for more dominant animals may not be favorable for less dominant ones.

Effects on society must also be considered. Different sow housing systems have different impacts on environmental nutrient burden, food safety, and worker health and safety.

Considering all factors, all sow housing systems in current use have advantages and disadvantages for animal welfare. Current group systems allow freedom of movement and social interaction. However, these same systems, when they fail to work well, lead to problems, especially in the areas of aggression, injury, and uneven body condition. When they lack manipulable material, sows in group systems are also unable to forage. Current stall systems minimize aggression and injury, reduce competition, allow individual feeding, and assist in control of body condition. Stalls, however, also restrict movement, exercise, foraging behavior, and social interaction. Because the advantages and disadvantages of housing systems are qualitatively different, there is no simple or objective way to rank systems for overall welfare. There is no scientific way, for example, to say how much freedom of movement is equal to how much freedom from aggression or how many scratches are equal to how much frustration. In such cases, science can identify problems and find solutions but cannot calculate and compare overall welfare in very different systems.

Ideally, sow housing systems should do the following:

- ▶ Minimize aggression and competition among sows.
- ▶ Protect sows from detrimental effects associated with environmental extremes, particularly temperature extremes.
- ▶ Reduce exposure to hazards that result in injuries, pain, or disease.
- ▶ Provide every animal with daily access to appropriate amounts and types of food and water.
- ▶ Facilitate observation of individual sow appetite, respiratory rate, urination and defecation, and reproductive status by caretakers.
- ▶ Allow sows to express most normal patterns of behavior.

To address animal welfare in the long term, advantages of current housing systems should be retained while making improvements to overcome problems identified. Improvements should be adopted as soon as the technology is sound enough so that producers can adopt it with confidence, the skills needed to operate the systems are understood and available, and systems are economically viable.

Needs for Innovation and Research

Faced with uncertainty, it is a common response to call for further research before recommending action. In deciding whether to do this, Task Force members considered the role played by research and by industry innovation in shaping modern systems of swine housing.

Most major changes in swine housing systems during the past 50 years have resulted from industry innovation or commercial development, rather than independent scientific research. For example, farrowing crates were rapidly adopted as a form of housing during the 1950s and 1960s largely on the basis of industry innovation and experience. There was no substantial body of research that explored the effects of the crate before it was adopted. Rather, most research on farrowing crates was done later, mainly to compare farrowing crates with other options and to refine crate design. Similarly, gestation stalls, tethers, and electronic sow feeders were introduced by the industry and by equipment companies on the basis of their own developmental work. Most basic research comparing these with other systems began after the technology had come into commercial use. In fact, it is hard to find examples where major changes in sow housing arose from independent research. After the adoption of farrowing crates, substantial research was done for the purpose of developing alternatives. Despite favorable results in some cases, most options developed by researchers have had little commercial adoption.⁹⁵ Thus, sow housing appears to be an area where research generally follows, rather than leads to, major shifts in methods.

There is, of course, a role for research to fine-tune systems by identifying problems and finding ways to overcome them. Fine-tuning will be particularly important, given increasing concerns about animal welfare and the shortcomings identified in existing stall and group-housing systems for pregnant sows. As part of this approach, a better understanding of the mechanisms that create variation in sow welfare is needed and the physiologic underpinnings of behaviors that are used to assess welfare need to be more completely understood.

Given the historic relationship between research and industry innovation in sow housing, the Task Force believes it would be inappropriate to simply call for more research. The immediate need is for industry to advance housing and management practices in ways that will improve the welfare of sows while providing producers with practical and reliable methods.

- a. "Sows" also refers to gilts unless otherwise indicated.
- b. "Gestation stalls" are understood to be synonymous with gestation crates and distinct from farrowing crates.
- c. Jensen P. *Confinement and continuous noise as environmental factors affecting communication in the domestic pig*. PhD thesis, Department of Animal Hygiene, Swedish University of Agricultural Sciences, Skara, 1983.
- d. PigCHAMP Inc, Saint Paul, Minn.

References

1. Duncan IJH, Fraser D. 1997. Understanding animal welfare. In: Appleby MC, Hughes BO, eds. *Animal welfare*. Wallingford, UK: CAB International, 2004;19-31.

2. Sainsbury D. *Farm animal welfare: cattle, pigs and poultry*. London: Collins Professional and Technical Books, William Collins Sons & Co, 1986.

3. Dawkins MS. Behavioural deprivation: a central problem in animal welfare. *Appl Anim Behav Sci* 1988;20:209-225.

4. McGlone JJ. What is animal welfare? *J Agric Environ Ethics* 1993;6(suppl 2):26-36.

5. Waiblinger S, Baumgartner J, Kiley-Worthington M, et al. Applied ethology: the basis for improved animal welfare in organic farming. In: Vaast M, Roderick S, Lund V, et al, eds. *Animal health and welfare in organic agriculture*. Wallingford, UK: CAB International, 2004;117-161.

6. te Velde H, Aarts N, van Woerkum C. Dealing with ambivalence: farmers' and consumers' perceptions of animal welfare in livestock breeding. *J Agric Environ Ethics* 2002;15:203-219.

7. Fraser D, Weary DM, Pajor EA, et al. A scientific conception of animal welfare that reflects ethical concerns. *Anim Welf* 1997;6:187-205.

8. Johnson AK, Morrow-Tesch JL, McGlone JJ. Behavior and performance of lactating sows and piglets reared indoors or outdoors. *J Anim Sci* 2001;79:2571-2579.

9. McGlone JJ, von Borell EH, Deen J, et al. Review: compilation of the scientific literature comparing housing systems for gestating sows and gilts using measures of physiology, behavior, performance, and health. *Prof Anim Sci* 2004;20:105-117.

10. Vale W, Spiess J, Rivier C, et al. Characterization of a 41-residue ovine hypothalamic peptide that stimulates secretion of corticotrophic and beta-endorphin. *Science* 1981;213:1394-1397.

11. Koob GF, Heinrichs SC. A role for corticotrophin-releasing factor and urocortin in behavioral responses to stressors. *Brain Res* 1999;848:141-152.

12. Dunn AJ, Berridge CW. Physiological and behavioral responses to corticotrophin-releasing factor administration: is CRF a mediator of anxiety or stress response? *Brain Res Rev* 1990;15:71-100.

13. Aguilera G, Nikodemova M, Wynn PC, et al. Corticotropin releasing hormone receptors: two decades later. *Peptides* 2004;25:319-329.

14. Bale TL, Vale WW. CRF and CRF receptors: role in stress responsiveness and other behaviors. *Annu Rev Pharmacol Toxicol* 2004;44:525-557.

15. Takahashi LK, Ho SF, Livanov V, et al. Antagonism of CRF(2) receptors produces anxiolytic behavior in animal models of anxiety. *Brain Res* 2001;902:135-142.

16. Dantzer R. Behavioral, physiological and functional aspects of stereotyped behavior: a review and re-interpretation. *J Anim Sci* 1986;62:1776-1786.

17. Salak-Johnson JL, Anderson DL, McGlone JJ. Differential dose effects of central CRF and effects of CRF antagonist on pig behavior. *Physiol Behav* 2004;83:143-150.

18. Johnson RW, von Borell EH, Anderson LL, et al. Intracerebroventricular injection of corticotrophin-releasing hormone in the pig: acute effects on behavior, adrenocorticotrophin secretion, and immune suppression. *Endocrinology* 1994;135:642-648.

19. Salak-Johnson JL, McGlone JJ, Whisnart CS, et al. Intracerebroventricular porcine corticotrophin-releasing hormone and cortisol effects on pig immune measures and behavior. *Physiol Behav* 1997;61:15-23.

20. Barnett JL, Hemsworth PH, Winfield CG, et al. Effects of social environment on welfare status and sexual behavior of female pigs. I. Effects of group size. *Appl Anim Behav Sci* 1986;16:249-257.

21. Barnett JL, Hemsworth PH, Winfield CG. The effects of design of individual stalls on the social behavior and physiological responses related to the welfare of pregnant pigs. *Appl Anim Behav Sci* 1987;18:133-142.

22. Barnett JL, Hemsworth PH, Newman EA, et al. The effect of design of tether and stall housing on some behavioral and physiological responses related to the welfare of pregnant pigs. *Appl Anim Behav Sci* 1989;24:1-12.

23. von Borell E, Morris JR, Hurnik JF, et al. The performance of gilts in a new group housing system: endocrinological and immunological functions. *J Anim Sci* 1992;70:2714-2721.

24. Tsuma VT, Einarsson S, Madej A, et al. Endocrine changes during group housing of primiparous sows in early pregnancy. *Acta Vet Scand* 1996;37:481-490.
25. Bergeron R, Gonyou HW, Eurell TE. Behavioral and physiological responses of Meishan, Yorkshire and crossbred gilts to conventional and turn-around gestation stalls. *Can J Anim Sci* 1996;76:289-297.
26. Lawrence AB, Petherick JC, McLean KA, et al. The effect of environment on behavior, plasma cortisol and prolactin in parturient sows. *Appl Anim Behav Sci* 1994;39:313-330.
27. Zanella AJ, Brunner P, Unshelm J, et al. The relationship between housing and social rank on cortisol, β -endorphin and dynorphin (1-13) secretion in sows. *Appl Anim Behav Sci* 1998;59:1-10.
28. Marchant JN, Rudd AR, Broom DM. The effects of housing on heart rate of gestating sows during specific behaviours. *Appl Anim Behav Sci* 1997;55:67-78.
29. Damin BI, Bilidsoe M, Gilbert C, et al. The effects of confinement on periparturient behaviour and circulating prolactin, prostaglandin F-2 alpha and oxytocin in gilts with access to a variety of nest materials. *Appl Anim Behav Sci* 2002;76:1350-1356.
30. Mendil M, Zanella AJ, Broom DM. Physiological and reproductive correlates of behavioural strategies in female domestic pigs. *Anim Behav* 1992;44:1107-1121.
31. Stolba A, Wood-Gush DGM. The behaviour of pigs in a semi-natural environment. *Anim Prod* 1989;48:419-425.
32. Gonyou HW. The social behaviour of pigs. In: Keeling LJ, Gonyou HW, eds. *Social behaviour in farm animals*. Wallingford, UK: CAB International, 2001.
33. Matthews LR, Ladewig J. Environmental requirements of pigs measured by behavioural demand functions. *Anim Behav* 1994;47:713-719.
34. Anil L, Anil SS, Deen J. Relationship between postural behaviour and gestation stall dimensions in relation to sow size. *Appl Anim Behav Sci* 2002;77:173-181.
35. Fredeen HT, Sather AP. Joint damage in pigs reared under confinement. *Can J Anim Sci* 1978;58:759-773.
36. Sather AP, Fredeen HT. The effect of confinement housing upon the incidence of leg weakness in swine. *Can J Anim Sci* 1982;62:1119-1128.
37. Marchant JN, Broom DM. Factors affecting posture-changing in loose-housed and confined gestating sows. *Anim Sci* 1996;63:477-485.
38. Copado F, de Aluja AS, Mayagoitia L, et al. The behaviour of free-ranging pigs in the Mexican tropics and its relationships with human faeces consumption. *Appl Anim Behav Sci* 2004;88:243-252.
39. Marchant-Forde RM, Marchant-Forde JN. Pregnancy-related changes in behavior and cardiac activity in primiparous pigs. *Physiol Behav* 2004;82:815-825.
40. Boyle LA, Leonard FC, Lynch PB, et al. Effect of gestation housing on behaviour and skin lesions of sows in farrowing crates. *Appl Anim Behav Sci* 2002;76:119-134.
41. Terlouw EM, Lawrence AB, Illius AW. Influences of feeding level and physical restriction on development of stereotypes in sows. *Anim Behav* 1991;42:981-991.
42. Lawrence AB, Terlouw EM. A review of behavioral factors involved in the development and continued performance of stereotypic behaviors in pigs. *J Anim Sci* 1993;71:2815-2825.
43. Terlouw EM, Lawrence AB. Long-term effects of food allowance and housing on development of stereotypes in pigs. *Appl Anim Behav Sci* 1993;38:103-126.
44. Arey DS, Edwards SA. Factors influencing aggression between sows after mixing and the consequences for welfare and production. *Livestock Prod Sci* 1998;56:61-70.
45. Appleby MC, Lawrence AB. Food restriction as a cause of stereotypic behaviour in tethered gilts. *Anim Prod* 1987;45:103-110.
46. Fraser AF, Broom DM. *Farm animal behaviour and welfare*. Wallingford, UK: CAB International, 1997.
47. Fraser D. Selection of bedded and unbedded areas by pigs in relation to environmental temperature and behaviour. *Appl Anim Behav Sci* 1985;14:117-126.
48. de Leeuw JA, Ekkel ED. Effects of feeding level and the presence of a foraging substrate on the behaviour and stress physiological response of individually housed gilts. *Appl Anim Behav Sci* 2004;86:15-25.
49. Olsen AW, Simonsen HB, Dybkjaer L. Effect of access to roughage and shelter on selected behavioural indicators of welfare in pigs housed in a complex environment. *Anim Welf* 2002;11:75-87.
50. Arellano PE, Pijoan C, Jacobson LD, et al. Stereotyped behaviour, social interactions and suckling pattern of pigs housed in groups or in single crates. *Appl Anim Behav Sci* 1992;35:157-166.
51. Vieuille-Thomas C, Pape GL, Signoret JP. Stereotypies in pregnant sows: indications of influence of the housing system on the patterns expressed by the animals. *Appl Anim Behav Sci* 1995;44:19-27.
52. Backus GBC, Vermeer HM, Roelofs PFMM, et al. *Comparison of four housing systems for non-lactating sows*. Report P1.171. Rosmalen, The Netherlands: Research Institute for Pig Husbandry, 1997.
53. Cariolet RC, Vieuille P, Morvan F, et al. Evaluation du bien-etre chez la truie gestante bloquee: relation entre le bien-etre et la productivite numerique. *J Rech Porcine Fr* 1997;29:149.
54. McGlone JJ, Salak-Johnson JL, Nicholson RI, et al. Evaluation of crates and girth tethers for sows: reproductive performance, immunity, behavior and ergonomic measures. *Appl Anim Behav Sci* 1994;39:297-311.
55. Barnett JL, Winfield CG, Cronin GM, et al. The effect of individual and group housing on behavioural and physiological responses related to the welfare of pregnant pigs. *Appl Anim Behav Sci* 1985;14:149-181.
56. Dailey JW, McGlone JJ. Oral/nasal/facial and other behaviors of sows kept individually outdoors on pasture, soil or indoors in gestation crates. *Appl Anim Behav Sci* 1997;52:25-43.
57. Horrell I, A'Ness PA. Stone chewing in outdoor pigs, in *Proceedings, 33rd Int Cong Int Soc Appl Ethol* 1999:88.
58. Morris JR, Hurnik JF, Friendship RM, et al. The behavior of gestating swine housed in the Hurnik-Morris system. *J Anim Sci* 1993;71:3280-3284.
59. Spoolder HA, Burbidge JA, Edwards SA, et al. Provision of straw as a foraging substrate reduces the development of excessive chain and bar manipulation in food restricted sows. *Appl Anim Behav Sci* 1995;43:249-262.
60. Cronin GM, Wiepkema PR. An analysis of stereotyped behaviour in tethered sows. *Ann Rech Vet* 1984;15:263-270.
61. Schouten W, Rushen J. Effects of naloxone on stereotypic and normal behaviour of tethered and loose-housed sows. *Appl Anim Behav Sci* 1992;33:17-26.
62. Rushen JP. Stereotyped behaviour, adjunctive drinking and the feeding periods of tethered sows. *Anim Behav* 1984;32:1059-1067.
63. Rushen JP. Stereotypies, aggression and the feeding schedules of tethered sows. *Appl Anim Behav Sci* 1985;14:137-147.
64. Robert S, Matte JJ, Farmer C, et al. High-fibre diets for sows: effects on stereotypies and adjunctive drinking. *Appl Anim Behav Sci* 1993;37:297-309.
65. McGlone JJ, Fullwood SD. Behavior, reproduction, and immunity of crated pregnant gilts: effects of high dietary fiber and rearing environment. *J Anim Sci* 2001;79:1466-1474.
66. Brouns F, Edwards SA, English PR. Effect of dietary fibre and feeding system on activity and oral behaviour of group housed gilts. *Appl Anim Behav Sci* 1994;39:215-223.
67. Bergeron R, Bolduc J, Ramonet Y, et al. Feeding motivation and stereotypies in pregnant sows fed increasing levels of fibre and/or food. *Appl Anim Behav Sci* 2000;70:27-40.
68. Zanella AJ, Broom DM, Hunter JC, et al. Brain opioid receptors in relation to stereotypies, inactivity, and housing in sows. *Physiol Behav* 1996;59:769-775.
69. Wechsler B. Coping and coping strategies: a behavioural view. *Appl Anim Behav Sci* 1995;43:123-124.
70. von Borell E, Hurnik JF. Stereotypic behavior and productivity of sows. *Can J Anim Sci* 1990;70:953-956.
71. Mason GJ. Forms of stereotypic behavior. In: Lawrence AB, Rushen J, eds. *Stereotypic animal behaviour: fundamentals and applications to welfare*. Wallingford, UK: CAB International, 1993;7-40.
72. Stolba A, Baker N, Wood-Gush DGM. The characterization of stereotyped behaviour in stalled sows by informational redundancy. *Behavior* 1984;87:157-182.

73. Vestergaard K. An evaluation of ethological criteria and methods in the assessment of well-being in sows. *Ann Rech Vet* 1984;15:227-235.
74. Spoolder HAM, Burbidge JA, Edwards SA, et al. Effects of food level on performance and behaviour of sows in a dynamic group-housing system with electronic feeding. *Anim Sci* 1997;65:473-482.
75. Vestergaard K, Hansen LL. Tethered versus loose sows: ethological observations and measures of productivity. I. Ethological observations during pregnancy and farrowing. *Ann Rech Vet* 1984;15:245-258.
76. Barnett JL, Hemsworth PH, Cronin GM, et al. Effects of design of individual cage-stalls on the behavioural and physiological responses related to the welfare of pregnant pigs. *Appl Anim Behav Sci* 1991;32:23-33.
77. Jensen KH, Sorensen LS, Bertelsen D, et al. Management factors affecting activity and aggression in dynamic group housing systems with electronic sow feeding: a field trial. *Anim Sci* 2000;71:535-545.
78. Weng RC, Edwards SA, English PR. Behaviour, social interactions and lesion scores of group-housed sows in relation to floor space allowance. *Appl Anim Behav Sci* 1998;59:307-316.
79. Rizvi S, Nicol CJ, Green LE. Risk factors for vulva biting in breeding sows in south-west England. *Vet Rec* 1998;143:654-658.
80. van Putten G, van de Burgwal JA. Vulva biting in group-housed sows: preliminary report. *Appl Anim Behav Sci* 1990;26:181-186.
81. Kroneman A, Vellenga L, van der Wilt FJ, et al. Review of health problems in group-housed sows, with special emphasis on lameness. *Vet Q* 1993;15:26-29.
82. Blackshaw JK, Blackshaw AW, McGlone JJ. Startle-freeze behaviour in weaned pigs. *Int J Comp Physiol* 1998;99:30-39.
83. Anil L, Bhend KM, Baidoo SK, et al. Comparison of injuries in sows housed in gestation stalls versus group pens with electronic sow feeders. *J Am Vet Med Assoc* 2003;223:1334-1338.
84. Gjein H, Larssen RB. Housing of pregnant sows in loose and confined systems—a field study. 2. Claw lesions: morphology, prevalence, location and relation to age. *Acta Vet Scand* 1995;36:433-442.
85. England DC, Spurr DT. Litter size of swine confined during gestation. *J Anim Sci* 1969;28:220-223.
86. Schmidt WE, Stevenson JS, Davis DL. Reproductive traits of sows penned individually or in groups until 35 days after breeding. *J Anim Sci* 1985;60:755-759.
87. Hemsworth PH, Salden NTCJ, Hoogerbrugge A. The influence of the post-weaning social environment on the weaning to mating interval of the sow. *Anim Prod* 1982;35:41-48.
88. Peltoniemi OA, Love RJ, Heinonen M, et al. Seasonal and management effects on fertility of the sow: a descriptive study. *Anim Reprod Sci* 1999;55:47-61.
89. Love RJ, Klupiec C, Thornton EJ, et al. An interaction between feeding rate and season affects fertility of sows. *Anim Reprod Sci* 1995;39:275-284.
90. Lynch PB, O'Grady JF, Kearney PA. Effect of housing system on sow productivity. *Ann Rech Vet* 1984;15:181-184.
91. den Ouden M, Nijssing JT, Dijkhuizen AA, et al. Economic optimization of pork production marketing chains. I. Model input on animal welfare and costs. *Livestock Prod Sci* 1997;48:23-37.
92. Jensen P, von Borell E, Broom DM, et al. The welfare of intensively kept pigs. Report of the Scientific Veterinary Committee, Animal Welfare Section, to the Commission of the European Union. Doc XXIV/B3/ScVC/0005/1997. Adopted September 30, 1997. Available at: europa.eu.int/comm/dg24/health/sc/oldcomm4/out17_en.pdf.
93. Turner J. *The welfare of Europe's sows in close confinement stalls*. Hampshire, UK: Compassion in World Farming Trust, 2000.
94. van Heugten E. Housing of sows and gilts in Denmark. *Swine News* 2003;26(3):3-4.
95. Edwards SA, Fraser D. Housing systems for farrowing and lactation. *Fig J* 1997;39:77-89.

Appendix C

Pregnant Sow Housing

(Approved by AVMA Executive Board June 2005)

Pregnant sows (including gilts) are kept in a variety of production systems. The industry has moved toward gestation stall (crate) housing, because gestation stalls increase caregiver productivity, require lower capital investment, and are easier to manage than some indoor group housing systems.

The AVMA recognizes that veterinarians approach the issue of pregnant sow housing from different viewpoints based on personal and societal values. Some veterinarians are opposed in principle to close confinement of animals, some are opposed in principle to the use of animals for food, and some work with the swine industry to maintain animal health and productivity. This position statement is based on consideration of animal welfare as assessed through the scientific literature and professional judgment and experience.

Concerns that commonly arise regarding animal welfare are that:

- Animals should function well in the sense of being healthy and thriving,
- Animals should feel well, especially by prevention of serious pain, hunger, fear, and other forms of suffering, and
- Animals can live in a manner consistent with the nature of their species.

Each of these elements needs to be considered when drawing conclusions about animal welfare.

The science of animal welfare includes assessments of physiology, behavior, production and health. A review of the literature indicated the following:

- *Physiology*—Gestation stalls do not induce a physiologic stress response compared to group housing for pregnant sows.
- *Behavior*—Sows show different behavior when housed in gestation stalls as compared to some group pens because of restricted movement, reduced caloric consumption, reduced opportunities to forage, absence of bedding, and restricted social interaction.
- *Production*—Sows kept in gestation stalls have production performance not different than sows kept in groups.
- *Health*—The rate of sow injury is reduced in gestation stall housing compared with group housing. Industry experience indicates that other aspects of health are predominantly affected by factors other than the housing system.

The science and professional judgment indicate that we cannot consider housing systems in isolation from other important factors that influence animal welfare. These include:

- *Management*—This by itself is a major determinant of animal welfare. Some housing systems can be expected to work well at one level of management, but not at another.
- *Feeding system*—With concentrated diets, there is a need to limit feeding to avoid health problems, but this can result in chronic hunger, restlessness, motivation to forage, and competition for food. Systems that might work well with one feeding system may not work well with another.
- *Environmental features*—Certain environmental features allow sows to occupy their time and escape from aggressive group mates. How well a housing system functions may depend on whether such features are present.
- *Type of sow*—There are important genetic differences in temperament that affect how well sows function in different housing systems. There are also individual differences; a housing system that is good for more dominant animals may not be favorable for less dominant ones.

Conclusions:

1. Given the number of variables and large variation in performance within both group and stall systems for pregnant sows, no one system is clearly better than others under all conditions and according to all criteria of animal welfare.
2. Sow housing systems should:
 - Minimize aggression and competition among sows;
 - Protect sows from detrimental effects associated with environmental extremes, particularly temperature extremes;
 - Reduce exposure to hazards that result in injuries, pain, or disease;
 - Provide every animal with daily access to appropriate food and water;
 - Facilitate observation of individual sow appetite, respiratory rate, urination and defecation, and reproductive status by caregivers; and
 - Allow sows to express most normal patterns of behavior.
3. All systems have advantages and disadvantages for welfare. Current group systems allow freedom of movement and social interaction. However, these same systems, when they fail to work well, lead to problems, especially in the areas of aggression, injury, and uneven body condition. When they lack manipulable material, sows in group systems are also unable to forage. Current stall systems minimize aggression and injury, reduce competition, allow individual feeding, and assist in control of body condition. Stalls, however, also restrict movement, exercise, foraging behavior and social interaction. Because the advantages and disadvantages of housing systems are qualitatively different, there is no simple or objective way to rank systems for "overall" welfare.
4. To address animal welfare in the long term, advantages of current housing systems should be retained while making improvements to overcome problems identified. Improvements should be adopted as soon as:
 - The technology is sound enough that producers can adopt it with confidence,
 - The skills needed to operate the systems are understood and available, and
 - Systems are economically viable.

TESTIMONY OF STEVEN L. LEARY, D.V.M.
PRESENTING ON BEHALF OF
THE NATIONAL ASSOCIATION FOR BIOMEDICAL RESEARCH
BEFORE THE
HOUSE COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON LIVESTOCK, DAIRY AND POULTRY
May 8, 2007

Mr. Chairman and members of the Subcommittee,

Thank you for allowing me to testify today and for conducting this hearing on animal welfare. I am Dr. Steven L. Leary, Assistant Vice Chancellor for Veterinary Affairs at Washington University. I am testifying today on behalf of the National Association for Biomedical Research (NABR). NABR is the only national, nonprofit organization dedicated solely to advocating sound public policy that recognizes the vital role of humane animal use in biomedical research, higher education and product safety testing. Founded in 1979, NABR provides the unified voice for the scientific community on legislative and regulatory matters affecting laboratory animal research. NABR's membership is comprised of more than 300 public and private universities, medical and veterinary schools, teaching hospitals, voluntary health agencies, professional societies, pharmaceutical and biotechnology companies, and other animal research-related firms.

Animal research has played a vital role in virtually every major medical advance of the last century – for both human and animal health. From antibiotics to blood transfusions, from dialysis to organ transplantation, from vaccinations to chemotherapy, bypass surgery and joint replacement, practically every present-day protocol for the prevention, treatment, cure and control of disease, pain and suffering is based on knowledge attained through research with animals. Ample proof of the success of animal research can be found in the vast body of Nobel Prize winning work in physiology and medicine. Seven out of the last 10 Nobel Prizes in medicine and 68 awarded since 1901 have relied, at least in part, on animal research.

Thanks to animal research

Thanks to animal research, many diseases that once killed millions of people every year are either treatable or have been eradicated altogether. Immunizations against polio, diphtheria, mumps, rubella and hepatitis save countless lives and the survival rates from many major diseases, such as cancer and AIDS, are at an all time high thanks to the discovery of new drugs, medical devices and surgical procedures. According to the American Cancer Society, the “War on Cancer” has seen 24 significant biomedical advances made in the past 30 years. None of them could have occurred without animal research. Eight of the discoveries required the use of living animals and virtually all of those that did not use animals relied on information gained from earlier animal studies. Six of the discoveries were recognized with a Nobel Prize, among them: the bone marrow transplantation technique (E. Donnall Thomas, M.D.); cloning of the first gene (Paul Berg, Ph.D.) and discovery of proto-oncogenes in normal DNA showing that a normal cell could have latent cancer genes (J. Michael Bishop, M.D. and Harold Varmus, M.D.).

Animal research for animal health has also resulted in many remarkable life-saving and life-extending treatments for cats, dogs, farm animals, wildlife and endangered species. Pacemakers, artificial joints, organ transplants, decreased arthritic pain and vaccines for rabies, distemper, parvo virus, infectious hepatitis, anthrax, tetanus and feline leukemia contribute to longer, happier and healthier lives for animals. New treatments for glaucoma, heart disease, cancer and hip dysplasia can save, extend or enhance the life of a beloved pet and exciting new reproductive techniques are helping to preserve and protect threatened species.

The public understands the need for animal research

Key findings from a recent national public opinion survey on animal research found overwhelming support of animal research. In fact, 81% agree with medical and scientific research using laboratory animals if they believe it will help alleviate suffering from a serious disease.

Animal research is a requirement

Research on animals is in many cases an obligation that prevents humans from being used as medical "guinea pigs." According to the Nuremberg Code, drawn up after World War II as a result of Nazi atrocities, any research on humans "should be designed and based on the results of animal experimentation." The Declaration of Helsinki, adopted in 1964 by the 18th World Medical Assembly and revised in 1975, also states that medical research on human subjects "should be based on adequately performed laboratory and animal experimentation." As well, the Food and Drug Administration expressly requires

that laboratory animal tests be conducted both for prescription drugs and over-the-counter drugs before these products can be tested further in humans.

The regulations are thorough and effective

Responsible regulation is a very important component of oversight to instill public confidence in animal research. Congress already has provided the mechanism for the assurances of proper care and treatment of laboratory animals with the 1966 enactment of the Animal Welfare Act. Over time and multiple subsequent amendments, Congress has expanded and refined the regulatory framework of the Act based on both public demand and continued advances in laboratory animal medicine. For example, the 1985 amendments to the Animal Welfare Act required the establishment of the Institutional Animal Care and Use Committee (IACUC) which is required in every registered research facility. Some of the highlights of these sweeping amendments strengthened standards of animal care by requiring training for personnel, expanded requirements to promote psychological well-being of non-human primates and exercise for dogs. They also created a national information service, the USDA's Animal Welfare Information Center, which provides information on best practices in laboratory animal research. Every research facility in the country receives at least one unannounced USDA inspection annually.

Although the USDA is the federal agency charged with enforcement of the Animal Welfare Act, other federal agencies also play an important role in oversight of animal research. In fact, any research institution working with or receiving funds from the National Institutes of Health (NIH), the Food and Drug Administration (FDA), or the Centers for Disease Control and Prevention (CDC) must comply with the Public Health

Service (PHS) Policy on Humane Care and Use of Laboratory Animals, when using live vertebrate animals. The IACUC, which is taken very seriously by each research institution, is an internal committee that is charged with reviewing, approving, and monitoring research protocols. An IACUC is comprised of a minimum of five members consisting of a veterinarian, a practicing scientist using animals, a non-scientist, an individual not affiliated with the institution, and other individuals as designated by the institution. IACUC approval for a proposed research project must be acquired before any government funds can be secured. IACUCs require a major commitment from those who serve, but they have proved to be very effective in acting as a safeguard to insure that the research proposed is meritorious, uses the fewest number of animals to obtain statistically sound research results and the lowest species possible to answer the research question being asked.

Efforts to ensure animal welfare go beyond the regulations

Many institutions have gone above and beyond what is required of them by the law. Ninety-nine of the top 100 NIH awardee institutions, all US and many international locations of all PhRMA members, all large and most medium-sized biotech companies, all NIH, DOD and VA intramural research programs, have voluntarily sought accreditation with the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC International). In order to receive AAALAC accreditation, institutions must follow thorough guidelines set forth by the "*Guide for the Care and Use of Laboratory Animals*" published by the National Research Council. Many institutions also voluntarily seek training certification from the American

Association for Laboratory Animal Science (AALAS) for laboratory animal care staff to ensure the proper handling and care of animals in research. Good care of laboratory animals is not only a moral and ethical responsibility but is essential for valid results. An unsanitary lab, poor diet or stressed animals all hinder the scientific process.

In addition, a number of non-animal procedures and tests have been developed to supplement animal research. Computer modeling, in vitro testing, genetic research, and post marketing drug surveillance all serve as valuable adjuncts to basic animal research. As part of the evolution of scientific research and an increased understanding of the complex biology of the vertebrate animal, new techniques are developed and validated. But there still is no replacement for animal research. Researchers do place a high priority on “The Three Rs” – reduction, replacement and refinement. Here in the US, our research communities are committed to supporting techniques that: reduce the number of animals used, replace animals with other models wherever possible, and refine tests to ensure the most humane conditions possible.

Conclusion

We are all challenged with that delicate balance of insuring the public trust and the highest standard of care for laboratory animals with a regulatory mandate that still allows the freedom of inquiry so important to medical discovery. We who are directly involved with animal research share this challenge and concern. In fact, it is that very concern which has drawn many of us to choose careers in veterinary medicine or medical research. We, too, have family members who contract diseases. We, too, have pets that

become ill. For these reasons, we are dedicated to finding ways to cure both human and animal ailments. In the words of the esteemed Dr. Michael E. DeBakey, chancellor emeritus of the Baylor College of Medicine and Director of the DeBakey Heart Center: “These scientists, veterinarians, physicians, surgeons and others who do research in animal labs are as much concerned about the care of the animals as anyone can be. Their respect for the dignity of life and compassion for the sick and disabled, in fact, is what motivated them to search for ways of relieving the pain and suffering caused by diseases.”

Thank you, Mr. Chairman and members of the Subcommittee, for the opportunity to testify before you today. I look forward to answering any questions you may have.

Nobel Prizes The Payoff from Animal Research



The Nobel Prize is the most prestigious scientific award in the world. Awarded annually since 1901, the Nobel Prize recognizes outstanding accomplishment in physics, chemistry, and medicine, as well as in literature, economics, and the promotion of peace.

Ample proof of the success of animal research can be found in the vast body of Nobel Prize winning work in physiology and medicine. Although great advances have been made in computer modelling and cell cultures, animal research remains essential to medical progress: seven of the last ten Nobel Prizes in medicine have relied at least in part on animal research.

The oldest groups opposing animal research were formed in the 1890's. Had they succeeded in their mission to end all animal research, none of these Nobel-prize-winning medical breakthroughs would have been made.

Year	Scientist(s)	Animal(s)	Contributions Made
2004	Axel, Buck	Mouse	Odorant receptors and the organization of the olfactory system
2003	Lauterbur, Mansfield	Clam, rat	Imaging of human internal organs with exact and non-invasive methods (MRI)
2002	Brenner, Horvitz, Sulston	Roundworm	Genetic regulation of organ development and programmed cell death
2000	Carlsson, Greengard, Kandel	Mouse, Guinea pig, sea slug	Signal transduction in the nervous system
1999	Blobel	Various animal cells	Proteins have intrinsic signals that govern their transport and localization in the cell.
1998	Furchgott, Ignarro, Murad	Rabbit	Nitric oxide as signaling molecule in cardiovascular system
1997	Prusiner*	Hamster, mouse	Discovery and characterization of prions
1996	Doherty, Zinkernagel	Mouse	Immune-system detection of virus-infected cells
1995	Lewis, Wieschaus, Nusslein-Volhard	Fruit fly	Genetic control of early structural development
1992	Fischer, Krebs	Rabbit	Regulatory mechanism in cells
1991	Neher, Sakmann	Frog	Chemical communication between cells
1990	Murray*, Thomas*	Dog	Organ transplantation techniques
1989	Varmus, Bishop	Chicken	Cellular origin of retroviral oncogenes
1987	Tonegawa	Mouse	Basic principles of antibody synthesis
1986	Levi-Montalcini, Cohen	Mouse, chick, snake	Nerve growth factor and epidermal growth factor
1984	Milstein, Kohler, Jerne	Mouse	Techniques of monoclonal antibody formation
1982	Bergstrom, Samuelsson, Vane	Ram, rabbit, guinea pig	Discovery of prostaglandins

Year	Scientist(s)	Animal(s)	Contributions Made
1981	Sperry, Hubel*, Wiesel*	Cat, monkey	Processing of visual information by the brain
1980	Benacerraf, Dausset, Snell	Mouse, guinea pig	Identification of histocompatibility antigens and mechanism of action
1979	Cormack, Hounsfield	Pig	Development of computer assisted tomography (CAT scan)
1977	Guilemin, Schally, Yalow	Sheep, swine	Hypothalamic hormones
1976	Blumberg, Gajdusek	Chimpanzee	Slow viruses, and new mechanisms for dissemination of diseases
1975	Baltimore*, Dulbecco, Temin	Monkey, horse, chicken, mouse	Interaction between tumor viruses and genetic material
1974	de Duve, Palade, Claude	Chicken, guinea pig, rat	Structural and functional organization of cells
1973	von Frisch, Lorenz, Tinbergen	Bee, bird	Organization of social and behavioral patterns in animals
1972	Edelman, Porter	Guinea pig, rabbit	Chemical structure of antibodies
1971	Sutherland	Mammalian liver	Mechanism of the actions of hormones
1970	Katz, von Euler, Axelrod	Cat, rat	Mechanisms of storage and release of nerve transmitters
1968	Holley, Khorana, Nirenberg	Rat	Interpretation of genetic code and its role in protein synthesis
1967	Hartline, Granit, Wald	Chicken, rabbit, fish, crab	Primary physiological and chemical processes of vision
1966	Rous, Huggins	Rat, rabbit, hen	Tumor-inducing viruses and hormonal treatment of cancer
1964	Bloch, Lynen	Rat	Regulation of cholesterol and fatty acid metabolism
1963	Eccles, Hodgkin, Huxley	Cat, frog, squid, crab	Ionic involvement in excitation and inhibition in peripheral and central portions of the nerve
1961	von Bekesy	Guinea pig	Physical mechanism of stimulation in the cochlea
1960	Burnet, Medawar	Rabbit	Understanding of acquired immune tolerance
1957	Bovet	Dog, rabbit	Production of synthetic curare and its action on vascular and smooth muscle
1955	Theorell	Horse	Nature and mode of action of oxidative enzymes
1954	Enders, Weller, Robbins	Monkey, mouse	Culture of poliovirus that led to development of vaccine
1953	Krebs, Lipmann	Pigeon	Characterization of the citric acid cycle
1952	Waksman	Guinea pig	Discovery of streptomycin
1951	Theiler	Monkey, mouse	Development of yellow fever vaccine
1950	Kendall, Hench, Reichstein	Cow	Antiarthritic role of adrenal hormones
1949	Hess, Moniz	Cat	Functional organization of the brain as a coordinator of internal organs
1947	Carl Cori, Gerty Cori Houssay	Frog, toad, dog	Catalytic conversion glycogen; role of pituitary in sugar metabolism
1945	Fleming, Chain, Florey	Mouse	Curative effect of penicillin in bacterial infections

Year	Scientist(s)	Animal(s)	Contributions Made
1944	Erlanger, Gasser	Cat	Specific functions of nerve cells
1943	Dam, Doisy	Rat, dog, chick, mouse	Discovery of function of vitamin K
1939	Domagk	Mouse, rabbit	Antibacterial effects of prontosil
1938	Heymans	Dog	Role of the sinus and aortic mechanisms in regulation of respiration
1936	Dale, Loewi	Cat, frog, bird, reptile	Chemical transmission of nerve impulses
1935	Spemann	Amphibian	Organizer effect in embryonic development
1934	Whipple, Murphy, Minot	Dog	Liver therapy for anemia
1932	Sherrington, Adrian	Dog, cat	Functions of neurons
1929	Eijkman, Hopkins	Chicken	Discovery of antineuritic and growth stimulating vitamins
1928	Nicolle	Monkey, pig, rat, mouse	Pathogenesis of typhus
1924	Einthoven	Dog	Mechanism of the electrocardiograph
1923	Banting, Macleod	Dog, rabbit, fish	Discovery of insulin and mechanism of diabetes
1922	Hill, Meyerhof	Frog	Consumption of oxygen and lactic acid metabolism in muscle
1920	Krogh	Frog	Discovery of capillary motor regulating system
1919	Bordet	Guinea pig, horse, rabbit	Mechanisms of immunity
1913	Richet	Dog, rabbit	Mechanisms of anaphylaxis
1912	Carrel	Dog	Surgical advances in the suture and grafting of blood vessels
1910	Kossel	Bird	Knowledge of cell chemistry through work on proteins including nuclear substances
1908	Metchnikov, Ehrlich	Bird, fish, guinea pig	Immune reactions and functions of phagocytes
1907	Laveran	Bird	Role of protozoa as cause of disease
1906	Golgi, Cajal	Dog, horse	Characterization of the central nervous system
1905	Koch	Cow, sheep	Studies of pathogenesis of tuberculosis
1904	Pavlov	Dog	Animal responses to various stimuli
1902	Ross	Pigeon	Understanding of malaria life cycle
1901	von Behring	Guinea pig	Development of diphtheria antiserum

**Statement of the
UNITED EGG PRODUCERS
Before the
SUBCOMMITTEE ON LIVESTOCK, DAIRY, AND
POULTRY
COMMITTEE ON AGRICULTURE
U.S. HOUSE OF REPRESENTATIVES**

May 8, 2007

Good morning, Mr. Chairman and members of the subcommittee. My name is Gene Gregory and I am the president of United Egg Producers. I have worked for UEP for the past 25 years. Earlier in my career I was in the egg business, working for Corn Belt Hatcheries in Central Illinois for more than 20 years, with 10 years of that time spent as general manager. We owned breeder flocks and laying hens, and also operated two feed mills and a poultry house construction company.

About UEP

I appreciate the opportunity to testify on behalf of UEP at this important hearing. About 90% of all the eggs in the United States are produced by UEP members. We are a farm cooperative, and in addition to performing all the functions of a trade association, we also administer a program of animal husbandry standards called the UEP Certified Program, which I will discuss later in my testimony. In addition, we negotiate and conclude export sales through our subsidiary, U.S. Egg Marketers, as well as providing egg trading, access to insurance and other services.

UEP prides itself on being a forward-looking, proactive organization. When our members see a trend in society or government that will affect our entire industry, we work hard to develop an industry strategy for acting, not reacting. Right now, for example, UEP members are cooperating with the Environmental Protection Agency in a major study that will measure air emissions in order to form a sound basis for environmental policy decisions. Through our management of the Egg Nutrition Center, UEP has joined with other groups in providing up-to-date information to the public on highly pathogenic avian influenza.

The Egg Industry and Animal Welfare

We approach animal welfare with the same spirit of proactive leadership. Let me say unequivocally that the well-being of farm animals is a legitimate topic of public interest. We are fortunate that a significant amount of scientific research has been carried out on this subject in the last few years. Animal welfare is of increasing importance to our customers in food retailing and food service, and to their customers, American consumers.

Unfortunately, animal welfare also seems to be a subject that lends itself to emotion, unsubstantiated allegations and extremist tactics. It is also sometimes hard to know where concern for animal welfare ends and opposition to the very existence of animal agriculture begins. Later in my testimony, I will cite some quotations from animal rights activists that illustrate this point.

If we reduce animal husbandry standards to emotion, or subjective views of what “feels right,” we will base the care of animals on nothing more than opinion and endless argument. That is not good enough.

A Science-Based Approach

Instead, we need to use science to develop and implement standards for animal care. That is why, in the late 1990s, UEP commissioned an unpaid scientific advisory committee to review the animal welfare standards we had at the time and advise us about science-based changes we should make.

The chair of that committee, then and now, was Dr. Jeffrey Armstrong. Then he was head of the animal science department at Purdue University, and he is now dean of the College of Agriculture and Natural Resources at Michigan State University. Dr. Armstrong is an expert on animal welfare and he brought together nine other scientists and experts in the fields of animal welfare and well-being from a variety of academic institutions, government and the American Humane Association. To ensure its objectivity, the committee did not include any producers as members.

The scientific committee recommended significant changes in egg production practices. UEP accepted the recommendations and today about 85% of our industry has implemented them. This has not come without cost. For example, one of the most important recommendations was to increase the amount of space for each bird in caged production systems, with the increase in space ranging from 26%-40%. When this recommendation is followed, the total number of birds in a henhouse will fall and total egg output will decline (though individual bird productivity may be enhanced). Thus, producers' fixed costs for each unit of output increase.

Dr. Armstrong has written and spoken extensively about UEP's adoption of scientific guidelines. On behalf of the entire committee, he has said, “We believe these guidelines set the baseline for humane care.” He also adds: “With consummate professionalism and

a commitment to science-based research findings, the United Egg Producers have worked diligently to move their members to full adoption of the guidelines.” Coming from as distinguished a scientist as Dr. Armstrong, this praise means a great deal to us at UEP.

As the years have gone by, the scientific committee has made a number of additional recommendations. UEP has never rejected a recommendation by the committee – a remarkable track record that reflects our industry’s determination to follow the best available science.

The UEP Certified Program

The committee’s recommendations became what is now the UEP Certified Program. This program features a trademarked seal approved by the Federal Trade Commission and the U.S. Department of Agriculture that producers can place on their egg cartons if they adhere to the UEP Certified guidelines.

We do not simply take a producer’s word that he or she is in compliance. Every participating producer is subject to an annual third-party audit. Most of these are conducted by the USDA’s Agricultural Marketing Service for a fee, and others by Validus Services, LLC. This arm’s-length audit process assures our customers that they can rely on the UEP Certified seal.

If a producer wants to be part of the UEP Certified Program, all of that producer’s operations must conform to our animal care standards. We do not allow producers to enroll some of their production in our program and violate our guidelines in other areas of their business. Our members have consistently felt that animal husbandry is a commitment on our part to give appropriate care to *all* our flocks, not just some.

We are proud of our guidelines and we are happy to discuss them with anyone. They are public and anyone who wants to read them can do so at http://www.uepcertified.com/docs/2006_UEPanimal_welfare_guidelines.pdf

Choices for Consumers

Our guidelines primarily deal with caged production because over 95% of laying hens in the United States and more than 90% worldwide are housed in cages. However, we are in favor of consumers having choices – including cage-free, free-range and organic eggs. These “specialty” eggs are a growing category, though still very small compared to the total egg market. Some UEP members produce these and other types of specialty eggs.

We do vigorously dispute the proposition that only free-range or cage-free production is humane. We disagree with that view, and so does our scientific advisory committee. Caged housing systems protect birds from predators and diseases such as highly pathogenic avian influenza. Cage systems also may reduce pecking and other aggressive behavior, including cannibalism. The way eggs are handled in cage systems may also reduce the chance that the outside of the egg will be contaminated with feces, offering a

food-safety benefit. Cage-free systems have some advantages, such as allowing greater latitude for birds to engage in behaviors like scratching or dust-bathing.

In the current system, consumers do have a range of choices, and a small but growing number have decided to pay the premium price for cage-free, free-range or organic eggs. These types of eggs are substantially more expensive to produce and retail stores charge more for them. In round numbers, if a dozen conventionally-produced eggs sell for a little more than \$1, you can expect to pay around \$2.50 for cage-free eggs and well over \$3 for organic eggs.

The Price of Restricting Choices

As long as consumers are free to make their own choices, we have confidence that the marketplace will provide a reliable supply of eggs, which are a low-cost protein source and an excellent source of choline, among many other nutritional benefits. But if consumers' choices are restricted, as some animal-rights activists would like to do, the consequence will be higher food costs for low-income Americans and a greater strain on our land resources.

For example, in the hypothetical case where all U.S. production had to be free-range, given current price relationships, consumers would have to pay an additional \$4.65 billion every year for eggs. And making some reasonable assumptions about the amount of land required for free-range production systems, we would need to find additional land resources roughly the size of the state of Delaware just to produce the same amount of eggs we do now. I am not sure where that land would come from.

I fully understand that the members of this subcommittee want to preserve consumer choices rather than take them away. Egg producers appreciate that. But we also know that some activist groups are less concerned with choice or practicality, and are simply against animal agriculture, period. That is their privilege. But I hope this subcommittee will stoutly resist their demands.

Activist Demands

There are, frankly, no steps our industry could take – short of all declaring bankruptcy and leaving our farms – that would satisfy some of the activist groups. UEP has been a target for these groups, even as we have tried to implement the best scientifically-based guidelines for the care of laying hens. Some of the activist groups have promoted, condoned or participated in break-ins at egg farms and other poultry and livestock operations. Congress passed legislation last year to deal with this kind of criminal activity, and we thank you for that.

Many activists regard animal agriculture as fundamentally illegitimate and believe people should be vegetarians or vegans. The web site of the Humane Society of the United States has this to say: **“Each one of us can help prevent animals from suffering in**

factory farms simply by choosing vegetarian options. It's never been easier to replace animal products with readily available vegetarian alternatives."

People for the Ethical Treatment of Animals makes it clear that it is not just so-called "factory farming" that they oppose – it is all of animal agriculture. **"From the 'free-range' hen who smells fresh air for the first time on her way to the slaughterhouse to the 'humanely raised' dairy cow whose male calf is taken from her and sold to veal farmers, all animals who are raised for food suffer,"** PETA writes. **"The only truly humane option is to choose vegan alternatives to meat, eggs, and dairy products."**

I am glad that you will hear from several activist groups today. I believe this is a perfect forum for them to say to you that they will not condone breaking the law, they will not glorify or support those who do break the law, and they will not provide financial or other assistance to organizations that advocate breaking the law or engage in unfair intimidation tactics. If they will give you this assurance, I commend them. If they will not do so, I would wonder why.

Let Science and the Market Work

UEP asks the members of this subcommittee to help us educate your colleagues about the importance of animal agriculture and the short-sightedness of passing poorly-thought-out legislation that would harm our industries. In just one week, egg producers from all over the nation will be in Washington, and we will talk about the UEP Certified Program in every Congressional office we visit, whether the Member's district is rural or urban. We hope this educational outreach will help you to help us.

For we do need your help. We need your support to leave production methods and consumer choices to science and the marketplace, not the dictates of government. We ask you to resist amendments to the 2007 farm bill that would harm animal agriculture, including efforts to set new and arbitrary standards for federal procurement. It is not necessary for the government to set standards for animal welfare for our industry because we have already done this ourselves, voluntarily and in cooperation with our customers, and in accordance with the best available science.

Conclusion

The U.S. livestock, poultry and dairy industries account for half of U.S. agriculture. We are the largest source of demand for most of the other half. We provide our fellow citizens with a safe, nutritious and reliable source of meat, milk and eggs. We are proud of what we do.

I have only talked about the egg industry because that is what I know. Other livestock industries have also been proactive and have similar stories to tell. I believe you will find common themes in what all of us have to say.

Animal welfare standards should be based on science, not emotion or politics.

We are trying our best to do a good job of caring for our animals and providing high-quality products to our customers.

The marketplace is the appropriate place to establish science-based standards that will allow consumers to make their own choices.

Mr. Chairman, that concludes my testimony. I will be happy to respond to your questions at the appropriate time.

Statement of Guillermo Gonzalez, Artisan Farmers Alliance

House Subcommittee on Livestock, Dairy and Poultry
Tuesday, May 8, 2007, at 10:00 a.m.
1300 Longworth House Office Building

Good morning Chairman Boswell, Ranking Member Hayes and members of the Subcommittee. My name is Guillermo Gonzalez. I am a farmer and the owner of Sonoma Foie Gras. I am here today on behalf of the Artisan Farmers Alliance, a new group that represents, among others, the three farms in the United States that produce foie gras. I thank the Committee for giving me this opportunity to set the record straight about our farming practices and to share with you the struggle of our three small farms to stay in business in the face of an aggressive assault by activists.

For those who are not familiar with foie gras, literally translated from French, foie gras means "fat liver." Foie gras dates back, at least, to ancient Egypt, where colorful relief paintings from almost 5,000 years ago depicted the hand feeding of waterfowl. This ancient farming practice spread throughout the Greek and, later, the Roman Empires. During the medieval period, Ashkenazi Jews kept the tradition alive. Goose meat served as an excellent source of nutrition, and the animal also provided cooking fat that conformed to Jewish law. It was the Ashkenazi Jewish population that brought foie gras to France, where the food became an integral part of French cooking.

As you may be able to tell from my accent, I am not French. I was born and raised in El Salvador. In the mid-1980s, I moved to France for a year to learn traditional foie gras farming techniques. In 1986, I moved to Sonoma County, California, and began to produce foie gras and other duck products. The rise in demand for foie gras was one small part of the movement in the 1980s toward more fresh, locally grown meat and produce. I operate a very small farm set in a walnut orchard southeast of Stockton, in California's great Central Valley. Last year, I raised 50,000 ducks. To put this in perspective, a modern poultry plant processes more birds in a single eight-hour shift than I do in an entire year.

On my farm, we still use very traditional methods. Once my ducklings are able to survive the elements, they are moved out of the barn and into the walnut orchard, where they are free to roam. At approximately 12 weeks, the ducks are brought inside where they are kept in collective pens for the final 17 days. During this last period, twice each day the birds are fed cooked corn using a smooth steel tube that deposits food in the pseudo crop sac. Each feeding takes from 5 to 10 seconds.

I am proud of my farm's operation. As anyone who has ever worked in animal agriculture will tell you, there is no one who cares more about animal welfare than farmers. Like others farmers, my entire livelihood depends on the health of my animals.

The age-old farming methods used in the production of foie gras have been extensively studied by scientists and veterinarians. The peer-reviewed scientific studies find that the

feeding does not create abnormal stress in the ducks. In each of the last two years, the American Veterinary Medical Association has reviewed the foie gras issue and rejected calls to label it inhumane. Last year, the AVMA sent a blue ribbon panel to review first hand the operations on a foie gras farm. Indeed, we regularly accommodate requests to visit our farms and see what we are doing.

While we farmers focus on the objective science, we are attacked on the basis of emotional appeals. Of course we understand that some people will choose not to eat our product, just as some people will choose not to eat beef or chicken or fish. That certainly is their right.

We, however, have been the subject of a sustained campaign to drive us out of business by huge, multi-million dollar organizations. Knowing they stand little chance against the large animal agriculture interests, the anti-meat activists have targeted the three small farms in the U.S. that produce foie gras. They have tried to ban the sale of our USDA inspected and approved products in many jurisdictions. They have filed countless lawsuits against us in an effort to drive us off of our land and out of business.

In many cases, activists have gone well beyond the law in their zeal to impose their views on others. My own farm and the two other U.S. foie gras farms, both in Upstate New York, have been broken into and vandalized repeatedly. They trespass, damage our property, steal our animals, and sometimes do much worse.

In 2002, I took my savings from years of farming and decided to open a restaurant in Sonoma, California. As the construction was in progress, animal activists broke into the restaurant, filled the drains with concrete, and turned on the water faucets. The restaurant was ruined. Perhaps even worse for me, a farmer who came from El Salvador to make a better life in the U.S., they spray-painted on the wall in large letters, "Go Home."

Bad as that was, I count myself lucky when compared to what they did to my business partner. Anti-meat activists stalked him and his family, including his child. Secretly, they videotaped him and his family in their daily routines. One day, the family found a wrapped package containing the tape in their front yard and a note saying, "We are watching you."

These stories highlight a disturbing trend. Acting in the name of "animal welfare," some seem to have forgotten the welfare of human farmers. Just like all others involved in agriculture, animal welfare is a primary concern for those of us in the Artisan Farmers Alliance. It is my hope that discussion of animal welfare can be based on science, fact, reason and experience rather than simply playing on human emotions. This is increasingly important as fewer and fewer Americans have a personal experience with agriculture. The truth is that food doesn't come from supermarkets. It comes from the hard work of farmers, and we ought to respect farmers for the hard work they do, not demonize them.

Thank you for this opportunity to speak with you today. I am happy to answer any questions you may have.

The Center For Consumer Freedom

Testimony of
David Martosko
Director of Research

On behalf of
The Center for Consumer Freedom

Before the
**U.S. House of Representatives Committee on Agriculture
Subcommittee on Livestock, Dairy, and Poultry**

Hearing on Animal Welfare
May 8, 2007

Thank you Chairman Boswell, Ranking Minority Member Hayes, and Members of the Subcommittee.

My name is David Martosko. I have served as Director of Research for the 501(c)(3) nonprofit Center for Consumer Freedom¹ since 2001. The Center is based here in Washington, and is managed by Berman and Company, a public affairs and association management firm. Support for the Center comes from members of the public and from private industry, including restaurant and food companies. The center receives no government grants.

I am pleased that the Subcommittee has chosen to re-examine the welfare of animals in U.S. agriculture. If recent history is any indication of what will come of your efforts, you will learn many useful things about how America's livestock systems are evolving to take the welfare of animals more and more into account. The most helpful information will likely come from agricultural scientists and farmers.

But I am here today to counsel you against considering, in any way, the input of organizations that propose to extend human "rights" to animals.

Organizations like these include the Humane Society of the United States (HSUS); Farm Sanctuary; People for the Ethical Treatment of Animals (PETA); and PETA's quasi-medical affiliate, the Physicians Committee for Responsible Medicine (PCRM). These groups have become increasingly vocal as their financial power has grown. This year, for instance, HSUS alone is expected to command a budget totaling more than \$150 million. And it has \$200 million in assets.² Some groups, like PETA, are plainspoken about their position that "animals are not

¹ www.ConsumerFreedom.com

² IRS Form 990, publicly available

ours to eat.”³ PCRM is more deceptive about its endgame, using its four-percent physician membership⁴ to pose as a mainstream medical charity that promotes vegetarianism for health reasons. Farm Sanctuary’s leaders have proven that they are not above breaking the law to get what they want, incurring massive election-fraud fines in one Florida battle that actually extended *constitutional* protections to pigs.⁵

Regardless of their respective appetite for honest and lawful debate, animal rights groups like HSUS, Farm Sanctuary, PETA, and PCRM are led by dietary “vegans”⁶ who abhor the very idea of raising animals for food. PETA, PCRM, and HSUS, for instance, employ “no animal products in the workplace” employee policies. (We’re unaware if Farm Sanctuary has such a policy, but it would be consistent with the group’s stated positions.) Not only are meat and dairy products forbidden in these organizations, but staffers are not to wear animal-derived clothing including leather shoes, silk ties, or wool suits.

It is the position of the Center for Consumer Freedom that when the topic of discussion is how to improve animal agriculture, the views of animal rights groups like these should not be taken seriously alongside those of true stakeholders who actually participate in the system. HSUS, Farm Sanctuary, PETA, and PCRM are not interested in improving animal agriculture. They seek to dismantle and destroy it. Their true agenda is to put all the real stakeholders out of business.

To be fair, some groups (PETA foremost among them) have been candid about their goal of eliminating animal protein from the diets of all human beings. One PETA Vice President has said that “eating meat ... is not your personal decision, any more than whether somebody beats their child is their personal decision.”⁷ For context, this same PETA leader has also publicly advocated “blowing stuff up and smashing windows” as “a great way to bring about animal liberation.”⁸

But the self-invented moral high ground of HSUS is far more subtle in its orientation. HSUS takes full advantage of the public misperception that it speaks for a silent animal constituency of

³ This statement can reliably be found on most of PETA’s more than 100 websites.

⁴ PCRM’s newest website says the group has “over 6000 member physicians” (www.nutritionmd.org/about_us.html, accessed on May 1, 2007). And a recent PCRM fundraising letter states that the group has “nearly 200,000 members.”

⁵ Farm Sanctuary paid a \$50,000 fine after the Florida Elections Commission found it guilty of 210 counts of campaign finance fraud, stemming from the group’s promise of tax-deductibility for contributions intended to sway an election. The commission chose to address only the finance fraud committed against Floridians, declining to address the thousands of similar offenses involving donors from other states. The convictions were handed down weeks after the election, long *after* Farm Sanctuary’s unlawful behavior helped to add pigs to the state constitution.

⁶ In common usage, a “vegan” is a strict vegetarian who uses and consumes no animal products (including fish, beef, chicken, pork, eggs, dairy foods, and honey).

⁷ PETA Vice-President Bruce Friedrich, at the “Animal Rights 2002” national conference (June 29, 2002).

⁸ Bruce Friedrich, at the “Animal Rights 2001” national conference (July 2, 2001). In its full context, Friedrich said: “If we really believe that these animals do have the same right to be free from pain and suffering at our hands, then, of course we’re going to be, as a movement, blowing stuff up and smashing windows. For the record, I don’t do this stuff, but I do advocate it. I think it’s a great way to bring about animal liberation ... I think it would be a great thing if all of these fast-food outlets, and these slaughterhouses, and these laboratories, and the banks that fund them exploded tomorrow. I think it’s perfectly appropriate for people to take bricks and toss them through the windows, and everything else along the line. Hallelujah to the people who are willing to do it.”

dogs and cats. Our research indicates that most Americans mistakenly believe HSUS exists primarily to shelter homeless dogs and cats. In reality, HSUS doesn't operate a single pet shelter anywhere. And despite its name, the "Humane Society of the United States" is not actually affiliated with any local "humane society" anywhere in the United States.⁹

Few Americans know this, and HSUS used the resulting (and unearned) public good will to raise a reported \$34 million after Hurricane Katrina from Americans who wanted to help reunite lost pets with their owners.¹⁰ Louisiana Attorney General Charles Foti is investigating the disposition of all this money,¹¹ comparatively little of which seems to have been spent on Katrina-related pet rescue.¹²

The Center for Consumer Freedom will continue to expose the manipulations of fact and public deceptions that appear in so many animal-rights campaigns. But groups like HSUS, PETA, PCRM, and Farm Sanctuary are zealous and persistent—some would say fanatical. They will continue to use their undeserved public reputations to chip away at all of animal agriculture, one skirmish at a time. Lately, their chosen targets have included pork, veal, egg, and duck farmers. Before long it will be feedlots and dairy producers.

There is not a single segment of animal agriculture that proponents of animal "rights" haven't attacked unfairly. And this isn't surprising. Animal activists' unwavering promotion of a strict vegetarian or "vegan" diet tends to make enemies of livestock producers who aren't eager to abandon their heritage and history just because an activist says so.

If I told you ten years ago that the animal rights movement had its sights set on not just hampering, but *outlawing*, a specific kind of animal protein enjoyed by many people, you might not have believed me. But look what has happened in the case of *foie gras*. HSUS and Farm Sanctuary have decided not to push for reform, but for abolition. This is an indication of things to come.

I confess that I've never eaten *foie gras*. Having grown up on the wrong side of the tracks in a rust-belt city, I suspect my palate wouldn't appreciate it. But who are these people to decide I should never have the chance to try it? When zealots ban books because of their politics, millions of people rise up. It's a mystery to me why banning a food for political reasons isn't viewed the same way.

Ten years from now, will we be talking about veal speakeasies? And considering the small scale of veal agriculture, truly a family-farming business, wouldn't that be ironic? Veal is a perfect example of a livestock trade that animal activists ought to be supporting. These animals get

⁹ From a disclaimer buried within HSUS's website (and conspicuously absent from the group's ubiquitous fundraising mailers): "The HSUS is neither legally nor contractually affiliated with—nor is a parent organization for—local humane societies, animal shelters, or animal care and control agencies. In short, The HSUS does not operate or have direct control over any animal shelter." (www.hsus.org/pets/issues/affecting_our_pets/animal_abuse_and_neglect/reporting_animal_abuse_or_neglect.html, accessed on May 1, 2007)

¹⁰ "Robust economy = robust giving," *The Christian Science Monitor*, June 20, 2006

¹¹ "Red Cross, Humane Society Under Investigation," *The Washington Post*, March 26, 2006

¹² "Only a small percentage of the money was specifically earmarked for the Katrina response." From a statement attributed to HSUS in "Humane Society spending probed," *The Times-Picayune*, March 18, 2006

individualized care. Veal farmers spend a significant amount of money on quality-assurance programs involving audits by veterinarians. And—let’s face it—veal farmers provide a purpose for male dairy calves that would otherwise be destroyed. HSUS and Farm Sanctuary ought to be promoting veal. But bashing it has always been good for their fundraising, so they never will.

Last week HSUS released a self-serving scorecard, ranking 25 metropolitan U.S. regions according to what it called its “Humane Index.”¹³ One subset of this index, titled “Humane Eats,” employs the “number of vegetarian restaurants per capita” as its sole criterion.¹⁴ By its own admission (although delivered in a less strident fashion than PETA might embrace), HSUS judges that only meatless eating should be considered “humane.”

Similarly, in 2005 HSUS released its “Guide to Vegetarian Eating.”¹⁵ An HSUS press statement later that year encouraged consumers to “try delicious meat alternatives.”¹⁶ In an interview with the vegetarian-advocacy magazine *Satya*, one HSUS campaign manager included “promoting vegetarian eating” among HSUS’s goals.¹⁷ In the same issue of that magazine, HSUS’s president said his organization was “now doing a guide to vegetarian eating, to really make the case for it.”¹⁸

Given HSUS’s disingenuous but skillful habit of positioning itself as a mainstream animal welfare organization, its advocacy of strict vegetarianism may come as a bit of a surprise. But let me be clear: HSUS and comparatively more flamboyant groups like PETA share the same exact long-term goals. The chief difference is in the tactics they employ to move the “vegan” diet from the margins of society into its mainstream. In this respect, the super-rich HSUS is basically PETA with a nicer wristwatch. And far fewer naked interns.

Lest the Center for Consumer Freedom be described as an anti-vegetarian organization, I should state unequivocally that we are interested in preserving the viability of all dietary choices, including those of the tiny segment of Americans who choose the strictest vegetarian lifestyle. It’s a free country. Consumers should be free to make their own choices.

But when groups with gargantuan budgets mislead the public about food that they don’t believe the rest of us should be allowed to choose, as HSUS has done, we object. Here is just one example of many. HSUS’s “Guide to Vegetarian Eating” misstated the nutritional content of chicken in order to discourage people from eating it.

“Even when the chicken’s skin is removed, the dark meat is thrown away, and a nonfat cooking method is used,” HSUS wrote in 2005, “chicken is still 23 percent fat.”¹⁹ Not so. A 140-gram

¹³ “The HSUS Unveils America’s Most Humane City: San Francisco Leads Nation, Followed by Seattle and Portland,” press release. The Humane Society of the United States. April 30, 2007

¹⁴ www.humaneindex.org, accessed on May 1, 2007

¹⁵ See www.hsus.org/farm/resources/pubs/gve

¹⁶ “Celebrate World Vegetarian Day on October 1,” press release. The Humane Society of the United States. September 28, 2005

¹⁷ “Standing Up For Farmed Animals: The Satya Interview with Paul Shapiro,” *Satya*. June/July 2005

¹⁸ “(R)Evolution From Within? New Directions for the Humane Society: The Satya Interview with Wayne Pacelle,” *Satya*. June/July 2005

¹⁹ www.hsus.org/web-files/PDF/farm/gve.pdf, page 9, accessed on August 11, 2005

serving of roasted, skinless white-meat chicken has only five grams of fat.²⁰ That's less than four percent.

As it turns out, the PETA-affiliated Physicians Committee for Responsible Medicine has been using nearly the same language since at least 2000, claiming that "[e]ven when the skin is removed, dark meat is thrown away, and a non-fat cooking method is used, chicken is still 23 percent fat."²¹

In 2001, I challenged PCRM president Neal Barnard on this point during one of his Maryland book-signing appearances. Barnard conceded that he was wrong, but PCRM has never corrected its error. HSUS republished it uncritically (or perhaps intentionally) and only corrected the record in its "Guide to Vegetarian Eating" this year.²² Other HSUS web pages, however, still contain the original agenda-driven falsehood.²³

At the Center for Consumer Freedom, we have become accustomed to this sort of misinformation coming from animal rights groups. And we can almost understand it. If you believe—as leaders of HSUS, PETA, Farm Sanctuary, and PCRM have all historically believed—that a veal calf or a breeding sow (or even a lab rat) is morally equivalent to my daughter or your mother, it becomes remarkably easy to invent moral justifications for cutting factual corners, breaking election finance law, or even advocating the murder of people who don't share your views.²⁴

But back to my main point: Groups like this are not interested—and never will be interested—in improving animal agriculture. Improvements to the existing system will likely make it more efficient and more profitable. Even progressive animal-welfare reforms, such as those being embraced by small-scale family farmers in the veal industry, generally serve to make the American public increasingly comfortable with the idea of buying meat and dairy foods. This is anathema to the animal rights movement.

Among HSUS's more cynical attempts to erode the institution of animal agriculture came in 2002, when it began to apply "The Three R's" to meat production.²⁵ The Three R's represent a guiding principle in modern biomedical research—*Reducing* the number of animals used to a

²⁰ www.calorie-count.com/calories/item-5064.html, accessed on May 1, 2007

²¹ "There's No Room for Chicken in a Healthy Diet," *Good Medicine*, Spring/Summer 2000. Accessed at www.pcrm.org/magazine/GM00SpringSummer/GM00SpSum2.html on May 1, 2007

²² www.hsus.org/web-files/PDF/farm/gve.pdf, page 9, accessed on May 1, 2007. Google's recent cache of the text from this PDF (<http://209.85.165.104/search?q=cache:B-2Q7huJNo4J:www.hsus.org/web-files/PDF/farm/gve.pdf>, accessed on May 1, 2007) still shows the original copy.

²³ "Isn't Chicken Good For You?" at www.hsus.org/farm/resources/pubs/gve_for_your_health.html, accessed on May 1, 2007

²⁴ In one widely reported case, Dr. Jerry Vlasak openly advocated the murder of his fellow doctors whose research requires the use of animals. He was speaking as a spokesperson for the Physicians Committee for Responsible Medicine at the "Animal Rights 2003" national conference. "I don't think you'd have to kill -- assassinate -- too many," Vlasak told the assembled activists. "I think for 5 lives, 10 lives, 15 human lives, we could save a million, 2 million, 10 million non-human lives."

²⁵ HSUS website, accessed by the Coalition to Support Iowa's Farmers on May 17, 2002. Archived at www.supportiowasfarmers.org/activistnews/humane.aspx. Later repeated at www.hsus.org/farm/resources/pubs/rrr.html, accessed on May 1, 2007

minimum, *Refining* the way experiments are carried out so that animals suffer as little as possible, and *Replacing* animal experiments with non-animal models wherever possible.²⁶

Biomedical research scientists generally agree with animal welfare advocates that it would be lovely to live in a world where animals weren't needed for research. Activists, however, generally refuse to acknowledge that we don't presently live in that world.

The survival of millions of people, quite literally, may depend on research that requires the use of animals. But considering the cost and regulatory burden of using lab rats and other animals, most scientists would rather it weren't necessary. So they generally agree to *Reduce* the number of animals they use, *Refine* their techniques, and *Replace* as many animal experiments as possible with other research methods.

Only a militant vegetarian could apply this formulation to meat and dairy production. Livestock farmers don't want to "reduce" their herds or "replace" animal protein in our food supply with tofu. The vast majority of Americans, being omnivores, don't want this either—although they generally embrace "refinements" that appear sensible. Yet HSUS persists in nudging us all toward a PETA-approved diet that includes no meat or dairy foods at all.

HSUS is less interested in the welfare of animals than in convincing Americans that the phrase "humanely raised meat" is an oxymoron. In his youth, one HSUS manager famously declared on a public mailing list: "My goal is the abolition of all animal agriculture."²⁷ And HSUS's current president Wayne Pacelle has, to my knowledge, never disavowed his published opposition to the breeding of livestock. "We have no ethical obligation to preserve the different breeds of livestock produced through selective breeding," he said a decade ago. "One generation and out."²⁸

As long as people who have enthusiastically articulated this anti-meat worldview continue to lead HSUS, it will be impossible to convince American farmers and ranchers that HSUS doesn't intend to do them harm.

Personally, I will believe that HSUS and Farm Sanctuary are in favor of "humane" meat production on the day that their leaders join me in *eating* it. I invite Gene Baur, Wayne Pacelle, and Paul Shapiro, for instance, to e-mail me and let me know what they think the most humanely raised veal on the planet is. Dinner is on me. All they have to do is eat it—in front of a few dozen cameras. I'm confident that I won't have to buy that meal, because those gentlemen don't believe such a thing as "humane" meat production can *ever* exist.

Put another way, imagine that Congress required U.S. farmers to supply every pig, chicken, duck, and cow in all the land with private rooms, daily rubdowns, video iPods, and organic meals catered by Wolfgang Puck himself. What would happen? Would PETA cheerfully pack up its Hollywood rolodex? Would this satisfy Farm Sanctuary or HSUS? No. They would continue to

²⁶ A good all-purpose practical guide to the Three R's can be found on the website of the University of Kansas, at www.ur.ku.edu/~acu/chapter2.htm#rrr

²⁷ HSUS manager John "J.P." Goodwin, in a message to the "AR-Views" electronic listserv.

²⁸ In *Animal People News*. May 1, 1993.

argue that farm animals have inherent “rights”—and chief among them is the right to *not* be eaten. Besides, declaring your own obsolescence has a way of drying up donations.

I must reiterate that in the context of considering how best to raise animals for food, radical vegans in the animal-rights community are strictly *outsiders*. They don’t deserve a place at the debating table, because their fondest wish is to destroy the table itself.

Consider the uproar that would ensue if Rush Limbaugh were invited to overhaul the Democratic Leadership Council. Or if Cindy Sheehan were asked to moderate a Republican primary debate. These polarizing figures probably have interesting ideas about how their opponents could do things differently, but thinking people would instantly recognize their ulterior motives. The *last* person whose input you should invite is someone who has sworn to put you out of business.

This is what we have with organizations like HSUS and Farm Sanctuary. They have parlayed an illegitimate moral superiority into the power to antagonize, lecture, and strong-arm America’s farmers—and the countless people who enjoy eating what they bring to market. Seriously considering the input of radicals like these makes no sense.

Thank you very much, Mr. Chairman, for holding this hearing and for inviting my testimony today. I will be happy to answer your questions and those of your colleagues.



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Testimony Before
The House Committee on Agriculture
Subcommittee on Livestock, Dairy and Poultry

May 8, 2007

Submitted by Gene Baur, MPS
President of Farm Sanctuary

Mr. Chairman, members of the committee, thank you for holding this hearing to discuss farm animal welfare, and thank you for this opportunity to testify before you here today.

My name is Gene Baur. I have a master's degree in agricultural economics from Cornell University and I am the president and co-founder of Farm Sanctuary, an organization with more than 150,000 supporters concerned about the way animals are treated on farms. Farm Sanctuary works to prevent inhumane farming practices, and we operate farm animal shelters in New York and California where we currently care for more than 1,000 farm animals who have been rescued from abuse. I have more than 20 years of hands on experience caring for animals and working to improve their care.

As evidenced by the increasing attention in the mainstream media, methods used to produce our food and the treatment of farm animals are topics of growing concern across the U.S. and around the world. Farming today is very different than it was just one generation ago, and consumers are beginning to take notice and ask questions. Roughly 10 billion farm animals will be raised and slaughtered for food in the U.S. this year, and most will have been confined indoors, unable to enjoy the sun or sky, fresh air or grass beneath their feet. Instead, they are crowded by the thousands into warehouse-like buildings, amid the ever present stench of their own waste.

Methods used to raise animals on modern farms are unsettling to citizens, and as people learn more about them, they are demanding reforms. Recently, Smithfield, the U.S.'s largest pork producer, announced plans to phase out intensive confinement systems (i.e. gestation crates). Other businesses, including Strauss Veal, the nation's largest veal producer, and the world renowned chef, Wolfgang Puck, have similarly announced their intention to improve the way farm animals are treated. Concerns about farm animal welfare are now reaching voters. Two states, Florida and Arizona, outlawed certain cruel farming systems through citizens' initiatives, and others are poised to join them.

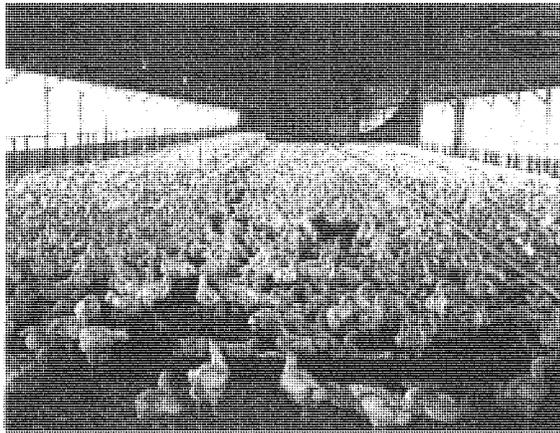
How we treat animals says a lot about us, and who we are as a people and a society. When it comes to farm animals, we have much room for improvement. According to Dr. Temple Grandin, an industry consultant and the nation's leading livestock handling expert, too often "bad has become normal."

Expressing concerns about our disregard for animals in agriculture, Sen. Robert Byrd rose on the floor of the U.S. Senate and said:

Our inhumane treatment of livestock is becoming widespread and more and more barbaric. Six-hundred-pound hogs—they were pigs at one time—raised in 2-foot-wide metal cages called gestation crates, in which the poor beasts are unable to turn around or lie down in natural positions, and in this way they live for months at a time. On profit-driven factory farms, veal calves are confined to dark wooden crates so small that they are prevented from lying down or scratching themselves. These creatures feel; they know pain. They suffer pain just as we humans suffer pain. Egg-laying hens are confined to battery cages. Unable to spread their wings,

they are reduced to nothing more than an egg-laying machine...Animal cruelty abounds. It is sickening. It is infuriating. Barbaric treatment of helpless, defenseless creatures must not be tolerated even if these animals are being raised for food—and even more so, more so. Such insensitivity is insidious and can spread and is dangerous. Life must be respected and dealt with humanely in a civilized society.

Animals on large scale industrial farms, often called “factory farms,” are crowded together in barren environments where they cannot express or engage in natural behaviors. They have been genetically altered to maximize growth and productivity, and they are routinely given antibiotics, hormones and other additives to ward off disease and further enhance production-driven goals.



Chickens raised for meat are packed by the tens of thousands in “grower sheds.” They have been genetically altered to grow twice as fast and twice as large as normal, reaching slaughter weight at just 6 weeks of age. The animals are pushed to their biological limits and millions die every year before reaching the slaughterhouse because their hearts and lungs cannot sustain their abnormal size and growth

rate. The birds’ legs and joints have difficulty supporting their unwieldy bodies, and often fail, leaving the birds crippled and in pain. Deaths and suffering are tolerated as acceptable economic losses since the financial benefits associated with using faster-growing birds are greater than the losses.

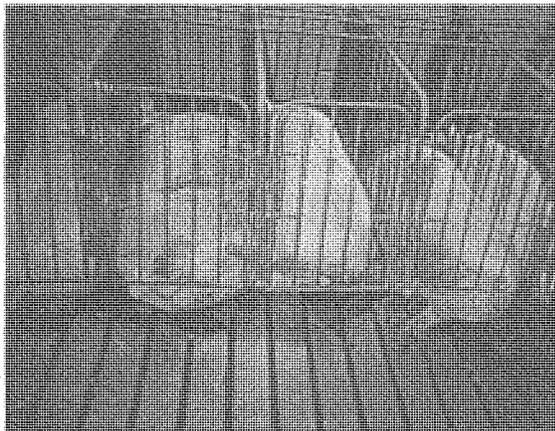


Like chickens, turkeys have been genetically altered to grow fast and large, and they also experience coronary risks and crippling leg and joint disorders. Commercially raised turkeys have been anatomically altered to have more breast meat because it is the most in demand and profitable. This anatomical manipulation has made it impossible for turkeys to mount and reproduce naturally, and the industry now relies on artificial insemination as the

sole means of reproduction. At turkey breeding facilities, workers manually stimulate the male turkeys' sex organs, causing them to ejaculate. The semen is then inserted into the breeding hens.

Like male turkeys, bulls and boars are manually stimulated by farm workers in order to bring about ejaculation and semen collection. Such behavior could be considered bestiality and a violation of law if not performed in the name of agricultural production.

Contrary to what people may assume, farm animals are excluded from the federal animal welfare act and from many state anti-cruelty laws by exemptions given to agricultural practices considered to be "accepted" by the farming industry itself. Giving an industry such authority to set its own legal standards is unprecedented and inappropriate, and has led to intolerable, but legalized, animal cruelty.



Most pigs raised in the U.S. spend their entire lives indoors, unable to go outside and root in the soil as they naturally would. They are slaughtered at 6 months old, while their mothers, breeding sows, are used in production for several years. The sows are pregnant and confined in 2-foot-wide "gestation crates" where they can't walk, exercise or even turn around for most of their lives. They are moved to farrowing crates, and

similarly confined in a 2-foot-wide space, to give birth and nurse their young. Piglets are taken from their mothers at about 3 weeks of age to be raised for slaughter, while the sows are re-impregnated and returned to gestation crates to begin another cycle. While the crates may support certain production-related goals, scientific research has also shown that the confined sows experience both physical and psychological disorders.

Agribusiness representatives, including animal science professors, veterinarians and facility managers, may assert that they know and understand animals better than anybody else because they study and raise them, but I would suggest a different opinion. While agricultural scientists have figured out how to make animals grow fast and how to produce many offspring, achieving such goals has little to do with understanding animals beyond these production-oriented objectives.

Among the rationalizations commonly used to justify confining sows in crates is that the enclosures supposedly prevent sows from sitting on and crushing their young. However,

in the current system, about 15 percent of piglets die before weaning age and approximately half of those are killed when the sow accidentally steps or sits on them. Ignoring this evidence, agriculture spokespeople continue arguing that the crates prevent piglets from being crushed by their mothers.

In place of understanding animals and their natures and engaging in husbandry as humans have for generations, today's agriculturalists have come to rationalize cruel farming practices with faulty assumptions. Modern animal agriculture has focused on increasing production efficiencies, but operates with a very limited understanding and perspective about farm animals and their well being. When comparing animal welfare in different systems used for breeding sows, for example, researchers have tended to compare one bad system (eg. gestation crates) with another (eg. crowded group housing), concluding that they each have problems.

Sometimes, agricultural scientists have even gone as far as to equate animal production and profitability with animal welfare. Thankfully, that simplistic and self-serving rationalization is being recognized as inaccurate. And, there is now a burgeoning interest in studying the cognition and sentience of animals, including farm animals. With this exploration I'm sure will come greater understanding and empathy.

I recall speaking with a manager of a university swine farm about the prevalence of intensive hog farming techniques and the use of crates for breeding sows. He responded by acknowledging that "pigmanship," which I took to mean an understanding of animals and husbandry, is missing on today's commercial pig farms. He went on to lament the fact that most people, including pig farmers, have never seen a sow build a nest. Ironically, we are now raising more animals in the U.S. than ever before, but we understand and appreciate them less than ever. The animals have come to be treated as production units, rather than as living, feeling creatures.

I have observed first hand how budding agriculturalists can become desensitized and learn to ignore their human tendency to empathize with animals in pain. I was in an animal science class at Cornell University, and we were shown how to cut off tails and notch the ears of newborn piglets. The painful, bloody procedures are performed without any painkillers.

At first, most people in the class were uncomfortable watching, let alone performing these mutilations. But with assurances and encouragement by the instructor, the students stepped forward, hardened their hearts, and started clipping chunks out of the piglets' ears and cutting off their tails. As each student performed the mutilations, others in the group became more comfortable with it. I could see how behaviors that were naturally repugnant became the accepted norm.



Today's dairy cows have been genetically selected to produce 10 times more milk than they would in nature. The cows' bodies are severely taxed, and most last only three or four years in production before being sent to slaughter. In a healthy environment, cows can live in excess of 25 years.



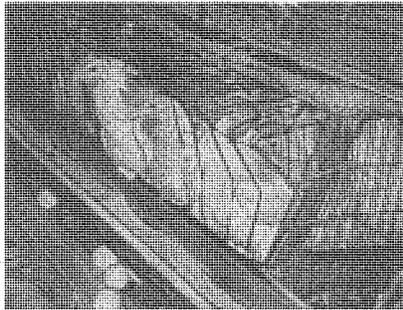
For cows to begin lactating and producing milk, they must give birth. Modern cows have a baby approximately once every 13 months and live a constant cycle of impregnation, birth and re-impregnation. Immediately after her calf is born, he/she is removed from their mother. As one would expect, this is a stressful event for both mother and baby.

Amazingly, proponents of separating calves from their mothers have said that doing so is good for the calves and helps prevent the spread of disease. While calves' health

may be at risk on certain disease-ridden farms, perhaps we should ask, "How have we come to this?" Cows are traditionally known for their maternal natures and it's illogical and hard to accept the notion that separating calves from their mothers is really better for them. I believe this idea is more likely a rationalization that is used to legitimize our questionable behavior. And the claim is even more dubious given that in some cases the day-old calves are taken directly to slaughter.

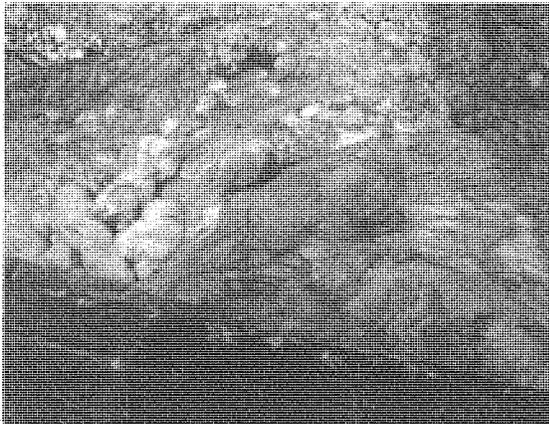
The marketing and slaughter of downed animals, those too sick even to stand, was defended for years by the dairy industry as a way to help detect disease and promote human and animal health. Such rationalizations have a hollow ring. The best way to accomplish these goals is clearly to take better care of the animals and to prevent them from becoming so sick that they can't stand in the first place.

Raising animals in stressful, unnatural conditions exacerbates the presence of illnesses, diseases and pathogens, which can potentially impact human health. The discovery of mad cow disease has shown how production-oriented, cost-cutting measures (i.e. using the rendered remains of cattle to feed cattle) can have broader negative impacts on the health of animals and people. The irresponsible use of antibiotics, which increase short term efficiency and productivity, has resulted in the development of antibiotic resistant bacteria, which now threaten human health. While industrial farming may appear productive and efficient on the surface, it comes with various other costs to our well being, while also harming rural communities and the environment.



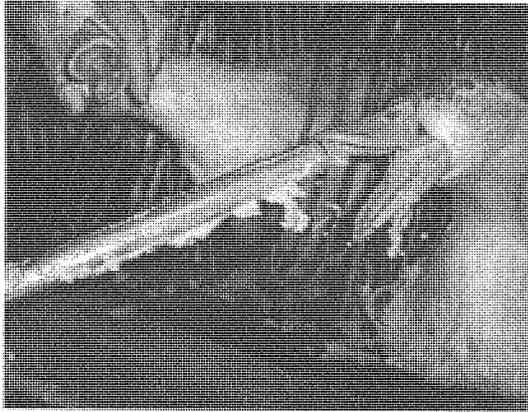
Among the most intensely confined of all farm animals today are egg laying hens who live in battery cages, small wire enclosures that are lined up in rows and stacked in tiers in huge factory warehouses that commonly house 80,000 birds. The hens are kept this way for about a year, unable to perch, scratch in the dirt or stretch their wings. Instead, they stand on wire mesh floors and constantly push up against cage mates and the hard wire walls of their enclosures. Each bird is allotted about as much space as the size of an 8½-by-11-inch piece of paper.

The lack of exercise combined with the intense demands of egg production (each hen lays more than 260 eggs per year), causes birds to suffer from osteoporosis, and broken bones are common. When the birds' productivity drops off, they are deemed "spent hens" and killed. They may be used for low grade chicken meat products, but it's becoming economically inefficient and increasingly difficult to find slaughterhouses willing to kill hens for human food, and sometimes they end up in landfills. There have even been incidents when unwanted hens were killed in a wood chipper prior to their disposal.



Like unwanted hens, unwanted male chicks born at hatcheries that produce laying hens are killed immediately after hatching, sometimes by suffocation in garbage bags and dumpsters. These young males are considered economically useless because they will never lay eggs and they don't grow fast enough to be raised profitably for meat.

Compared to their female counterparts, perhaps they are the lucky ones. What does it say about our farming system when an early death is the most humane option, or when an entire population of baby animals is killed as a matter of course?



The production of foie gras (French for "fatty liver") is another example of a cruel food production practice. It involves force feeding ducks or geese by shoving a pipe down their throats, forcing in large amounts of food to cause their livers to expand 10 times their normal size. The enlarged, diseased liver is then sold as an expensive appetizer. Foie gras production, like various other cruelties through the years, has been defended as a tradition. But

as we learn and society evolves, we come to challenge and question the appropriateness of certain traditions and assumptions.

As our views change and evolve, so do our laws. At one time, slavery was legal in the U.S., but it is now outside the bounds of socially acceptable conduct. The same goes for child labor and other abuses of humanity. In the case of animals raised for food, laws are currently out of line with societal values, and I encourage members of this body to support legislation (such as H.R. 1726, The Farm Animal Stewardship Purchasing Act), which reflects our moral obligation to treat other animals with respect and compassion.

Commenting on the vast cruelty of industrialized animal farming, author Ruth Harrison wrote:

If one person is unkind to an animal it is considered to be cruelty, but where a lot of people are unkind to animals, especially in the name of commerce, the cruelty is condoned and, once large sums of money are at stake, will be defended to the last by otherwise intelligent people.

Thankfully, our society is now beginning to examine the way farm animals are being raised, and with this growing interest and awareness, I believe change is imminent.

I appreciate your time and attention, and I am happy to respond to any questions you may have.

Thank you.

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Testimony

on behalf of the

National Cattlemen's Beef Association

with regard to

The Welfare of Animals in Agriculture

submitted to the

United States House of Representatives - Committee on Agriculture
Subcommittee on Livestock, Dairy, and Poultry

The Honorable Leonard Boswell, Chairman

submitted by

Mr. Paxton Ramsey

Member

National Cattlemen's Beef Association

May 8th, 2007
Washington, D.C.



**National Cattlemen's
Beef Association**

Mr. Chairman, members of the Committee, my name is Paxton Ramsey. I am the fourth of five generations on my family's ranch in South Texas, where we raise cattle and horses. I am honored to be here today, on behalf of the American rancher, to reaffirm the importance of animal welfare to our industry.

As a rancher, the care and well-being of my livestock is top priority. My cattle and horses depend on me to take care of them, and I depend on them for my livelihood. Ranchers are the original proponents of animal care and welfare because we understand the moral obligation that comes with being a steward of our animals. We spend everyday living off the land, working with our livestock - and it is our passion.

Each morning on ranches across the country, cowboys are feeding, grooming, shoeing horses, and putting orphan calves on a nurse cow as they meet and prioritize their duties for the day. A plan is devised and each departs for the day in a dirty pickup with a pair of fencing pliers, a sandwich, medicine, and a fresh horse in the trailer. Our goal is to be thorough and efficient as we check and handle our portion of the livestock, with animal welfare and profitability in mind. A man once told me that ranching is an art that is handled in a business like way. Poorly tended animals will drive a ranch out of business - a ranch that the world is counting on to feed them.

Cattlemen have long recognized the need to properly care for their livestock. This long-standing commitment to the health and welfare of our animals is probably not something we talk about enough in public because it is not something that we have to make a conscious decision to pursue. Good care of our animals is second nature to us. It is not something we do because it is popular or newsworthy. We do it because these animals depend on us and we cannot fail them.

Allow me to take you a few miles off the highway...where a young man has been working since well before we all ate breakfast this morning to locate a sick calf. He and his horse have just exhibited harmony as he has roped this calf and given the appropriate shots needed to prevent initial signs of pneumonia from progressing. Picture the heat, the thorns, the dust, and the effort to get through rough country just to doctor one little ol' calf that neither you nor I will ever know about if he dies. Is it really worth all of the work, risk, and danger? How about if the market value of that calf is at an all time low? Is it worth doing when no one will ever know if you turn your back and ride away? You bet it is! That is because that young man promised his forefathers and his children that he would. Being a good steward is the job he asked for and his integrity and the welfare of his animals are not to be compromised.

Taking good care of our livestock is not just about doing the right thing; it also makes good business sense. It is well recognized by our entire industry that it is in everyone's best interest - from producer to packer - to handle animals humanely. Sound animal husbandry practices - based on generations of research and practical experience - are known to impact the well-being of cattle, individual animal health, and herd productivity. A stressed animal that goes to market produces a substandard product. An animal that was raised without proper management practices will not produce high

quality meat. It is therefore inexplicable for any producer working day in and out to raise a quality animal not to practice good animal care.

The direct correlation between profitability and animal care has been recognized within our industry for years. Along the way we have worked with USDA, land grant universities, the agriculture extension service, veterinarians, animal scientists, and amongst ourselves to determine the affects of handling and care on livestock. We then worked to develop new processes, procedures, and equipment that alleviate those variables and improve animal welfare.

The National Cattlemen's Beef Association (NCBA) has long taken its role in animal welfare seriously. As the trade association for America's cattlemen, we have a role to help educate and train our members in the proper care and handling of livestock. These discussions began at the grassroots level and have involved the expertise of all entities associated with our business. Producer-led initiatives include NCBA's Beef Quality Assurance (BQA) Program and the cattle industry's "Guidelines for the Care and Handling of Cattle."

Created in 1987, BQA unites animal scientists, veterinarians, feed suppliers, animal health companies, packers, and retailers with producers. The BQA program provides guidelines for livestock care and handling, nutrition, and veterinary treatment. Cattlemen become certified when they meet criteria for quality and beef production set forth in the BQA guidelines. Producers also undergo continuous training to remain certified. This emphasis on education helps producers identify the day-to-day on-farm management practices that influence the production of safe, wholesome beef. BQA incorporates current Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and United States Department of Agriculture (USDA) regulations, as well as Hazard Analysis Critical Control Point (HACCP) principles. Today, BQA influences more than ninety percent of U.S. cattle.

The BQA "Producer Code of Cattle Care" states that beef cattle producers take pride in their responsibility to provide proper care to cattle on their farms and ranches. It gives the following guidelines for cattle producers:

- Provide adequate food, water and care to protect cattle health and well-being.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of livestock.
- Use humane methods to euthanize sick or injured livestock and dispose of them properly.
- Provide personnel with training to properly handle and care for cattle.

- Make timely observations of livestock to ensure basic needs are being met.
- Provide transportation that avoids undue stress caused by overcrowding, excess time in transit, or improper handling during loading and unloading.
- Keep updated on advancements and changes in the industry to make decisions based on sound production practices and consideration to animal well-being.
- Do not tolerate those people or practices which willfully mistreat animals.

Ranchers take pride in their responsibility to provide proper care for their cattle, which are produced using a variety of management systems in very diverse geographic and ecological locations across the United States. As such, there is not one specific set of production practices that can be recommended for all cattle producers to implement. Personal experience, training, and professional judgment are key factors in providing proper animal care. In general, though, there are many basic factors that yield a safe and healthy environment for our cattle. These factors are covered in the cattle industry's "Guidelines for the Care and Handling of Cattle" which were developed in 2003 as an expansion of the Code. Developed through the interaction of animal health experts and cattle producers, these guidelines are a comprehensive set of best practices for every aspect of cattle production. Some of the best practices include low-stress cattle handling, effective shelter and housing, careful loading and transportation, and tips on reducing heat stress.

The first, and probably most important, is to ensure that our cattle have access to an adequate supply of nutrients. Adequate and proper feed, minerals, vitamins, and water are the basis for the survival and welfare of livestock. Nutrient requirements vary according to age, sex, weight, body condition, stage of production, and their environment, but cattlemen know their ranches better than anybody else and can manage their feed supplies to ensure that their cattle are well feed and watered.

Ranch facilities such as fences, shoots, and barns are another critical component of animal welfare. Maintaining them and keeping them in good working condition helps to provide efficient movement and reduce stress when working cattle. Equipment to help restrain cattle is generally needed on most beef cattle operations. Cattlemen work hard to ensure that this equipment allows for quick and secure restraint in order to minimize stress or injury to the animal or the operator. In addition, it is imperative that the equipment allow for the quick release of the animal upon completion of the procedure. When working and processing cattle, we do so in a way that minimizes stress, reduces injuries, and puts the cattle back out into the pasture as quick as possible.

Mitigation of environmental factors also improves animal welfare. Beef cattle are produced in a variety of production settings, from pasture and range, to dry lot and monitored facilities. Moreover, cattle can adapt to a wide range of natural conditions and

artificial environments. When behavioral and physiological characteristics of cattle are matched to local conditions, beef cattle thrive in virtually any environment in the United States without artificial shelter. However, during extreme weather conditions, cattle should have access to well-drained resting areas and/or natural or constructed shelter.

Keeping cattle healthy is another important step in the proper treatment of cattle. Most ranchers have a herd health program that addresses the prevention and treatment of disease. These programs will vary depending upon the type of operation and diseases prevalent in a particular region of the United States. Many consult with their veterinarian or county extension agent to establish effective herd health programs. Procedures such as vaccination, castration, dehorning, and branding are components of a healthy animal, a healthy herd, and a healthy business. Cattlemen work hard to ensure that these procedures are done with the right equipment and in a way that minimizes stress on the animal.

The movement of cattle to and from farms, ranches, feedlots, and marketing facilities is another important aspect of beef cattle production. Proper handling and transportation are important for the safety and welfare of the animals being moved. When loading and unloading cattle, we move them as quietly and patiently as possible to prevent stress and/or injury. This is practiced from the rancher all the way to the packing plant.

These are just a few of the factors we take into consideration as we care for our livestock, and as you can see, animal welfare is a top priority every single day for us. Cattlemen have long recognized the need to properly care for their livestock. Not only is proper care and handling something we practice, it is also regulated by state and Federal laws. As such, we look forward to working with Congress to ensure that state and Federal agencies such as APHIS have all of the resources they need for inspection of regulated facilities that handle livestock. In addition, we think it is crucial for local, state, and Federal governments to prosecute those who willingly mistreat their animals and break these laws.

Years of practical experience have shaped the practices that my family, and ranching families across the country, use to provide humane care of our livestock. It is not just something we talk about, it is something we do everyday. It is too easy these days to point the finger and make accusations, but it is hard to actually find solutions. We do not apologize for raising cattle for food, instead we find those solutions, put them in practice, teach our children the ways to properly care for animals, and move on to produce the highest quality beef in the world. As I mentioned earlier, nobody else is looking out for the welfare of our animals more than we are because it is an integral part of ensuring our industry remains healthy and vibrant...just like our cattle.

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Written Testimony

of

**Barbara Determan
Pork Producer
Early, Iowa**

On behalf of

U.S. Pork Industry

To

**United States House Committee on Agriculture
Subcommittee on Livestock, Dairy and Poultry**

**May 8, 2007
Washington, D.C.**

INTRODUCTION

I am Barbara Determan, a pork producer from Early, Iowa. I am also past president of the National Pork Producers Council, an association of 43 state pork producer organizations. NPPC is the voice in Washington for the nation's pork producers.

I want to thank the Chairman and the Members of the Committee for allowing me to speak to you about an issue that is very important to me and to all pork producers in the United States – the well-being of our animals.

First, I want to make a clear, definitive statement to this committee and the Congress: America's pork producers recognize their moral obligation to provide for the well-being of their animals, and they raise their pigs in a humane, compassionate and socially responsible manner. Any production practice that falls short of this high-performance standard is unacceptable and will not be tolerated by our industry. In addition to that moral obligation, pork producers' livelihoods depend on the well-being and performance of their pigs.

I am the fourth generation of my family to take up farming as my calling. I am old enough to remember when pigs were raised as much for their lard as for their pork chops and roasts. When I was a young girl, it was common in my part of the country for farmers to have a few pigs – which were raised summer and winter in outdoor hog lots and pastures – some chickens, some cows and just enough land to grow feed for the animals. I vividly recall that caring for our pigs involved a lot of mud in the spring, sunburn in the summer and wind, snow and occasional frostbite in the winter. I know people who still refer to that era as the good old days and who wish we could turn back the clock. I am not one of them.

I am also young enough to know that I must constantly adopt the new ideas and new technologies that help make me a better farmer and a better caretaker of my animals, as well as those ideas and technologies that help keep me and my family competitive in an economy that is increasingly global. That's what pork producers do: We listen to signals

from our customers; we determine what we can learn from the latest veterinary science; we ask ourselves what is the right thing to do; and we embrace those changes that make us more professional and more competitive.

There is one more thing I would like this committee to know before I address some specific issues concerning the care and well-being of pigs. Through my own farm experiences and from the countless number of pork producers I've had the privilege to meet during my work and travels as an NPPC officer, I have learned there is one constant: It makes no difference if they are big producers or small producers, or if they raise pigs in the Midwest or the Southeast, virtually every hog farmer and pork producer is in this business because at our core, deep down inside, we love working with animals – especially with pigs.

Pigs can be exceptionally friendly – they'll nip playfully at your ankles. They can be temperamental and territorial. Some sows (female pigs that have had piglets) can be downright nasty, especially if other sows and food are involved. They are, quite simply, fascinating animals. None of us would do anything that we know to be harmful to their well-being.

Today I will address how America's pork producers are addressing the well-being of their pigs in four important areas: compassionate swine care; humane sow housing; responsible use of antibiotics in swine production; and safe transportation of pigs.

We are living and doing business in an emerging world of interconnectedness filled with powerful shareholders and vocal stakeholders who demand a higher level of accountability in the marketplace. We see this new age of accountability emerging and recognize that it is profitable to embrace and dangerous to ignore. It is within this new emerging world that we are meeting our animal well-being responsibilities.

COMPASSIONATE SWINE CARE

America's pork producers have a long, proud history of implementing progressive measures to care for their animals. The July 1999 Animal Well-Being Issue Report by the United States Department of Agriculture Interagency Working Group on Farm Animal Well-Being includes that group's support for producer-developed and -implemented on-farm practices and procedures that help ensure the well-being of animals.

A number of pork industry programs support the USDA group's finding. In 1989, pork producers established the Pork Quality Assurance (PQA) food-safety program to ensure that all pork producers understand how to avoid medication residues in the pigs they market. The major meat packers require their suppliers to have PQA certification.

While individually and collectively swine producers have long used the best management practices possible to ensure animal well-being, the industry developed animal-care guidelines in the early 1990s. We have revised them into standards as new knowledge about animal care has become available.

More recently, the industry developed an education and certification program for anyone who handles or transports market hogs. All three programs were among the first of their kind in the livestock industry. And all three programs were developed in cooperation with animal well-being experts from among land-grant universities, practicing veterinarians and other scientists.

By the time the USDA working group issued its report on animal well-being in the late 1990s, pork producers already had been at work combining veterinary science with their extensive and varied experiences in all types of production systems to address many of the animal well-being topics this committee is discussing today. We wanted a comprehensive, research-tested and science-based set of animal-care guidelines that would amplify producer experience in caring for our animals. There was no pressure to do this other than our belief in doing the right thing, and we did it.

In 2002, producers working through the National Pork Board's Animal Welfare Committee endorsed an updated U.S. Producer Code of Practice, which was developed almost a decade earlier. The Code, developed with the help of nationally and internationally recognized animal well-being experts, outlines the management and husbandry practices that constitute good swine care.

The Code begins by noting that each pork producer's professional judgment, experience and training are the key factors in providing animal care. It then endorses the following practices:

- Providing facilities to protect and shelter pigs from weather extremes while protecting air and water quality in the natural environment.
- Providing well-kept facilities to allow safe, humane and efficient movement of pigs.
- Providing personnel with training to properly care for and handle pigs at each stage of production for which they are responsible, with zero tolerance for mistreatment of swine in their care.
- Providing access to good-quality water and nutritionally balanced diets appropriate for each class of swine.
- Observing pigs to make sure basic needs for food and water are being met and to detect illness or injury.
- Developing herd-health programs with veterinary advice.
- Providing prompt veterinary medical care when required.
- Using humane methods to euthanize sick or injured swine not responding or not likely to respond to care and treatment in a timely manner.
- Maintaining appropriate biosecurity to protect the health of the herd.
- Providing transportation that avoids undue stress caused by overcrowding, excess time in transit or improper handling during loading and unloading.

In 2003, producers unveiled an updated *Swine Care Handbook* based on the Code of Practice. That handbook is the foundation for the Swine Welfare Assurance Program, an educational and assessment program that helps producers assess their own performance

in 10 specific areas of animal care, ranging from proper record-keeping, to accepted methods of euthanasia for seriously ill or injured pigs, to very specific facility and animal assessments and measurements. The program was developed by a producer-led committee that included U.S. and international experts in animal care and well-being from academia and industry. It was the first work of its kind in the livestock industry.

While we have well-established care principles, there still is no scientific consensus about the ideal tool to measure animal well-being. It is generally accepted that there are three indicators of well-being that should be measured together. They are:

- Animal performance and health.
- Behavior.
- Physiology (for example, immune function and hormonal status and response).

There is strong scientific consensus that using any one of those factors as a sole indication of well-being can be misleading. In addition, addressing animal well-being in isolation – without consideration of animal health, food safety and the environment – is unwise and can lead to unintended consequences. Each of these other areas must be addressed simultaneously in a way that ensures an effective balance.

Advance the clock to 2007. The care and well-being principles from the Swine Welfare Assurance Program are now part of the industry's groundbreaking Pork Quality Assurance Plus™ (PQA Plus) certification, assessment and audit program. In addition to a certification requirement dealing with production practices that ensure food safety, farms now must have a supervised assessment of their care and well-being practices. An independent third-party audit ensures the program is achieving its goals of continuous improvement. Just as they have since the PQA program was introduced in 1989, most U.S. packers continue to require proof of PQA certification from their producer suppliers.

The audit provisions of PQA Plus have been reviewed and approved by an independent panel of nationally and internationally recognized experts on animal care and well-being.

Dr. Temple Grandin of Colorado State University, an internationally recognized animal care expert who also is an adviser to the National Pork Board's Animal Welfare Committee, recently said she is using PQA Plus with other groups as an example of a program that provides clear-cut guidelines on animal care and well-being.

Pork producers are, by nature, progressive. If there's a better way to do something, we'll find it and do it. PQA Plus is just the latest example of identifying an issue that is important to our customers – in this case, animal care and well-being – developing a solution and taking it to all producers for implementation. I've been around agriculture all my life, and I don't know of another commodity group that does it better.

HUMANE SOW HOUSING

The pork industry supports the right of all producers to choose housing that ensures the well-being of their animals and that is appropriate for their operations. With regard to sow housing, the industry agrees with the position of the American Veterinary Medical Association, the American Association of Swine Veterinarians and other organizations, which recognize gestation stalls and group-housing systems as appropriate for providing for the well-being of sows during pregnancy.

There are two basic types of housing systems for pregnant sows: individual housing and group housing. Sow housing has attracted considerable public attention since Smithfield Foods, the nation's largest pork producer, announced in January that the company would begin phasing out individual gestation stalls at its company-owned farms, replacing them with pens or group housing over the next 10 years. Subsequently, Maple Leaf, a large Canadian producer announced a similar decision. (Note: Market hogs are raised in group housing.)

Lost in the news coverage and activist hype surrounding the Smithfield announcement was the company's statement that "our decision acknowledges that extensive research into sow housing has concluded both gestation stalls and group pens provide for the well-

being of pregnant sows and work equally well from a production standpoint.” The company also noted that “there is no scientific consensus on which system is superior.”

Also lost in the often heated rhetoric of critics of modern pork production have been several university-supervised studies that indicate that sows do just fine in individual housing.¹ A measurement of hormone secretions in one study shows that sows in stalls do not show levels indicative of stress. In another study, sows given a choice of moving about freely or remaining in a stall clearly chose the stall.

I mention these studies only to make the point again that there is no scientific evidence that any one sow-housing system is superior. The American Veterinary Medical Association is on record that, given the number of variables and large variations in performance within both systems for pregnant sows, no one system is clearly better than the others under all conditions and according to all criteria of animal welfare.²

Science and practice suggest that both individual and group housing types have advantages and disadvantages. It is important to understand pigs to be able to provide the best possible housing environment. Pork producers understand pigs. Pigs are by nature competitive animals – especially when it comes to competing for food. When pigs are introduced into a group setting, they will establish an order of dominance among the group. At times, especially among sows, this will be accomplished in an aggressive manner. Pigs also use their sight and smell to socialize and communicate. They want the security of food and water and security from aggression. They want the security of freedom from injury.

Each year, we conduct research to better understand the impact on sows of individual housing and group housing. The group-housing research includes a focus on ways to decrease the amount of aggression that occurs during the initial social introduction in a group-housing setting.

Once the dominance order is established in a group-housing scenario, aggressive behavior may continue. Pigs higher in the order will typically fight for first access to feed and water resources, as well as access to the “preferred” loafing locations within the pen. It is only after the dominant pigs have eaten that the more submissive pigs are allowed to eat and drink. There is the chance even then that there will be aggressive encounters.

This is one of the reasons we emphasize the importance of the skills of anyone taking care of pigs. They must manage these food and water resources appropriately to minimize aggression. Without proper management, these aggressive encounters can result in injuries, increased stress and sometimes death to the pigs. Animal caretakers also are at greater risk of injury.

With individual housing, there is some variance in designs. Gestation stalls come in a variety of widths; some allow the sow to turn around, while others do not. In general, these individual-housing systems allow for individual feeding and control of body condition so sows do not become too thin or too fat. While there is a limitation on movement and exercise, individual housing allows for closer examination of individual pigs and for better decision-making about animal care by producers.

We firmly believe the skill of the individual taking care of the pigs is the ultimate determining factor in the well-being of both sows and market hogs. Pork producers, through their industry associations, continue to research ways to improve equipment, facilities and management for both individual- and group-housing systems to improve the well-being of the pig. It is part of our commitment to continuous improvement. And as I mentioned earlier, PQA Plus is a program that teaches, measures and audits continuous improvement on farms of animal care and well-being.

Science and farmer experience tell us that mandating any one type of sow housing or changing simply for the sake of change is not necessarily in the best interest of the pig. Trading the security of one type of housing for the ability to turn around in another type of housing is just that – a trade. If there is a change to be made, it is our ethical

responsibility to ensure that we are trading for something that raises the level of our animals' well-being.

There is no one, single, "right" way to raise a pig. A producer raising 100 pigs a year in a hoop barn in one part of the country operates very differently from a producer raising 50,000 pigs a year in swine barns in another part of the country. That's why, as an industry, we use the PQA Plus program and its standards to ensure the well-being of the animals instead of proscribing one production method or one housing system over another. Healthy, well-cared-for animals are raised in almost any system as long as the care of the animal is the top priority.

Our industry organizations represent producers of all sizes and production styles and from all parts of the country. There is great sensitivity both inside and outside our industry about forces that make it harder for small, independent producers to compete. There are producers who have sows in group housing and there are producers who have sows in individual housing. Any sudden mandate that forces change makes it more difficult for producers of any size or style of production to stay in business.

So, we oppose legislation that would mandate on-farm food-animal production practices, including banning the use of individual sow housing. We oppose a bill sponsored by Reps. Peter DeFazio and Christopher Shays (H.R. 1726) that would require the federal government to purchase meat only from producers who do not use individual housing for sows. The measure would have a particularly devastating impact on small producers due to costs of retrofitting existing barns and housing and would raise the federal government's food purchasing costs. The legislation puts at risk the annual sale of nearly 33 million pounds of pork valued at more than \$42 million.

We do not believe Congress has the understanding or the expertise to decide which on-farm animal production practices are best for *our* animals.

The marketplace may ultimately determine what sow-housing system producers will use. Recent developments would indicate the market is beginning to speak, and we can accept those free-market forces. We cannot accept top-down federal mandates on production practices. Let the marketplace work.

RESPONSIBLE ANTIBIOTIC USE

Pork producers recognize their moral obligation to provide for the well-being of their animals and use antibiotics in a responsible manner to provide safe, nutritious, and healthful meat products to consumers globally. Producers use antibiotics, in consultation with their veterinarians, to treat injured and sick pigs and prevent wound infections and unnecessary animal pain and suffering.

The Pork Quality Assurance Plus program³ lays out clear guidelines for appropriate use of antibiotics by pork producers. The guidelines urge pork producers to work closely with their veterinarians when making medication decisions.

To further demonstrate its commitment to protecting public health by using antibiotics responsibly, the industry has created the *Take Care – Use Antibiotics Responsibly* program⁴ to enhance producers' awareness of antibiotic use beyond what they learn through the Pork Quality Assurance program. The *Take Care* program educates producers about the responsible use of antibiotics; it raises their awareness of the importance of using antibiotics responsibly and the impact of antibiotic use on animal and public health; and it demonstrates to customers and consumers pork producers' commitment to preserving public health, animal health and animal well-being through the responsible use of antibiotics. To date, producers who raise more than 50 million pigs annually have endorsed this proactive program.

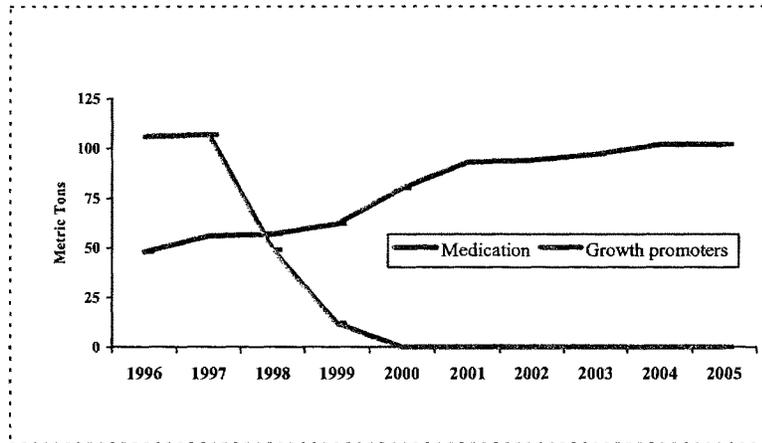
Pork producers are very aware of the public debate over antibiotic resistance. I include it in my testimony about care and well-being to underscore the benefits of responsible antibiotic use in food-animal production. In addition to the debate about human resistance, the use of antibiotics also is an animal well-being issue. We have an ethical

responsibility to keep our animals healthy. Our animals, like some people, live in groups. Without the availability of antibiotics, infections and disease would be much more prevalent, spread quicker and negatively affect the health and well-being of livestock.

While it is true that the extent to which antibiotic use in animals affects human health is extremely difficult to measure, one panel of experts estimates that 96 percent of antibiotic resistance in humans is due to human use of antibiotics and not from the consumption of meat products. Anyone using antibiotics, be they a farmer or a pediatrician treating an ear infection, has a responsibility to use them only when necessary. It also is clear that antibiotic resistance in humans would not end if antibiotic use on farms were eliminated. A recent Institute of Food Technologists expert panel report found that antibiotic-resistant bacteria develop from many factors, including human use of antibiotics and routine household use of disinfectants such as antibacterial soap.⁶

Experience with a farm-animal antibiotics ban in Denmark provides additional evidence of the lack of efficacy of a pork-production antibiotics ban as a way to combat human antibiotic resistance. In 1998, the Danish government instituted a voluntary ban on the use of antibiotic growth promotants (AGPs), during the finishing stage of pork production. The use of AGPs was withdrawn for all swine in 2000.

One interesting finding of the AGPs ban is that use of therapeutic antibiotics – those used to treat diseases after the fact – has risen significantly. While total antibiotic use has decreased somewhat in Denmark, therapeutic use of antibiotics has surpassed the level of AGP use prior to the ban.



(Animal Antibiotic Use in Denmark. Source: Danmap.)

Also of note is that there have been no proven human health benefits from Denmark's ban on AGPs in pork production. One potential negative consequence is that resistance to tetracyclines in *Salmonella* causing human infection has actually increased since the ban.⁷

Pork producers believe that the U.S. Food and Drug Administration's rigorous, science-based approval process for antibiotics continues to be the best way to address human health concerns and to ensure producers' access to animal health products that promote animal health and well-being. The FDA's Center for Veterinary Medicine uses a risk-assessment approach to determine human health risks of antibiotic use in food animals on a case-by-case basis. FDA's Guidance #152 uses a scientific framework to assess the human health effects of veterinary use of antibiotics. The Guidance requires antibiotic manufacturers to provide information to the FDA showing that a proposed animal drug will not harm human health. The system works.

Additionally, the FDA has mandated a withdrawal time for each antibiotic used. Specifically, food or milk from animals that have been treated with an antibiotic may not enter the food supply until a safe, scientifically determined amount of time has elapsed since the animals' last dosage. The withdrawal period is specified for each drug. USDA's

Food Safety & Inspection Service conducts monitoring and surveillance programs at packing plants to ensure adherence to the residue standards that are defined by the FDA.

We oppose efforts to require animal health companies to submit annual data on the amount of antibiotics used to keep food animals healthy and to make the data public. Manufacturers already are required to provide production data to FDA, which treats it as confidential business information.

The focus of my remarks has been on the well-being of our animals. But the committee should know that whether intended or not, there often are significant financial consequences for farmers from regulatory actions. For example, should there be a ban on antibiotics similar to the one in Denmark, an Iowa State University economist estimates production costs could increase by up to \$4.50 an animal for the first year following a ban. Those costs are related to an increase in disease – as demonstrated in the Danish experience – and that is very much an animal well-being issue.

Over 10 years, the total projected cost of such a ban would exceed \$700 million. Consumers could expect to pay about 2 percent more for pork products.⁸ These additional costs reduce competitiveness relative to pork-exporting countries in Europe and South America and ultimately impact negatively the United States' balance of trade.

SAFE ANIMAL TRANSIT

To ensure the well-being of pigs going to market, the pork industry developed the Trucker Quality Assurance (TQA) education and certification program for anyone involved in handling and transporting animals.

The TQA program was launched in February 2002, and since that date has certified more than 12,000 animal handlers. TQA encourages dedication to transporting and delivering the highest quality, safest product possible to remain competitive in United States and world markets. By completing this program, truckers and handlers demonstrate their commitment to “quality-assured” pork transportation and delivery.

The training session with a certified trainer focuses on driver or handler attitude and behavior; pig handling; fitness of the hog; facilities and equipment; conditions of the truck and the environment; transporting; bio-security; laws and regulations, and emergency response plans of action. At the end of the training, the driver or handler is required to pass a written test on the materials covered.

This innovative program has since been copied by the Canadian swine industry. Again, most packers ask to see the trucker's TQA certification card before they allow the truck on site. And we know from studies by USDA's Food Safety & Inspection Service and packers that the program has reduced pig deaths and injuries related to transit.

CONCLUSION

I am proud to be part of a progressive industry that provides hundreds of thousands of jobs and helps feed the world.

The U.S. pork industry represents a significant value-added activity in the agriculture economy and the overall U.S. economy. Nationwide, more than 67,000 pork producers marketed more than 103 million hogs in 2005, and those animals provided total gross receipts of \$15 billion. Overall, an estimated \$20.7 billion of personal income and \$34.5 billion of gross national product are supported by the U.S. hog industry. Economists Dan Otto and John Lawrence at Iowa State University estimate that the U.S. pork industry is directly responsible for the creation of 34,720 full-time equivalent jobs and generates 127,492 jobs in the rest of agriculture. It is responsible for 110,665 jobs in the manufacturing sector, mostly in the packing industry, and 65,224 jobs in professional services such as veterinarians, real estate agents and bankers. All told, the U.S. pork industry is responsible for 550,221 mostly rural jobs in the U.S.

I am even prouder to be part of an industry that – on its own – has developed and implemented world-class programs that help pork producers raise and care for their animals in a humane, compassionate and socially responsible manner.

Pork producers are in the business of producing food for America and the world. We recognize we must do what is right and live up to our responsibilities. The U.S. swine industry has a long history of anticipating issues and developing solutions before they become problems. We believe in the power of the free marketplace. And we have the track record to prove we act responsibly toward our customers and for our animals.

On behalf of the National Pork Producers Council and the many pork producers we represent and support, we ask for your continued and focused attention on the matters we have brought to you today. The pork industry has been a long-standing leader on these ethical issues and is committed to developing animal-care standards that hold producers accountable. I hope the comments I have shared with you today give you an understanding of how the pork industry raises its pigs in a way that gives them the best care possible.

Again, the nation's pork producers are most grateful for your continued leadership on these and other issues critical to U.S. pork producers and the overall U.S. pork industry, and we look forward to our continued strong working relationship with you and this committee.

END NOTES

1 (Salak-Johnson et al., 2007; Rhodes et al., 2005; McGlone et al., 2004; Barnett et al., 2001; Harris et al., 2001; Sorrells et al., 2001).

2 (http://www.avma.org/issues/policy/animal_welfare/pregnant_sow_housing.asp)

3 PQA Plus Manual, pages 26-50, ©2007 National Pork Board

4 (www.pork.org/producers/takecare)

5 Institute of Food Technologists, www.ift.org. Antimicrobial Resistance: Implications for the Food System, July 14, 2006

6 Gabreyes, Thakur and Morrow. Comparison of prevalence, antimicrobial resistance and occurrence of multi-drug resistant Salmonella and anti-microbial free and conventional pig production. *J.Food Prot.*, 69:743-748, 2006

7 World Health Organization Impacts of antimicrobial growth promoter termination in Denmark. Online. 2002

http://whqlibdoc.who.int/hq/2003/WHO_CDS_CPE_AFK_2003.1.pdf

8 Hayes, Jensen, Backstrom, National Pork Board Final Research Grant report – analysis of a More Restricted Antimicrobial Access Policy in Pork Production, Funded Research Project #02-104

AMERICAN
QUARTER
HORSE
ASSOCIATION

Testimony of American Quarter Horse Association, Leslie Vagneur Lange
to the
House Agriculture Committee, Subcommittee on Livestock, Dairy and Poultry

Good morning. My name is Leslie Vagneur Lange. I am a national director for the American Quarter Horse Association from my home state of Colorado. I am a professional horsewoman and judge for the American Quarter Horse industry. It is my hope and that of AQHA's that by providing this testimony, common sense legislation can be addressed that will not adversely affect horses, owners or the industry at large.

There are many examples of people who believe they are working for positive changes – yet they are, in fact, irreparably damaging the agriculture industry. Threats received by Colorado's beloved, century-old National Western Stock Show & Rodeo and protests at rodeos across the country by militant animal rights groups are just a few examples. Today, I want to focus on what has occurred recently as a result of the closure of the only three horse-processing facilities in the United States.

The American Quarter Horse Association, the largest United States-based equine breed registry and membership organization, represents a broad base of members who are involved in many different areas of the horse industry. From ranchers to recreational riders and from racing enthusiasts to horse show competitors, AQHA's membership of nearly 345,000 is more diverse than at any other point in its history. The primary concern of these members, my fellow directors and staff at the Association is ensuring that the welfare of the horse is paramount to all other considerations. AQHA has strict rules governing animal welfare and its charitable arm, the American Quarter Horse Foundation, has funded more than \$6 million in research that benefits all horses. AQHA has actively opposed a ban on horse slaughter and in March, by unanimous vote, the 150-member board of directors reaffirmed its opposition to a ban because of the unintended consequences it already is having on all horses.

I want to address three key areas that AQHA brought up early on in its opposition to a ban on slaughter. Before doing so, I want the record to reflect that AQHA *does not favor* slaughter as a way of dealing with America's unwanted horses. However, the Association's board does recognize that the processing of unwanted horses is currently a necessary aspect of the equine industry. It provides a USDA supervised humane euthanasia alternative for horses that might otherwise continue a life of discomfort and pain, or inadequate care or abandonment. Some have publicly mischaracterized AQHA as not being for the horse, and that couldn't be further from the truth. If it wasn't for the horse, AQHA would not exist.

Additionally, it also has been improperly stated that the majority of horses that go to slaughter are American Quarter Horses. To be accurate, the processing facilities do not know the breeds of horses. Countless horses are listed as "Quarter-type," which could include non registered horses

of any breed and horses of other breeds that simply look like an American Quarter Horse. To state that the majority are American Quarter Horses is factually incorrect and unverifiable.

Because it's likely that AQHA will be accused of overbreeding, I also want to briefly address that point. As a breed registry, the Association's primary role is to record the pedigrees of American Quarter Horses. It is not AQHA's role to restrict a breeder's right to breed their horses. In fact, courts have ruled that in certain cases it is a restraint of trade for the Association to do so.

However, AQHA does work to educate horse owners through many ways, including stories about responsible breeding and stewardship in the Association's publications, on its Web site and through various seminars. AQHA is very concerned about responsible breeding and ownership so that no horse ever ends up an unwanted horse.

AQHA registers about 160,000 horses annually. The value of registration with AQHA means that the overwhelming majority of horses recorded with the Association are highly marketable and worth far more than unregistered horses, so those horses find employment as show horses, race horses and recreational mounts.

Also, I believe it's important to note that we asked that horses be classified as livestock for very important reasons. What we see occurring with horses is alarming, and to those of us in this industry, it appears some are taking steps to change that classification. Horses are not companion animals like dogs and cats, and I know this committee recognizes the importance of having horses classified differently. As citizens, we rely on you, the knowledgeable lawmakers who understand the agriculture industry, to make decisions based on sound reasoning – not emotion, propaganda or exaggerated claims.

Animal rights activists seem to think that all animals, including horses, live idyllic pastoral lives until they slip quietly into sleep and then death. Unfortunately, that naïve view does not match the realities of life with horses. Horses can and do suffer injuries that might require euthanization. At times, horses suffer chronic lameness or pain. Old horses' teeth become so worn and smooth that they can no longer eat and if left to pasture, they slowly starve to death. In many of those cases, the most humane response, the response that is required of us as horse owners and lovers is to euthanize the horse. It is heartbreaking, but it is necessary and it's the right thing to do.

However, by eliminating processing, the courts and the federal government, if Congress passes Senate bill (S. 311) or House bill (H.R.503), remove a humane end-of-life choice for many horse owners.

In many states and counties in the United States, there are limited options for euthanization and carcass disposal. Water and sanitation regulations often prevent a horse owner from burying an animal on his or her property. Many communities lack adequate facilities or landfills to handle large animals like horses. There are far fewer rendering facilities taking horses. Horses euthanized by lethal injection must be treated as toxic because of potential impact on wildlife, yet most veterinarians do not have the facilities to dispose of horses.

With that, the three areas I want to comment on are:

- Long-term care for horses versus abandonment
- Funding for enforcement and an equine welfare system versus creating hardships for owners with bottom-end unemployable horses
- How the industry is handling the unwanted horse issue without the government reacting to animal rights activists or celebrities who are out of touch

Long-Term Care vs. Abandonment

Because of successful court challenges from the Humane Society, earlier this year the nation's three horse processing facilities were closed. AQHA and many others in the agriculture industry warned that if this were to occur without addressing long-term care solutions, some horses would needlessly suffer.

Their owners would not have a way to sell a horse they no longer wanted or could afford to keep. Horses can become unwanted for different reasons or owners' circumstances can change. Regardless of what those reasons are, an unwanted horse is a burden rather than a joy to its owner.

As examples of the problems that have been created:

- In April, AQHA took a call from an irate salebarn owner in Utah who found himself in possession of a handful of horses that the owner had abandoned when he couldn't even get the consignment fee for them in the auction. The salebarn owner made it clear that the horses were not his problem and would not be kept;
- The Association received a call from a farm and ranch store in Mississippi that was approached to help supply feed for 70 horses that were abandoned;
- An AQHA member from Montana mailed pictures of a 3-year-old gelding that died of starvation because its owner simply walked away;
- Last month we learned of a plea agreement in Maryland that was reached in an animal abuse case at a supposed "rescue" facility where 75 horses were seized; and
- In my home state of Colorado, we recently learned of 23 horses that were locked in a barn and abandoned. The owner, someone I knew from years ago, told authorities he could no longer afford to take care of the horses because of rising prices and plummeting value.

Certainly, all owners should care for all their animals properly. Unfortunately, not all do often because they can no longer afford to.

These examples echo most of what has come into AQHA's public policy department since we allowed out-of-touch people and organizations to shut down the three slaughter facilities. While many business owners and animal lovers have a soft spot for these abandoned horses now, at some point, the gravy train is going to run dry. Horses are already becoming victims.

Activists and misguided legislation circulating around Washington relating to horse slaughter already are having a harmful impact on the very animal meant to be protected. Additionally, legislation that does not establish standards of care that horse rescue facilities must meet is not doing what's best for the agriculture community or America's magnificent horse.

ECONOMICS AND FUNDING

Whether or not we want to admit it, economics comes into play. The slaughter market determines the base or floor price for horses. When that bottom falls out or is forcibly removed as it has been with the closing of the three slaughter plants, it simply stands to reason that it will adversely affect the horse industry and the horses themselves.

In 1986, Congress passed legislation that dramatically impacted the horse industry and weakened its contributions to the U.S. economy. It took years for the industry to recover and, in fact, it never did recover to the levels of the pre-1986 era. According to the 2005 American Horse Council study, "The Economic Impact of the Horse Industry on the United States," the horse industry has a direct economic impact of \$32 billion and supports 435,000 full-time jobs.

I make my living off the horse industry, and even at the upper end where I train and compete, owners are beginning to feel the effects of the bottoming of the horse industry. When the floor is removed, the entire industry begins to fall, and as we're seeing, values are beginning to decline.

The other economic issue deals with how we are going to care for some 90,000 horses each year now entering the equine welfare system. By most assessments, it would take an additional 2,700 bona-fide rescue facilities to care for America's unwanted horses. Already, Congress has cut funding for BLM horses because of the tremendous cost they have become to taxpayers. Where will the money come from to care for these horses?

By providing *only the most basic care of hay, feed and water*, which we conservatively estimate at \$1,900 per year per horse, it will cost \$171 million to care for 90,000 unwanted horses displaced as a result of banning horse slaughter in the United States. That figure does not include any veterinary or farrier care. Additionally, if Washington is going to legislate a ban on horse slaughter, it should explore ways to provide shelters such as those we have for dogs and cats, where owners can divest themselves of unwanted horses, and where they can be properly cared for.

Staff at AQHA called the hometowns of each of the members of this Subcommittee. Of 18 municipalities contacted, only one had the facilities necessary to take in abandoned or impounded horses. We have a long way to go.

As a result of the closing of the nation's processing facilities, today there are more horses on the market, *causing the value of most horses to plunge*. Low prices have consequences. Reduced prices put horses into the hands of people without the financial resources to provide proper care, which leads to neglect. It also can drive owners to abandon or neglect horses. Those owners who had a horse worth \$800 to \$1,200 now have one worth much less and won't pay a veterinarian to euthanize; a rendering facility to take the body away; or to have the animal buried somewhere. Slaughter is not pretty, but it does provide a humane, economical way for an owner to relinquish an unwanted horse.

AN INDUSTRY ISSUE

The option of sending a horse for processing at one of the United States' three plants must remain available to those who need it, so long as measures ensuring humane transportation and treatment of horses are in place. Thanks to members of the House Agriculture Committee, those rules exist today, and in the United States, we protect the dignity of even the most unwanted or unusable horse by enforcing laws concerning transportation to and care at slaughter facilities. People I know have shipped horses into Mexico and Canada as a result of the recent closing of the United States' slaughter facilities. Once an animal is taken outside our borders, we lose our standards of care. And with gas prices continuing to rise, for states that don't border Canada or Mexico, abandoned, unwanted horses will soon become the norm because sadly the economics just don't work in the horse's favor.

But for those who believe that slaughter must be outlawed, the good news is that the industry is addressing the issue without government intervention. For people who are serious about helping America's unwanted horses and putting real action to work, there is the Unwanted Horse Coalition.

The Unwanted Horse Coalition, which AQHA helped establish in 2005, is working to eliminate America's unwanted horses. The goal of UHC is not to pay for the care of unwanted horses but to reduce the number and improve their welfare. Ultimately, it's the industry's hope that there will be no more unwanted horses in America. Through education and hard work, we are addressing this problem without creating inadvertent problems like this ban has.

Ladies and gentlemen of this Subcommittee, I love horses, and I love how good the agriculture industry has been to me. If you're serious about helping horses and the good people who make their livelihood off the livestock industry, I hope you will do what's right to end this problem. It's not about passing laws that have unintended consequences. It's about being realistic, doing what is right for horses and feasible for taxpayers.

Thank you for your time today.

**Testimony of
Karen Jordan, DVM
National Milk Producers Federation**

**Before the
U.S. House of Representatives Committee on Agriculture
Subcommittee on Livestock, Dairy, and Poultry
Hearing on Animal Welfare in Agriculture
May 8, 2007**

Thank you for inviting the National Milk Producers Federation (NMPF) to testify before you today.

My name is Karen Jordan. I am a practicing veterinarian in Siler City, North Carolina where I own a large animal veterinary service. My husband and I also own and operate Brush Creek Swiss Farms with 75 registered Brown Swiss cows and 70 replacement heifers. Since 1993 I have served as the vice-chairperson for the NMPF Animal Health Committee. For the past three years I have also served as the chair of the Cattle Health Committee for the National Institute for Animal Agriculture.

My testimony today focuses on the animal care practices that U.S dairy producers provide for their animals every day and the efforts the dairy industry has taken to improve animal welfare. U.S. dairy producers have a long history of providing excellent care to their dairy cattle. This responsibility is not only a moral imperative, but it also pays dividends, since healthy, comfortable cows perform more effectively. Dairy farmers recognize that proper animal care practices lead to the production of high quality milk.

Simply put, what's good for the cows is good for our business. Too often, people not familiar with, or those with an ideological bias against livestock production, assume that farmers can afford to be cavalier about the health of their herds. I would tell you that, to the contrary, today we understand more than ever how interconnected animal well-being and economic well-being are, for farmers and their cows.

Every day all dairy farmers, regardless of the size of their operation, invest a great deal of time and resources to ensure their cows are provided the best health care, housing conditions, and proper nutrition. While specific animal care practices vary depending on geographic region and climate, proper animal care is practiced throughout the industry.

In 2002, NMPF and the Milk and Dairy Beef Quality Assurance Center came together to develop the *Caring for Dairy Animals Technical Reference Guide*. This is a comprehensive set of dairy animal well-being guidelines that covers all aspects of dairy

animal care. The manual addresses all key elements of dairy animal care and recommends best management practices based on the most current science. Also included is a voluntary self-audit in a checklist format that producers can complete. The self-audit addresses quality control points that can be objectively observed by the producer. The Milk and Dairy Beef Quality Assurance Center also offers a third party auditing component of the program. Many dairy farmers choose to go through the on-farm audit to verify that their farm is following the animal care practices.

These guidelines, recognized by the Food Marketing Institute and the National Council of Chain Restaurants, were developed using the most current animal well-being research. The guidelines have been extensively reviewed by dairy animal welfare experts and are endorsed by the American Association of Bovine Practitioners. At the inception of the guidelines, a strong promotional effort led by NMPF was initiated and these guidelines were widely distributed to dairy farmers, veterinarians, dairy nutritionists, milk cooperative field staff and others who interact with dairy farmers on a daily basis.

The dairy industry has not only addressed animal care standards for milking cows, but also for dairy calves, replacement heifers, and veal calves. Farmers that raise replacement heifers utilize the *Raising Quality Replacement Heifers* guidelines. The American Veal Association has developed the Veal Quality Assurance Program, which provides stringent guidelines for animal well-being and care and requires multiple yearly onsite visits from an accredited and licensed veterinarian to document compliance.

Several years ago, the New Jersey Department of Agriculture was mandated to develop and adopt regulations governing the minimum standards for the humane treatment of domestic livestock. The *Caring for Dairy Animals Technical Reference Guide* was the set of dairy animal welfare guidelines the State of New Jersey used to develop the dairy component of the standards.

There are also other dairy animal welfare verification programs that states or dairy organizations have developed. For example New York has created the New York State Cattle Health Assurance Program which includes an animal welfare component in the audit and California has developed the California Dairy Quality Assurance Program which also has an animal welfare component.

In addition to animal care guidelines, the dairy industry also supports new research in the animal well-being area. As new appropriate technologies and/or animal care practices arise, they are recommended to producers. In the past decade, animal welfare research has led to many improvements in cow comfort. Because of this research, farmers have applied the improvements gained from the research into their management practices. Today many dairy farmers provide their cows with fans and sprinkler systems to keep them cool and comfortable. Farmers also install rubber mats for their cows to stand on as well as clean, comfortable bedding such as sand or rubber mattresses for their cows to lie on. Routine herd health programs are also a part of all dairy farmers' management practices.

Through a combination of modern production technologies and experience gained across generations of dairying, today's milk producers know how to maximize cow comfort and well-being in order to achieve record levels of milk production per cow. NMPF continues to work with other dairy organizations to promote the animal care guidelines to dairy producers.

As you can see U.S. dairy farmers have been very involved in the welfare of their animals and dairy farmers want to provide the utmost care for their animals. Because of all the industry efforts, we respectfully request that you oppose any proposed farm animal welfare legislation as part of the 2007 Farm Bill. Dairy farmers' livelihood is already based on well cared for and healthy animals to produce wholesome, nutritious dairy products. Thank you for providing me with the opportunity to testify on behalf of the National Milk Producers Federation.

**Testimony of Bryan Scott
Executive Vice President
American Veal Association**

**Before the House Livestock Sub-Committee
Animal Welfare Hearing**

May 8, 2007

The Science of Veal Production

Good afternoon to our Chairman, the Ranking Member, and to the distinguished members of the Committee.

My name is Bryan Scott, and I am the Executive Vice President of the American Veal Association (AVA). I have also served as the Veal Committee Delegate to the National Cattlemen's Beef Association and the Cattlemen's Beef Board. I am here today to represent on behalf of the AVA, a nonprofit 501(c)(4) agricultural trade group based in Illinois. I would like to thank you Mr. Chairman and each member of the Committee for holding this important hearing today, and allowing me to provide written testimony for the record. .

The American Veal Association represents over 1000 family farmers in 12 States throughout the Midwest and Northeast. Our constituents add nearly one billion dollars per year to the economies of these commonwealths, of which nearly \$350 million per year is in direct purchases from the U.S. Dairy Industry. Veal Producers buy the milk solids equivalent of 5.5% of all the fluid milk produced in the United States. The average veal facility houses only 250 calves; and our average producer earns a little over \$27,000.00 per year, with no benefits. In addition, nearly 20% of our producers are Amish or Mennonite plain farmers. Our members raise livestock because they enjoy and care for both their animals, and their rural way of life. Therefore, we truly represent the small family farmers in our Nation's agricultural economy. Our producers do not operate one CAFO, anywhere.

Continued Pg. 2 Testimony of Bryan Scott
American Veal Association
Before the House Livestock Sub-Committee
Animal Welfare Hearing – May 8, 2007

In 1994 our producers initiated the Veal Quality Assurance (VQA) program. This comprehensive program has as its only focus providing guidance to our producers on animal welfare and care. This program was developed in conjunction with Penn State University, and Dr. Lowell Wilson, one of the country's preeminent animal science professors and researchers. This program not only provides stringent guidelines for animal welfare and care, but it requires multiple yearly onsite visits from an accredited and licensed veterinarian to document compliance. In addition, we know that healthy and well cared for animals are productive, and productive animals are profitable. Therefore, we have a greater interest than anyone in assuring the well being of the animals in our care. I have submitted for the record a complete copy of our VQA production manual.

In recent years, legislatures in New Jersey, Illinois, California, and Massachusetts, once presented with all the facts, have refused to enact additional and unneeded animal welfare legislation. In addition, Federal legislators have also had an opportunity to consider this issue, and again, restrictive animal production measures have been dismissed by the United States Congress each and every time they have been offered. The mandates of animal rights activists are simply not supported by sound animal science, as evidenced by the fact that not one prescriptive farm animal welfare bill has ever been enacted by any legislature in our country.

You will also likely hear testimony today talking about an animal welfare initiative that passed in Arizona during 2006, Prop 204. It is worth noting several points in regards to this specific initiative. First, it was not a legislative initiative, it was a voter referendum, and as such did not have the benefit of public hearings, or legislative scrutiny. Second, the Humane Society of the United States (HSUS) and its close political ally Farm Sanctuary spent nearly \$2 million dollars to convince Arizona voters of their position. The \$2 million dollars they spent on just this one issue is over four times our total yearly operating budget. It is further worth noting that the AVA only spent \$10,000 on this referendum, and yet managed to move the final vote from 78% in favor of the HSUS position during initial polling, to only 61% in favor on Election Day

*Continued Pg. 3 Testimony of Bryan Scott
American Veal Association
Before the House Livestock Sub-Committee
Animal Welfare Hearing – May 8, 2007*

Faced with anti-agricultural legislation in 2003, the New Jersey Legislature and the Department of Agriculture commissioned its land grant university (Rutgers) to perform a study on the science of veal calf production. This study addressed the common production techniques and welfare requirements of our industry, and concluded without exception, that the Veal Quality Assurance program and the principles behind it were scientifically sound. I have submitted to the Committee the complete study performed by Rutgers for the written record.

To quote the conclusions of the Rutgers' study, "According to scientific studies and evaluation of existing practices, calves raised on veal farms are well cared for and have their nutrition and health needs met." The study goes on to state,

[The measures supported by many animal rights organizations] are all contraindicated for optimal veal calf health. Tether systems are not stressful, and are beneficial for veal calves as shown repeatedly by both university research and practical observation. Iron levels are maintained above minimum levels on veal farms to assure adequate health and performance while meeting consumer demands. Digestible fiber is not recommended for veal calves because of well-documented health requirements.

The study concludes with this statement, "...[legislative animal welfare] measures may bring about more significant, but not necessarily animal-friendly measures in the management of domestic livestock."

What you will hear today from the animal rights advocate are emotionally charged arguments and sound bites based on outdated information and in many cases untrue assertions, but very little in the way of peer reviewed animal science. If these special interest groups want to change our science-based production practices, then we ask that the burden of scientific proof be placed squarely on their shoulders, and not once again on the backs of hard working family farmers.

We respectfully ask the Chairman and this Committee to support family farmers by opposing any prescriptive animal welfare legislation sponsored by single issue, animal rights NGO's. Thank you again for holding this important hearing, and for allowing us to participate in it.



CASE STUDY: Scientific Veal Production and Opposition Legislation in New Jersey¹

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Abstract

Recent efforts by animal rights groups to limit livestock production practices have focused on veal production. Legislation has been introduced in California, Illinois, and New Jersey that would ban or limit certain aspects of veal production. The legislation in New Jersey would ban tethering, mandate the feeding of iron supplements shortly after birth, and mandate the feeding of "digestible fiber" beginning at 14 d of age. All of these requirements may be contraindicated for optimal veal calf health. In addition, they invite more extreme measures. For example, the tethering ban may be extended to all dairy and beef animals up to 340 kg (750 lb) and could extend to adult and junior cattle shows and exhibitions as well. This paper describes the effects of these practices (tethering, controlling iron intake, and limiting fiber intake) on calf health and management. Portions of this paper were written to provide the New Jersey legislature with a science-based perspective on veal-raising practices addressed in the legislation. Fi-

nally, this paper will seek to point out implications of this and other legislative approaches to limit livestock management practices.

(Key Words: Veal, Tethering, Iron, Digestible Fiber, Animal Rights Groups.)

Introduction

Public perception of agriculture is often very different than the realities of agricultural production. Perhaps the best example of differences between public perception and agricultural reality exists in the veal industry. Veal production has long been assailed (Farm Sanctuary, 2004) as "cruelty on factory farms." According to Stull and McMartin (1992), Stull and McDonough (1994), and Wilson et al. (1994, 2000), veal calves are provided exceptional individual care on small family farms. Recently, nearly identical legislation was introduced into the legislatures of New Jersey, Illinois, and California (New Jersey State Legislature, 2002; Illinois General Assembly, 2003; California Legislature, 2003) that would criminalize certain veal management practices (Figure 1). Similar legislation was first introduced into the United States Congress in 1987 (United States Congress, 1987) and in nearly every subsequent Congress through 2000 (United States

Congress, 2000). This legislation has been promoted by animal rights groups who are politically active and have targeted the veal industry (Farm Sanctuary, 2004). The legislation would require practices that are detrimental to calf health and well being, while banning practices that have been shown to maintain health and well being. The main points of the legislation are to forbid the use of tethers in raising calves, to require feeding fiber to neonatal calves as young as 14 d of age and to require feeding iron to neonatal calves. If this legislation were to proceed, it could theoretically lead to banning the tethering of dairy calves, cows, livestock at fairs, or other contemporary livestock management practices. Although there is no veal production in New Jersey, it is likely that legislation has been introduced here with the hope of using the state as a platform for similar legislation in New Jersey and other states. Portions of this paper were written in response to a request by the New Jersey Department of Agriculture to provide the New Jersey legislature with a science-based perspective on veal-raising practices addressed in the legislation.

Results and Discussion

Tethering. It is common, on dairy farms, to tether calves. It helps to

¹Supported by the New Jersey Agricultural Experiment Station. Portions of this paper were originally submitted to the New Jersey State Division of Animal Health in response to proposed legislation limiting veal production.

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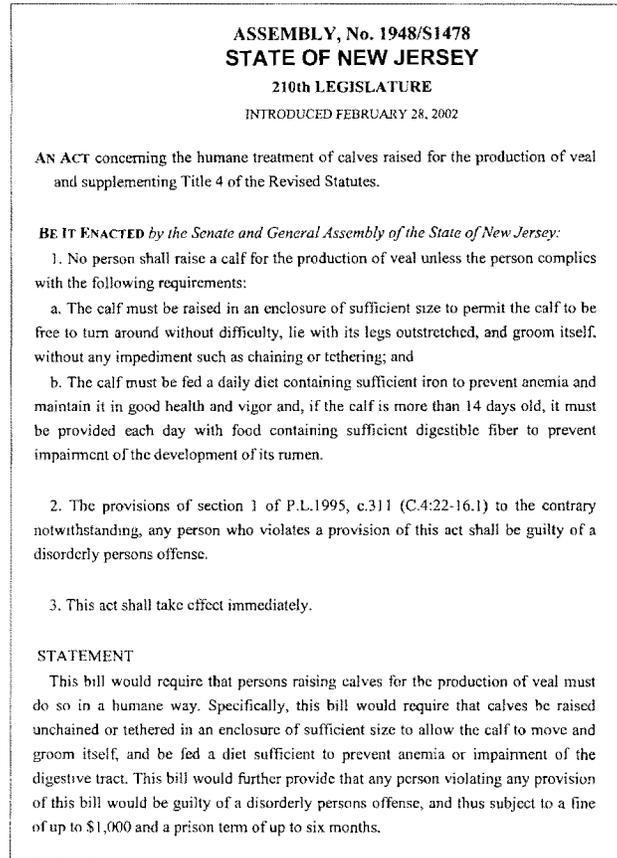


Figure 1. New Jersey veal legislation.

limit animal-to-animal contact and helps to train calves for being halter-trained later in life (a commonly accepted management practice on all dairy farms). According to Stull and McDonough (1994), as measured by

physiological data, the tether does not appear to be a stressor.

Tethering veal calves allows larger individual calf stalls, which promotes positive behavior, such as head and neck licking, and limits licking the

back, rear, and rump of neighboring calves (Sato et al., 1991). Tethers have the further benefit of preventing defecation and urination in feed and water supplies, which improves calf health and well being by preventing

or lessening the risk of gastrointestinal infection in calves tethered in stalls. At the same time, calves are still able to sleep in a normal, comfortable, recumbent position.

Tethers also prevent other unwanted or aggressive behaviors between calves. Some calves are more aggressive toward other calves (Veisier et al., 1994, 1997, 1998). Tethers help to limit group interactions and allow head, neck, and visual contact, which may prevent aggressive interactions and reduce health-related problems often observed in group-housing situations (Wilson et al., 1994).

In a survey of California veal facilities (Stull and McMartin, 1992; Stull and McDonough, 1994), it was determined that veal calves tethered in individual stalls are healthy, grow fast, and are not under stress as evidenced by blood cortisol concentrations and neutrophil to lymphocyte ratios.

Those researchers (Stull and McMartin, 1992; Stull and McDonough, 1994; Wilson et al., 1994, 2000) concluded that the major factor adversely affecting veal calf welfare was an inadequate immune system upon arrival at the veal facility. It is easier for animal caretakers to feed, administer medications, and perform routine management practices when calves are tethered; untethered calves will most likely be treated in chutes or perhaps manually restrained, resulting in increased stress. Stull and McMartin (1992) also concluded that individual stalls are useful for managing immune-compromised calves arriving at the facility because they provide a controlled environment for management and treatment.

The use of specialized animal stalls and tethers is accepted as a science-based industry standard of management (Stull and McMartin, 1992). These stalls protect growing veal calves, reduce disease problems common in growing calves, and facilitate individualized feeding and management. Veal calves can comfortably lie down in natural positions (sternal recumbency) (Stull and McMartin, 1992; Wilson, 1994), stand up, and

groom themselves. Individual stalls have been shown to help prevent the spread of disease by limiting both fecal contamination of the feed and calf-to-calf contact (Stull and McMartin, 1992; Wilson et al., 1994). Tethering veal calves in stalls allows farmers to provide individual attention and ensure that each calf is well fed, healthy, and in proper body condition (Wilson et al., 1994). Iron status (usually measured as hemoglobin [Hgb] or hematocrit [Hct] percentage) can be easily monitored to prevent anemia.

Veal calves are marketed between 18 and 20 wk of age, at which time they weigh nearly 230 kg (500 lb). Animals of this size are larger and more difficult to handle than small calves. Tethers provide a safer, easier environment for animal management, protecting both calves and those who work with them.

According to Van Putten (1982) early weaned calves will suck anything that resembles a teat. This could include the navel or sheath of other calves. Veal stalls and tethers prevent this.

Proposed veal legislation (New Jersey State Legislature, 2002; Illinois General Assembly, 2003; California Legislature, 2003) would prohibit the use of tethers in veal calf production. As measured by growth rate, health, neutrophil to lymphocyte ratios, and cortisol concentrations, tethers are not apparently stressful to animals (Stull and McMartin, 1992; Stull and McDonough, 1994). They are an acceptable science-based management practice in the production of veal.

One concern related to passage of this bill is what it might mean for dairy farmers who currently tether their calves or for those who keep adult cows in barns with some form of neck restraint. Individual pens or hutches are effective means of raising dairy calves (Quigley et al., 1994, 1995). Calves may remain in these pens until weaning, at which time they are grouped with other calves of similar age and size. According to the USDA-National Animal Health Moni-

toring System (NAHMS) (2002a), the average dairy calf is weaned at 8.4 wk of age. Calf hutches are outside huts that provide a protected, well-ventilated environment. Calves are often tethered to the front of the hutch on a 2- to 2.5-m tether (6 to 8 ft) that allows full movement but still keeps calves separated to prevent cross-infection. Nationwide, according to the USDA-NAHMS (2002a), 58% of dairy calves raised inside are kept in individual pens. For those raised outside, 42% are raised in hutches; this number might be even greater because it does not include animals raised off-site. The proper use of individual calf hutches is described by Battaglia (2001), who stated that they are "a good option" for calf raising. Their use is an acceptable science-based management practice (Quigley et al., 1994, 1995; USDA-NAHMS, 2002a).

There has been discussion in the New Jersey legislature for an exemption to allow tethered animals at shows, fairs, and exhibitions. The New Jersey law could adversely affect all dairy and beef farmers. If enacted, the law might eliminate tethers and stalls for other classes of cattle. It also could have ripple effects in other states, where New Jersey could become a platform for similar legislation.

Iron Management. According to Larson et al. (1985), cow's milk is naturally deficient in iron. In baby pigs, because of low iron stores at birth, a rapid increase in blood volume after birth, a rapid growth rate, and low iron in sow's milk, it is common to replenish newborn piglets with injectable iron. Management of iron intake, circulating and muscle levels, is one of the challenges in veal production. The amount of iron in the diet of veal calves is carefully controlled to produce the pale meat product demanded by the marketplace. This must be done while maintaining optimal health and nutrition.

Veal farmers and feed companies monitor iron intake and iron status of veal calves to prevent anemia (Bremner and Dalgarno, 1973a,b;

Bremner et al., 1976; Stull and McMartin, 1992; Wilson et al., 1994), because veal farmers would suffer economic losses if calves were to develop anemia. One of the first visual signs of iron-deficiency anemia is reduced feed intake and growth. Other signs would be general unthriftiness, rough hair coat, labored breathing, and elevated heart rate. Death would occur in extreme cases. Veal farmers do not wish to risk the health, growth, and well being of their investment.

Feeding iron beyond the calf's minimum needs does not improve its performance, health, or well being (McFarlane et al., 1988). Iron management programs limit excessive iron intake and the concentration of the iron-containing pigment myoglobin in the muscle (Bowers et al., 1989; McFarlane et al., 1988; Wensing et al., 1991; Wilson et al., 1994). Controlling iron intake may also reduce risks from iron-dependent pathogens in the small intestine. Pathogenic bacteria, such as *Salmonella* and *Escherichia coli*, require iron for growth (Weinberg, 1999; Gil and Rueda, 2000). These bacteria often cause scouring and diarrhea, infections that are the leading cause of death in calves (USDA-NAHMS, 1996, 2002b). Orally ingested iron may be a contributor to these deaths. According to Weinberg (1999), Newman (1995), and Gil and Rueda (2000), excess iron can stimulate the growth of pathogenic bacteria in mammals. This stimulus appears to be related to the bacterial uptake of iron. *Lactobacillus* does not require iron; these are the beneficial bacteria found in yogurt. By feeding milk that is relatively low in iron (Institute of Medicine, 1999; Weinberg, 1997, 2001), *Lactobacillus* may gain a competitive advantage over pathogenic bacteria, resulting in better calf health and well being. Most veal farmers use injectable iron to supplement calves upon arrival, although oral supplements may be used later in the production cycle.

According to Bremner et al. (1976), the best indicator of anemia in veal

calves is reduced feed intake (appetite). Blood Hgb and packed cell volume (Hct) levels are often used to monitor iron status. The Hgb levels in veal calves at birth ranged from 11.0 to 14.0 g/dL in studies by Bremner and Dalgarno (1973a,b), and at 1 wk of age, McFarlane et al. (1988) concluded that Hgb averaged between 9.0 and 10.0 g/dL. Vermeire and Henning (2002) reported the Hgb in veal calves upon arrival at the veal farm ranged from 5.6 to 17.4 g/dL. It is normal for Hgb levels to fall after birth (Bremner and Dalgarno, 1973a; Bremner et al., 1976; McFarlane et al., 1988). This probably occurs as the calf destroys fetal Hgb and begins to produce adult Hgb.

McFarlane et al. (1988) found that although feeding regime influenced Hgb levels, there were no effects on animal health or performance. Vermeire and Henning (2002) reported that blood variables related to iron status were not predictive of animal performance or carcass weight, length, or longissimus area.

According to Wilson et al. (1994), Hgb levels in healthy calves should be maintained between 7.5 and 8.5 g/dL. Egan et al. (1993) found that Hgb levels in veal calves averaged 8.04 g/dL. In a study of California veal operations conducted by Stull and McMartin (1992), calves were classified as marginally anemic (no adverse affects on health, performance, well being) when Hgb levels were between 7.0 and 7.9 g/dL. Clinical anemia was thought to occur when blood Hgb levels fell below 7.0 g/dL; however, there were no detrimental production or health effects observed in any of the calves. Similarly, Roy et al. (1964) and Bremner et al. (1976) indicated 7.0 g/dL as the point below which feed intake and growth are affected. The term "clinical anemia" is not appropriate for blood values of 7.0 g/dL because "clinical," by definition, requires visible "clinical" signs. Veal industry experts consider calves with blood Hgb values of 5.0 to 7.0 g/dL to be marginally iron deficient. McFarlane et al. (1988) found that

even when Hgb levels in calves averaged between 5.5 and 7.0 g/dL, health and performance were not compromised when compared with calves receiving more iron. Stull and McMartin (1992) found similar results in their survey of California veal operations. At market size, 25% of veal calves had blood Hgb in the range of 7.0 to 7.9 g/dL, and 10% had blood Hgb <7.0 g/dL. None exhibited visible signs of anemia.

At birth, calves have differing amounts of iron stores in the liver (Gooneratne and Christensen, 1989; Miltenburg et al., 1991). In modern veal farms, veal calf health is monitored regularly for Hgb, Hct, and red and white blood cell counts. Based on the results of these tests, iron injections are used to supplement a veal calf's diet, especially early in the production cycle. However, iron injections may cause muscle blemishes (George et al., 1995), and more oral supplementation is used later in the production cycle.

Proposed legislation mandates that sufficient iron be present in the diet to prevent anemia and maintain good health and vigor. Appetite and growth rate can be maintained while preventing anemia with either injections or iron supplementation in the range of 25 to 40 mg/kg of dry diet (Webster et al., 1975; Bremner et al., 1976; Davis and Drackley, 1998).

Digestible Fiber. At birth, calves, similar to all mammals, are milk digesters. Milk bypasses the rumen through the esophageal groove and enters the abomasum directly, where digestion occurs. Calves are born without a functional rumen and are unable to digest fiber (Huber et al., 1961a,b). Research has shown that veal calves fed fiber before the rumen is developed may suffer digestive disorders, diarrhea, and a general reduction in health and well being (Matiello et al., 2002; Van Putten, 1982; Welchman and Baust, 1987; Wensing et al., 1986; Wilson et al., 1994).

Although young beef calves consume grass on pasture (grass is actually low in fiber and high in soluble

sugars) and eventually develop a functioning rumen, they do not consume fibrous forages such as hay or straw as early as 14 d of age. Beef calves are not generally weaned before 6 mo of age. They reach weaning age while still consuming a diet mostly composed of milk, while their mothers graze on grass. Grass intake supplements mother's milk consumption as calves grow. Grasses are high in carbohydrates and soluble sugars, not in digestible fiber, which helps to initiate rumen development.

It is unclear what the legislation authors mean by the term "digestible fiber." The term fiber refers to a variety of plant cell-wall components including cellulose, hemicellulose, lignin, pectin, silica, etc. (Goering and Van Soest, 1970). These are usually found in hay, straw, and other forages. A calf cannot digest fiber. Newborn calves have a digestive system that is similar to other newborn mammals. Feed fiber would not be fed to a newborn human; therefore, feeding fiber to a young calf is questionable.

Calves are made to digest milk early in life. When fed too much high fiber feed prior to rumen development, they will not grow well and may not develop normally. They will not gain BW, will become unthrifty, or both. If milk intake is limited and dry feed (grain) is fed, then rumen development will take place as normal microbial fermentation begins. Dairy calves that are raised as milk herd replacements begin consuming concentrate feeds (grain) that are low in fiber at several weeks of age; when milk intake is restricted, rumen development occurs. This development in a dairy heifer is premature when compared with either a veal calf or a beef calf that may not be weaned until 6 to 9 mo of age.

When fiber is fed to young pre-ruminant calves, abnormal conditions can result. Calf health and welfare may be compromised. Work by Van Putten (1982), Wensing et al. (1986), Welchman and Baust (1987), Wilson et al. (1994), and Matiello et al. (2002) indicate that veal calves fed

straw or other high fiber feeds had increased abomasal lesions, ulcerations, or both. In research studies by Wensing et al. (1986), the feeding of corn silage, straw, and alfalfa all resulted in increased incidence and severity of abomasal lesions with the greatest increase in calves fed pellets made with corn silage or straw. Wiepkema et al. (1987) and Morisse et al. (2000) reported some susceptibility to lesions and ulcerations regardless of the type of diet fed. Matiello et al. (2002) concluded that the incidence of lesions was increased by the provision of solid feeds, particularly from structured fiber sources, and concluded that there was no benefit from added fiber. Those researchers stated that a "solid feed able to meet a calf's behavioral needs and to improve digestive processes of veal calves without damaging the digestive apparatus is still to be identified" (Matiello et al., 2002).

Proposed legislation requires the feeding of "digestible fiber" at 14 d following birth. This is contraindicated for a variety of reasons. First, feeding fiber at this early date will compromise calf health and well being. Abomasal ulcers are a clearly documented phenomena resulting from feeding supplemental fiber to young pre-ruminant calves. Fiber, in the form of hay, straw, or silage, should not be fed to calves until after weaning and only when rumen development has occurred. Second, the feeding of fiber in the form of hay or straw may result in calves that are undernourished and unhealthy. This will result because their underdeveloped rumen cannot yet digest fiber. This affects their overall development, slows their growth rate, and may result in impaired health. Third, if calves are to be fed dry feed at all, it should be a calf concentrate or calf starter. These feeds are primarily composed of fermentable carbohydrates, such as starches and sugars from feeds such as corn, oats, molasses, and soybean meal. They are highly digestible, have little fiber, and will aid the calf as it grows and begins the

process of rumen development. Much research (Davis and Drackley, 1998) has determined that the best way to develop the calf rumen in young calves is to feed a small amount of calf starter (grain) to initiate the bacterial fermentations that take place and cause rumen development. Feeding fiber in the form of hay or straw may have a deleterious effect—the opposite result it was intended to achieve. Finally, veal calves fed only milk or milk replacer will be just as healthy and usually gain more BW than calves fed grain and pelleted concentrate feeds. In fact, during the first 4 to 5 mo of age, milk-fed veal calves may gain more BW than their grain-fed counterparts because milk is a more concentrated, complete, and balanced source of nutrition and because ruminant digestion (fermentation) is less efficient than pre-ruminant (direct) digestion.

It is difficult to agree upon the factors that influence animal well being. According to Schwartz (1990), there are four indicators of well being (productivity, pathological changes, physiologic or biochemical changes, and behavioral changes). Many scientists believe that productivity is a good indicator of animal well being. By this definition, veal calf production not only results in a quality product for marketing to consumers, it provides for superior animal well being. There are a variety of Quality Assurance Programs (dairy, beef, lamb, pork, and chicken) in place to ensure optimum product quality to the consumer while maintaining excellent animal care, health, and well being. According to the Cattlemen's Beef Board (Cattlemen's Beef Promotion and Research Board, 2002), 71.7% of commercial veal producers participated in the national Veal Quality Assurance Program in 2002. These standards promote optimal calf health, performance, well being, and marketability of the resulting product.

Implications

According to scientific studies and evaluation of existing production

practices, calves raised on veal farms are well cared for and have their nutrition and health needs met. The legislative issues discussed in this paper included a ban on tethering, mandating the feeding of iron supplements after birth, and requiring the feeding of "digestible fiber" beginning at 14 d of age. These are all contraindicated for optimal veal calf health. Tether systems are not stressful, and are beneficial for veal calves as shown repeatedly by both university research and practical observation. Iron levels are maintained above minimum levels on veal farms to assure adequate health and performance while meeting consumer demands. Digestible fiber is not recommended for veal calves because of well-documented health requirements. All of the proposed legislation (New Jersey, California, and Illinois) has currently been defeated or stalled; however, it has already been re-introduced into the New Jersey legislature (New Jersey State Legislature, 2004). These kinds of measures may bring about more significant, but not necessarily animal-friendly, measures in the management of domestic livestock.



Literature Cited

- Battaglia, R. A. 2001. Handbook of Livestock Management. (3rd Ed.). Prentice-Hall, Upper Saddle-River, NJ.
- Bowers, J. A., J. Craig, and J. C. Williams. 1989. Sensory characteristics, texture, color, and selected nutrient content of veal muscle. *J. Food Sci.* 54:1444.
- Bremner, I., J. M. Brockway, H. T. Donnelly, and A. J. F. Webster. 1976. Anaemia and veal calf production. *Vet. Rec.* 99:203.
- Bremner, I., and A. C. Dalgarno. 1973a. Iron metabolism in the veal calf. The availability of different iron compounds. *Br. J. Nutr.* 29:229.
- Bremner, I., and A. C. Dalgarno. 1973b. Iron metabolism in the veal calf. 2. Iron requirements and the effect of copper supplementation. *Br. J. Nutr.* 30:61.
- California Legislature. 2003. Assembly Bill 732. Cruelty to calves raised for veal. Introduced February 19, 2003. <http://www.assembly.ca.gov/acsframeset2text.htm>.
- Cattlemen's Beef Promotion and Research Board. 2002. Evaluations of FY 2002 Checkoff-Funded Authorization Requests (ARs) and Related AR Projects Completed During FY 2002. AR-07-2002 Food Safety. Veal Quality Assurance, Centennial, CO.
- Davis, C. L., and J. K. Drackley. 1998. The Development, Nutrition, and Management of the Young Calf. Iowa State University Press, Ames.
- Egan, C. L., L. L. Wilson, T. R. Drake, W. R. Henning, E. W. Mills, S. D. Meyer, and D. C. Kenison. 1993. Effects of different doses of zeranol on growth, hemoglobin, and carcass traits in veal calves. *J. Anim. Sci.* 71:1081.
- Farm Sanctuary. 2004. Veal Production. <http://www.factoryfarming.com/>.
- George, M. H., P. E. Heinrich, D. R. Dexter, J. B. Morgan, K. G. Odde, R. D. Glock, J. D. Tatum, G. L. Cowman, and G. C. Smith. 1995. Injection-site lesions in carcasses produced by cattle receiving injections at branding and at weaning. *J. Anim. Sci.* 73:3235.
- Gil, A., and R. Rueda. 2000. Modulation of intestinal microflora by specific dietary components. *Microb. Ecol. Health Dis.* 12(4):31. (Suppl. 2).
- Goering, H. K., and P. J. Van Soest. 1970. Forage Fiber Analyses. Agriculture Handbook No. 379. ARS-USDA, Washington, DC.
- Gooneratne, S. R., and D. A. Christensen. 1989. A survey of maternal and fetal tissue zinc, iron, manganese, and selenium concentrations in bovine. *Can. J. Anim. Sci.* 69:151.
- Huber, J. T., N. L. Jacobson, R. S. Allen, and P. A. Hartman. 1961a. Digestive enzyme activities in the young calf. *J. Dairy Sci.* 44:1494.
- Huber, J. T., N. L. Jacobson, A. D. McGilliard, J. L. Morrill, and R. S. Allen. 1961b. Digestibilities and diurnal excretion patterns of several carbohydrates fed to calves by nipple pail. *J. Dairy Sci.* 44:1484.
- Illinois General Assembly. 2003. Senate Bill 1043. Amends the Humane Care for Animals Act. Introduced February 19, 2003. <http://www.legis.state.il.us/legislation/93/SB/PDF/09300SB1043.pdf>.
- Institute of Medicine, Food and Nutrition Board. 1999. Military Strategies for Sustainment of Nutrition and Immune in the Field. National Academy Press, Washington, DC.
- Larson, B. L., R. R. Anderson, R. J. Collier, A. J. Guidry, C. W. Heald, R. Jenness, and H. A. Tucker. 1985. Lactation. B. L. Larson (Ed.). Iowa State University Press, Ames.
- Matteolo, S., E. Canali, V. Ferrante, M. Caniatti, F. Gottardo, G. Cozzi, I. Andrognetto, and M. Verga. 2002. The provision of solid feeds to veal calves: II. Behavior, physiology, and abomasal damage. *J. Anim. Sci.* 80:367.
- McFarlane, J. M., G. L. Morris, S. E. Curtis, J. Simon, and J. J. McGlone. 1988. Some indicators of welfare of crated veal calves on three dietary iron regimens. *J. Anim. Sci.* 66:317.
- Miltenburg, G. A. J., T. Wensing, J. P. M. van Viet, G. Schuijt, J. van de Broek, and H. J. Breukink. 1991. Blood hemoglobin, plasma iron, and tissue iron in dams in late gestation, at calving, and in veal calves at delivery and later. *J. Dairy Sci.* 74:3086.
- Morisse, J. P., D. Huonnic, J. P. Cotte, and A. Martrenchar. 2000. The effect of four fibrous feed supplementations on different welfare traits in veal calves. *Anim. Feed. Sci. Technol.* 84:129.
- New Jersey State Legislature. 2002. Senate Bill 1478/Assembly Bill 1948. Requires humane treatment of calves raised for veal. Introduced May 13, 2002. http://www.njleg.state.nj.us/2002/Bills/S1500/1478_11.HTM.
- New Jersey State Legislature. 2004. Senate Bill 159/Assembly Bill 329. Requires humane treatment of calves raised for veal. Introduced January 13, 2004. http://www.njleg.state.nj.us/2004/bills/S0500/159_11.HTM.
- Newman, J. 1995. How breast milk protects newborns. *Sci. Amer.* 273(6):76.
- Quigley, J. D., III, K. R. Martin, D. A. Bemis, L. N. D. Potgieter, C. R. Reinemeyer, H. H. Dowlen, and K. C. Lamar. 1994. Effects of housing and colostrum feeding on the prevalence of selected infectious organisms in feces of Jersey calves. *J. Dairy Sci.* 77:3124.
- Quigley, J. D., III, K. R. Martin, D. A. Bemis, L. N. D. Potgieter, C. R. Reinemeyer, H. H. Dowlen, and K. C. Lamar. 1995. Effects of housing and colostrum feeding on serum immunoglobulins, growth and fecal scores of Jersey calves. *J. Dairy Sci.* 78:893.
- Roy, J. H. B., H. K. Gaston, K. W. G. Shillam, S. Y. Thompson, I. J. F. Stobo, and J. C. Greatorex. 1964. The nutrition of the veal calf. The effect of anaemia and of iron and chlortetracycline supplementation on the performance of calves given large quantities of whole milk. *Br. J. Nutr.* 18:467.
- Sato, S., S. Sako, and A. Maeda. 1991. Social licking patterns in cattle (*Bos taurus*): Influence of environmental and social factors. *Appl. Anim. Behav. Sci.* 32:3.
- Schwartz, A. 1990. The politics of formula-fed veal calf production. *J. AVMA* 10:1578.
- Stull, C. L., and S. P. McDonough. 1994. Multidisciplinary approach to evaluating welfare of veal calves in commercial facilities. *J. Anim. Sci.* 72:2518.
- Stull, C. L., and D. A. McMarrin. 1992. Welfare parameters in veal calf production facilities. Prepared for California Legislature. Cooperative Extension, School of Veterinary Medicine, University of California, Davis.
- United States Congress. 1987. House Bill 2859. A bill to prohibit certain practices in the raising of calves for veal, and for other purposes. Introduced July 1, 1987.
- United States Congress. 2000. House Bill 4415. To amend the Animal Welfare Act to require humane living conditions for calves raised for the production of veal. Introduced May 10, 2000.

- USDA-NAHMS. 1996. United States Department of Agriculture, National Animal Health Monitoring System. Part II: Changes in the U.S. Dairy Industry, 1991-1996. USDA:APHIS:VS, Fort Collins, CO.
- USDA-NAHMS. 2002a. United States Department of Agriculture, National Animal Health Monitoring System. Part I: Reference of Dairy Health and Management in the United States, 2002. USDA:APHIS:VS, Fort Collins, CO.
- USDA-NAHMS. 2002b. United States Department of Agriculture, National Animal Health Monitoring System. Part II: Changes in the U.S. Dairy Industry, 1991-2002. USDA:APHIS:VS, Fort Collins, CO.
- Van Putten, G. 1982. Welfare in veal calf units. *Vet. Rec.* 111:437.
- Veissier, I., P. Chazal, P. Pradel, and P. Le Neindre. 1997. Providing social contacts and objects for nibbling moderates reactivity and oral behaviors in veal calves. *J. Anim. Sci.* 75:356.
- Veissier, I., V. Gesmier, P. Le Neindre, J. Y. Gautier, and G. Bertrand. 1994. The effects of rearing in individual crates on subsequent social behaviour of veal calves. *Appl. Anim. Behav. Sci.* 41:199.
- Veissier, I. A., R. Ramirez de la Fe, and P. Pradel. 1998. Nonnutritive oral activities and stress responses of veal calves in relation to feeding and housing conditions. *Appl. Anim. Behav. Sci.* 57:35.
- Vermire, D. A., and W. R. Henning. 2002. Relationship of live animal performance to meat color and carcass characteristics of milk-fed veal calves. *J. Anim. Sci.* 80 (Suppl. 1):128.
- Webster, A. J. F., H. Donnelly, J. M. Brockway, and J. S. Smith. 1975. Energy exchanges of veal calves fed a high-fat milk replacer diet containing different amounts of iron. *Anim. Prod.* 20:69.
- Weinberg, E. D. 1997. The *Lactobacillus* anomaly: Total iron abstinence. *Perspect. Biol. Med.* 40(4):578.
- Weinberg, E. D. 1999. Iron loading and disease surveillance. *Emerg. Infect. Dis.* 5:346.
- Weinberg, E. D. 2001. Human lactoferrin: A novel therapeutic with broad spectrum potential. *J. Pharmacy and Pharmacol.* 53:1303.
- Welchman, D. de B., and G. N. Baust. 1987. A survey of abomasal ulceration in veal calves. *Vet. Rec.* 121:586.
- Wensing, T., H. J. Breukink, and S. Van Dijk. 1986. The effect of feeding pellets of different types of roughage on the incidence of lesions in the abomasums of calves. *Vet. Res. Commun.* 10:195.
- Wensing, T., G. A. J. Miltenburg, and H. J. Breukink. 1991. Iron status of new-born calves and effects of supplementation with different amounts of iron in veal calf fattening. In *New Trends in Veal Calf Production*. Proc. Int. Symp. on Veal Calf Prod., Wageningen, The Netherlands, J. H. M. Metz and C. M. Groenestein (Eds.), p. 280. Centre for Agricultural Publishing and Documentation (Pudoc), Wageningen, The Netherlands.
- Wierkema, P. R., K. K. Van Hellemond, P. Roesingh, and H. Romberg. 1987. Behaviour and abomasal damage in individual veal calves. *Appl. Anim. Behav. Sci.* 18:257.
- Wilson, L. L., J. L. Smith, D. L. Smith, D. L. Swanson, T. R. Drake, D. R. Wolfgang, and E. F. Wheeler. 2000. Characteristics of veal calves upon arrival, at 28 and 84 days, and at end of the production cycle. *J. Dairy Sci.* 83:843.
- Wilson, L. L., C. L. Stull, and R. G. Warner. 1994. Welfare concerns of special-fed veal in the United States. *Prof. Anim. Sci.* 10:53.

ADDITIONAL INFORMATION FOR THE RECORD FROM

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**Concerning a
Review of the Welfare of Animals in Agriculture
Conducted During a May 8, 2007 Hearing
Before the
Subcommittee on Livestock, Dairy, and Poultry
Committee on Agriculture
United States House of Representatives**

These supplemental comments are submitted for the record to provide clarification and additional background in response to specific questions and concerns raised during testimony presented by witnesses on May 8, 2007 to the Subcommittee on Livestock, Dairy and Poultry of the House of Representatives Committee on Agriculture.

Swine, Poultry, and Transmissible Spongiform Encephalopathies (TSEs)

During testimony of others, it was stated, "Nonambulatory cattle are not the only downer animals who may jeopardize the health of Americans. Scientific studies have pointed to the possibility that pigs, whose diet can include ground-up cattle remains, may harbor a porcine form of mad cow disease."

Although swine challenged experimentally via parenteral (intercerebral, intravenous, and intraperitoneal) inoculation have been found to be susceptible to the etiologic agent that causes bovine spongiform encephalopathy (BSE, "mad cow disease") and have developed pathologic changes,^{1,2} administering BSE-affected bovine brain orally to swine resulted in no evidence of disease (testing was carried out to a duration of 7 years).² Nor was disease identified in swine (or poultry) that had substantial exposure to the same feedstuff risk ingredients as cattle during the period of peak incidence of BSE in the United Kingdom.³ Since that time, histopathologic examinations of the brains of pigs fed meat and bone meal have revealed no evidence of deposits of abnormal prion proteins.⁴ These observations suggest a species barrier may exist between cattle and pigs with regard to oral transmission of BSE. Preliminary findings of an assessment of the transmissibility of sheep scrapie and chronic wasting disease (CWD) from cervids to swine have also been negative.⁵ No naturally occurring TSE of swine has been conclusively identified.

Studies^{3,6} of transmissibility of BSE to domestic chickens indicate they are resistant to both parenteral and oral challenge; testing has involved both histopathologic examination and mouse bioassay. Some male birds in one experiment⁶ did show abnormal neurologic clinical signs; however, no significant degenerative pathologic change was identified in brain, spinal cord, sciatic nerve, or skeletal muscle tissues from these birds and similar clinical signs have been observed in birds challenged with normal brain tissue. No evidence of transmission of TSE was observed when nervous system tissue collected from the birds showing neurologic signs was tested by means of mouse bioassay.

Use of Antimicrobials

Antimicrobials are used therapeutically to treat, prevent, and control disease in animals. Inappropriate restrictions on the use of antimicrobials for prevention and control can result in unintended consequences, such as higher levels of disease in animals that, in turn, require more antimicrobials to treat. Increased use can spur a consequent increase in pathogen resistance. Experience in Denmark has demonstrated increased antimicrobial resistance to several important antimicrobials used to treat human disease after use of antimicrobial growth promoters in animals was prohibited. For example, in *Enterococcus faecium* isolated from healthy people, resistance to virginiamycin, vancomycin, and tetracycline increased between 1997 and 2005. In *Salmonella* Typhimurium from humans, resistance to tetracycline, ampicillin, and ciprofloxacin has increased. There are few examples of reduced resistance in people since the ban.⁷

Bans on classes of use of antimicrobials, such as for prevention and control of disease (“nontherapeutic use”), threaten animal health and welfare. Such decisions are most appropriately based on risk analysis of specific drug-pathogen-use combinations, rather than broad-brush prohibitions. In addition, risks presented by use/misuse of antimicrobials in animals and use/misuse of antimicrobials in humans must be placed in perspective. Based on scientific data available to date, as well as the professional experience of veterinarians, the antimicrobial resistance impact of the use of antimicrobials in animals is possibly overestimated in justifications provided for proposed legislation to ban certain classes of use of antimicrobials.⁸

What Role Should Consumers’ Preferences Play in Animal Welfare Decisions?

As scientists, veterinarians would be most comfortable if every animal welfare decision was made on the basis of all the legitimate data that could be gathered. The AVMA, however, recognizes that consumer preferences have always played an important and legitimate role in animal welfare decision-making. That’s because society (i.e., consumers) ultimately determines what its level of comfort is with how animals are used and cared for. As veterinarians, our members work with animals and clients within that context every day.

The obligation and challenge, for those of us who are really concerned about animal welfare, is to ensure that consumers, in their desire to protect the welfare of animals, are clearly and honestly apprised of the advantages and disadvantages each system and animal care practice provides.

How Welfare-Friendly Is the United States and How Does It Compare With Other Countries?

In general, the health and welfare of agricultural animals in the United States has never been better. That doesn’t mean there isn’t room for improvement. We do a great job in the area of health, safety, and performance, but perhaps not as well when it comes to meeting the behavioral needs of some agricultural animals. Animal welfare science has progressed dramatically over the past couple of decades and has proven its ability to identify animal welfare problems and find solutions. As we learn more about the species-typical behaviors of animals and which species-typical behaviors are actually necessary for good welfare, the AVMA is confident that we will be able to find ways to accommodate those behaviors in US production systems.

When comparing the welfare of animals in the United States with the welfare of animals in other countries, one must understand that philosophical differences in which measures of welfare are believed to be most important will affect how animal care is approached and how the overall welfare of the animal is perceived. In Northern Europe, for example, considerable emphasis is placed on natural environments and the ability of animals to perform species-typical behaviors. Less emphasis may be placed on health and production measures. This trade-off means that behavioral health is likely to be good, but physical health and performance may be negatively affected.

Developing countries are yet another situation. In those countries, resources are scarce and are much more likely to be directed toward tackling human problems than animal welfare problems. The welfare of animals in these countries, therefore, may necessarily be somewhat poorer than what you might see in industrialized countries having more expendable resources.

Effectiveness of Voluntary vs Involuntary Approaches in Ensuring Animal Welfare

In the case of involuntary regulation (exemplified by the Animal Welfare Act), the supporting framework for a particular industry must stretch from coast to coast. It requires verification, regulatory management and oversight, scientific and medical inputs, and substantial public transaction time when changes have to be made. Transaction time is what is most burdensome—appreciable improvements are held up by the political dynamic. An example is found in how much time it has taken to implement the 1985 amendments to the Animal Welfare Act. Taxpayer burdens are large and, if changes are needed, the bureaucratic framework is burdensome and time scales can be very long.

For agricultural animals, the associated system would be considerably larger and more complex to manage under involuntary mandate. The budget would far exceed anything the Animal Welfare Act has needed for appropriate function. Countries that have regulated on-farm care tend to be small countries with small agricultural infrastructures. Larger countries, such as the United States, Canada, and Australia have not used a federal regulation system to manage farm complexes. Even the European Union, which is now attempting to spread agricultural animal care regulations evenly across member countries, is finding the task daunting—Western Europe and the United Kingdom are in dispute with Southern Europe (Italy, Spain, and France, which are larger countries and have larger agricultural infrastructures), and Central Europe and Scandinavia show considerable variation in what is held to be humane standards and their willingness to further regulate.

Voluntary approaches have the advantage that they are typically market-driven (i.e., they incorporate the “citizen” component), but involve fewer individuals in direct decision-making roles—appreciable improvements can thereby be made more quickly.

¹Dawson M, Wells GA, Parker BN, Scott AC. Primary parenteral transmission of bovine spongiform encephalopathy to the pig. *Vet Rec* 1990;127:338-9.

²Wells GA, Hawkins SA, Austin AR, Ryder SJ, Done SH, Green RB, Dexter I, Dawson M, Kimberlin RH. Studies of the transmissibility of the agent of bovine spongiform encephalopathy to pigs. *J Gen Virol* 2003;84(Pt 4):1021-31.

³Matthews D, Cooke BC. The potential for transmissible spongiform encephalopathies in non-ruminant livestock and fish. *Rev Sci Tech* 2003;22(1):283-296.

⁴Jahns H, Callanan JJ, Sammin DJ, McElroy MC, Bassett HF. Survey for transmissible spongiform encephalopathies in Irish pigs fed meat and bone meal. *Vet Rec* 2006;159(5):137-142.

⁵Greenlee JJ, Kunkle RA, Nicholson EM, Lager KM, Hamir AN. Attempted transmission of scrapie and CWD to swine: preliminary findings. In *Proceedings: 19th Internatl Pig Vet Soc Cong* 2006; 386.

⁶Department for Environment, Food, and Rural Affairs (Defra). BSE: Science & research—transmission of BSE. Available at: www.defra.gov.uk/animalh/bse/science-research/transmis.html. Accessed May 17, 2007.

⁷DANMAP 2005—Use of antimicrobial agents and occurrence of antimicrobial resistance in bacteria from food animals, foods and humans in Denmark. July 2006. Available at: www.danmap.org/pdfFiles/Danmap_2005.pdf. Accessed May 17, 2007.

⁸Findings, Preservation of Antibiotics for Medical Treatment Act of 2007, H.R. 962/S. 549.

From USDA – <http://www.usda.gov/Newsroom/0439.03.html>
(Agriculture Secretary Ann M. Veneman's Interview on CNN: America Morning, 12/24/2003)

SOLEDAD O'BRIAN, co-anchor: "Well, few terms can send a tremor through the beef industry like Mad Cow Disease. The government insists that the nation's food supply is safe. Despite the first case of Mad Cow Disease ever reported in the US. It's still not known if any of the infected meat has reached stores or shelves. Earlier this morning I spoke with Agriculture Secretary Ann Veneman and asked her whether we know if cuts from the diseased animal had been sold."

SECRETARY ANN VENEMAN (Secretary of Agriculture): "We do know that the product has gone into other processing plants from the initial slaughter plant. And we are now tracing that product. We've issued a recall for about 10,000 pounds of meat. Which is a relatively small recall. And we'll be tracing that forward to see where the product went and to remove it from the food supply...."

From CDC – <http://www.cdc.gov/MMWR/preview/mmwrhtml/mm5253a2.htm>
(CDC Morbidity and Mortality Weekly Report, 1/8/2004, "Bovine Spongiform Encephalopathy in a Dairy Cow --- Washington State, 2003)

"The BSE-positive cow was aged 6.5 years when it was slaughtered on December 9. Before slaughter, the cow was nonambulatory; its condition was attributed to complications from calving. The animal was examined by a USDA Food Safety and Inspection Service (FSIS) veterinary medical officer both before and after slaughter. After examination, the carcass was released for use as food for human consumption. Tissues (e.g., brain, spinal cord, and small intestine) considered to be at high risk for the transmission of the BSE agent were removed from the cow during slaughter and sent for inedible rendering (often used for nonruminant animal feed)....

"The U.S. Food and Drug Administration (FDA) and inspectors from Oregon and Washington have located all known potentially infectious rendered products from the BSE-positive cow. The rendering plants that processed this material have placed a voluntary hold on all known potentially infectious products, none of which had left the control of the companies or entered commercial distribution as of January 7, 2004."

From USDA – <http://www.usda.gov/Newsroom/0433.03.html>
(Transcript of news conference with Agriculture Secretary Ann M. Veneman on BSE, 12/23/2003)

SECRETARY VENEMAN: After the animal was slaughtered meat was sent for processing to Midway Meats in Washington State. USDA's Food Safety Inspection Service is working quickly to accurately determine the final disposition of the products from the animal....

MR. FABI: Randy Fabi with Reuters. I'm just--what is the likelihood that any of this cow made it into the food supply? I know that you have contacted the meat suppliers. Is there a recall underway?

SECRETARY VENEMAN: That's--that, Randy, is what we're trying to identify at this point. We do believe that the product from the animal went to two further processing plants. This plant was a very small plant. It just slaughters a few animals, and our current understanding, and again it's very preliminary, is that that product did go to further processing plants. But again, one thing that is important to remember is that muscle cuts of meats have almost no risk. In fact, as far as the science is concerned, I know of no science to show that you can transmit BSE from muscle cuts of meat. So the fact that it's gone to further processing is not significant in terms of human health. But we are doing the trace backs. We are looking at trace forwards, where did the product go. And we will take appropriate actions as we make the determinations as to where the product is and what has happened to it.

I think we -- I mentioned one of them, but there is actually two.

DR. MURANO: Let me first reiterate what the Secretary just said. You should know that the tissues that are the infectious tissues from an animal that has BSE, that is the central nervous system tissues, the brains, spinal cord and so forth, of this animal did not enter the food supply. Those tissues to rendering. So they did not enter the food supply. That's very important to know.

Now, the muscles cuts, as the Secretary said, went from the slaughter facility to another facility that did the deboning and that facility is Midway Meats, as the Secretary mentioned. Then from there we believe that it went to two other facilities. One is called Willamette and the second one is called Interstate Meat, both in Washington State.

Again, the muscle cuts are where there is virtually no risk of BSE. The material, the brain, spinal cord, distal ileum, which is where the BSE agent resides, those materials did not enter the food supply.

PARTICIPANT: (inaudible) with CNN. You said the health risks are minimal but what if someone did eat meat contaminated with this. What are the health risks?

SECRETARY VENEMAN: Well, again as Dr. Murano just indicated, there is virtually no chance that the meat has been contaminated and the agents, that would be the high risk agents in any animal have been removed from this particular animal so we really don't believe that there is—we believe that the risk of any kind of human health effect is extremely low....

Double-Decker Horse Trailers

In a similar effort to impugn our credibility, former Representative Stenholm, during his testimony, stated that we had made false claims regarding the treatment of horses sent to slaughter. To illustrate his point, he noted that we circulated a video to Members of Congress suggesting that horses are inhumanely transported on double-decker trailers. Then Representative Stenholm stated that it's been against federal law since 1995 to transport horses via double-decker trucks.

However, he failed to mention that the regulations addressing double-decker transport, pursuant to the Commercial Transportation of Equines for Slaughter legislation that Congress enacted as part of the 1996 Farm Bill, didn't go into effect until December 7, 2006 because industry pressed for that delay (9 C.F.R. § 88.3; final rule issued December 7, 2001). Furthermore, there has not been meaningful enforcement of the prohibition other than for the final leg of the trip to the slaughterhouse, so horses can still be transported via double-decker vehicles in earlier segments of the long-haul across country. Horses frequently face multiple trips in multiple vehicles as they are moved from auction to stockyards

and other locations. USDA enforcement occurs only at the slaughterhouse, the final leg of the journey. Thus, it is not uncommon to find horses shipped for thousands of miles in double-decker trucks, offloaded at a location near the plant, and placed in trailers conforming to the new regulation for the final, short trip to the slaughterhouse. In April 2007 (after the regulations took effect), when The HSUS rescued 30 horses from a killer buyer five days after the closure of the Cavel plant in DeKalb, Illinois, brand inspections and logs demonstrated that those horses were hauled for almost a thousand miles in double-decker trucks back and forth to the plant. As a result, many had to be treated for severe open wounds from the double-decker trucks' exposed sharp edges and some had to be put down due to the harshness of the transport and injuries related directly to it. Another striking example of the hazards and use of double-decker trucks was the horrifying accident on September 27, 2006 (well after the 1995 date cited by Mr. Stenholm) on a Missouri interstate highway that claimed the lives of 17 horses on their way to the Cavel International horse slaughterhouse. The double-decker truck used to transport 41 horses and one mule overturned and many horses had limbs extending from the holes in the trailer sides that were severed or had to be amputated. The crowding of the double-decker truck led to horses being trapped under other horses and crushed to death.

Percentage of HSUS Budget Spent on Direct Care for Animals

Representative Kagen asked that we identify the percentage of our organization's budget devoted to direct care for animals. Attached is a document showing our direct animal care expenses during the past two years – 20.89% in 2005 (the year of Hurricanes Katrina and Rita) and 12.03% in 2006. While direct care is an important component of our overall work, The HSUS has been carrying out its mission to provide a mainstream voice for animals for more than a half-century through advocacy, education, investigation, litigation, legislation, and hands-on programs.

Thank you again for your consideration and inclusion of this letter and attachment in the May 8 hearing record.

Sincerely,



Wayne Pacelle
President and CEO

The Humane Society of the United States
Direct Animal Care Expenses
2005 and 2006

Department	2005 Direct Expenses	2006 Direct Expenses
Animal Care Facilities*	3,770,000	3,789,000
Disaster Services	15,759,000	6,578,000
Grants to SPCAs, Humane Societies, Sanctuaries	492,000	366,000
Wildlife Land Trust	790,000	825,000
Companion Animals dept	1,093,000	1,098,000
Animal Care Expo**	371,000	401,000
	22,275,000	13,057,000
Percentage of Total Expenditures	20.89%	12.03%
Total Actual Expenditures, per audited financials	106,620,867	108,503,740

*Includes Black Beauty Ranch, Cape Wildlife Center, Rural Area Veterinary Services (RAVS), Ramona Wildlife Rehab Center, Dallas Clinic, and Wildlife Hotline

**Each year, the HSUS Animal Care EXPO provides animal shelter professionals from across the country and world with training to help them improve their efforts by providing dozens of workshops covering topics ranging from volunteer recruitment and fundraising to shelter medicine, spay/neuter programs, and cruelty investigations

The National Cattlemen's Beef Association Commitment to Animal Care

Cattlemen have long recognized the need to properly care for livestock. Beef cattle producers take pride in their responsibility to provide proper care to cattle. They have, in many cases passed on animal care principles from generation to generation. Personal experience, training and professional judgment all serve as valuable resources for providing this care.

Research has provided additional information that can supplement experience and in the quest for continual improvement in the cattle industry, research provides the basis for many day-to-day decisions about animal husbandry. Sound animal husbandry practices, based on decades of practical experience and research, are known to impact the well-being of cattle, individual animal health and herd productivity. Therefore management programs should be science-based and common-sense driven. As such, the cattle industry continues their commitment to proper care and handling of their livestock.

The National Cattlemen's Beef Association (NCBA) has several initiatives aimed at combining sound animal husbandry practices. These are based on decades of practical experience and research and the most up to date science and education, in order to assure animal health and well-being as well as provide a safe, quality product.

- **The Beef Quality Assurance Program (BQA)** was established in 1987 to provide cattle producers with the principles and tools to use every day to ensure animals are given proper care and attention. BQA unites producers with experts (animal scientists, veterinarians, feed suppliers, animal health companies, meatpackers, retailers and state and federal regulators) to develop management programs using the latest science and technology to assure proper animal care, beef quality and safety. Cattlemen become certified when they meet criteria for quality and beef production set forth in the BQA guidelines. Producers undergo continuous training to remain certified. BQA incorporates current Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and United States Department of Agriculture (USDA) regulations as well as Hazard Analysis Critical Control Point (HACCP) principles. Today, BQA influences more than ninety percent of U.S. cattle.
- In 1996 NCBA developed **The Producer Code for Cattle Care** as an additional resource for U.S. producers in their efforts to raise healthy cattle and help with their commitment to proper care and handling of their livestock. In 2003 cattle producer leaders worked with animal health and well-being experts to create an expanded version of the code, entitled **The Cattle Industry's Guidelines for the Care and Handling of Cattle**. While there is not one specific set of production practices that can be recommended for all cattle producers, these guidelines provide a basis for care and handling. NCBA's Cattle Care Working Group developed these guidelines with a significant amount of input and discussions with veterinarians, animal scientists, agricultural engineers and animal well-being experts. The guidelines were adopted by the NCBA Executive Committee, Cattle

Health and Well-being Committee and the Beef Quality Assurance Program in 2004, and are a part of the BQA program. These guidelines are also endorsed by the Academy of Veterinary Consultants, the American Association of Bovine Practitioners, the Food Marketing Institute and the National Council of Chain Restaurants.

The guidelines address the following areas: feeding and nutrition, appropriate to the type of cattle; disease prevention practices and health care; identification; shelter and housing; handling; marketing; emergency procedures; transportation, including emergencies; non-ambulatory cattle; euthanasia; heat stress procedures, including feedlot cattle as well as pasture cattle; training and education for maintaining and improving cattle care; and handling implementation and review programs, including self-evaluation for cattle producers. Below are the general cattle care recommendations. The full Guidelines are attached.

The Code of Cattle Care General Recommendations:

1. Provide necessary food, water, and care to protect the health and well-being of animals.
 2. Provide disease prevention practices to protect herd health, including access to veterinary care.
 3. Provide facilities that allow safe, humane and efficient movement and/or restraint of cattle.
 4. Use appropriate methods to humanely euthanize terminally sick or injured livestock and dispose of them properly.
 5. Provide personnel with training/experience to properly handle and care for cattle.
 6. Make timely observations of cattle to ensure basic needs are being met.
 7. Minimize stress when transporting cattle.
 8. Keep updated on advancements and changes in the industry to make decisions based upon sound production practices and consideration for animal well-being.
 9. Persons who willfully mistreat animals will not be tolerated.
-
- NCBA also has a **Producers Guide for Judicious Use of Antibiotics**, which was adapted from the American Veterinary Medical Association, American Association of Bovine Practitioners and the Academy of Veterinary Consultants' Appropriate Antibiotic Use Guidelines and have been in place since 1987. The guidelines specifically outline the appropriate use of antibiotics. Some key points are:
 1. Avoid using antibiotics that are important in human medicine.
 2. Use a narrow spectrum of antimicrobials whenever possible.
 3. Treat the fewest number of animals possible.
 4. Antibiotic use should be limited to prevent or control disease and should not be used if the principle intent is to improve performance.



NATIONAL CATTLEMEN'S BEEF ASSOCIATION

1301 Pennsylvania Ave., NW Suite 300 • Washington, DC 20004-1701 • 202-347-0228 • Fax 202-438-0607

May 8, 2007

The Honorable Collin Peterson
Chairman
House Committee on Agriculture
1301 Longworth House Office Building
Washington, DC 20515

The Honorable Bob Goodlatte
Ranking Member
House Committee on Agriculture
1301 Longworth House Office Bldg.
Washington, DC 20515

The Honorable Leonard L. Boswell
Chairman
Subcommittee on Livestock, Dairy, and Poultry
1301 Longworth House Office Building
Washington, DC 20515

The Honorable Robin Hayes
Ranking Member
Subcommittee on Livestock, Dairy, and Poultry
1301 Longworth House Office Building
Washington, DC 20515

Dear Congressmen Peterson, Goodlatte, Boswell, and Hayes:

The cattle industry organizations signed below represent America's family ranchers and cattle farmers. Long before there were activist groups, it was the members of our organizations that championed the humane treatment of animals because it was the right thing to do, as well as being good for business. Our industry, however, continues to be vilified by activists and we would like to express our concerns about the current animal activist agenda and their efforts to destroy our industry through actions in the states, Congress, and their effort to be a part of the 2007 Farm Bill.

As you are well aware, the 2007 Farm Bill has sparked the interest of a wide array of groups, including many who want to use the reauthorization as an opportunity to insert their activist agenda into the one piece of legislation that affects U.S. farmers and ranchers more than any other. Many issues brought forth by these groups, while worthy of discussion and appropriate to the jurisdiction and purview of the House Committee on Agriculture, are not appropriate for the farm bill and should not be included in the farm bill process.

Producers have been proactive in the humane treatment of animals by implementing industry-led standards and guidelines based on the latest scientific recommendations for animal welfare management systems. Ranchers, not activists, should be dictating animal care and treatment practices. The animal rights activists want to be a part of the farm bill process in an attempt to legitimize their efforts and be seen by the public and Congress as mainstream. This potential recognition would only further their assault on animal agriculture. It should not be forgotten that their underlying goal is not humane treatment, but an eventual end to all animal agriculture.

As constituents of the Committee, we appreciate your consideration of our concerns and look forward to working with you to continue our commitment to the humane treatment of our livestock.

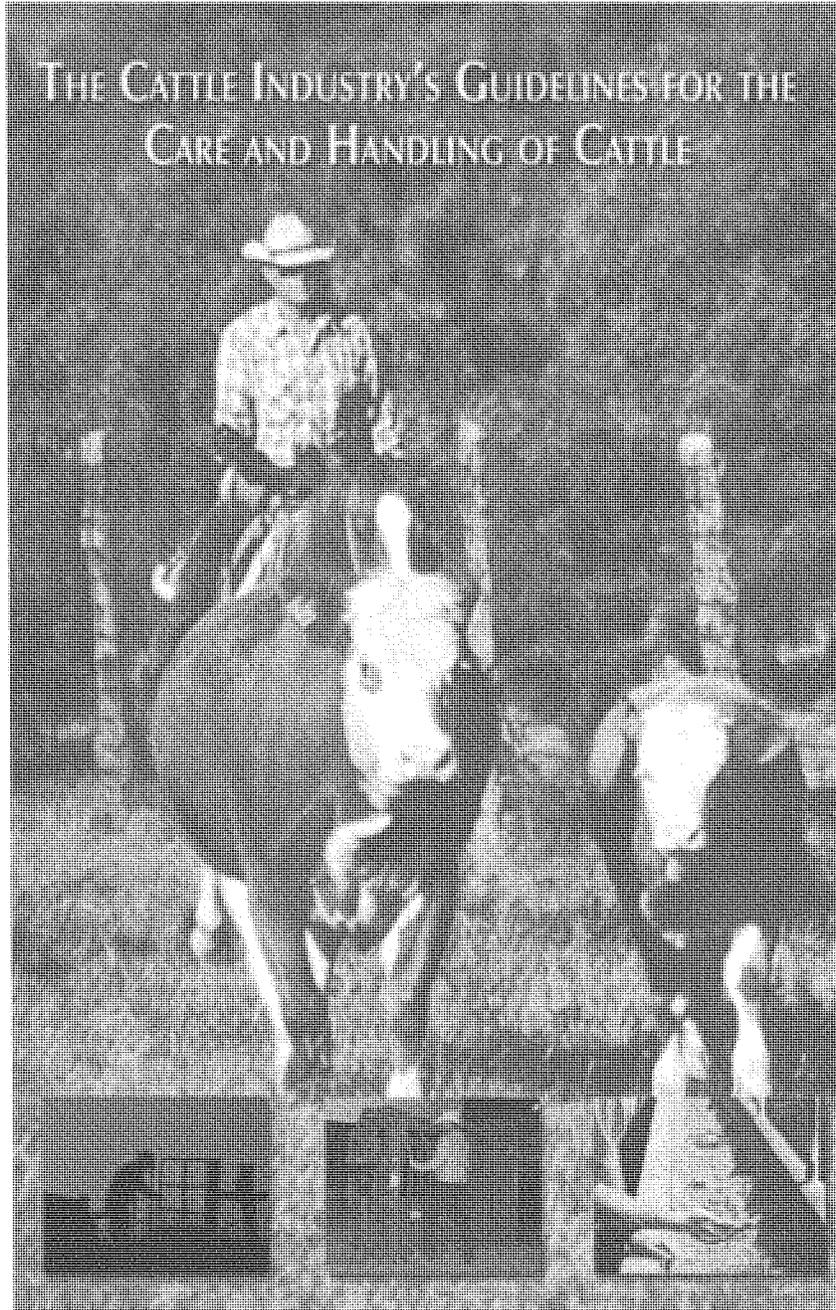
Sincerely,

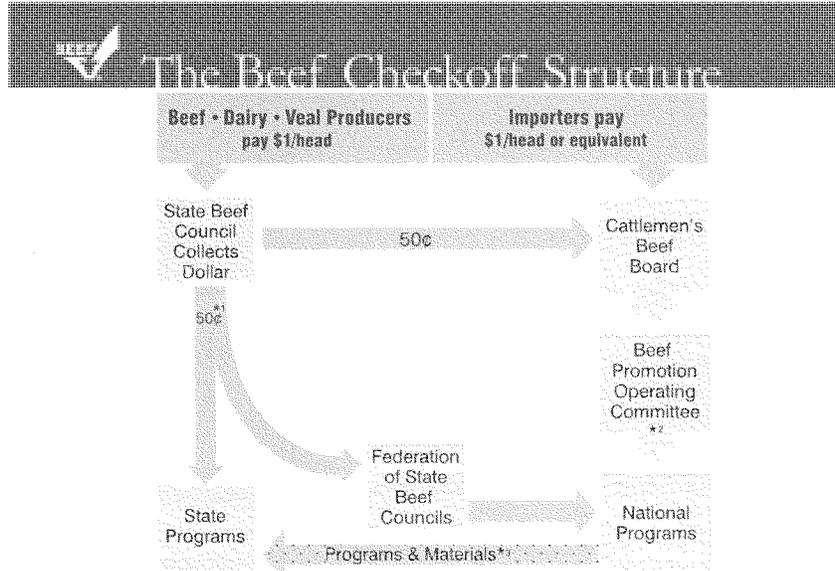
National Cattlemen's Beef Association
American Veal Association
Alabama Cattlemen's Association
Arizona Cattle Feeders Association
Arkansas Cattlemen's Association
California Cattlemen's Association
Colorado Cattlemen's Association
Colorado Livestock Association

AMERICA'S CATTLE INDUSTRY

Denver Washington D.C. Chicago

Florida Association of Livestock Markets
Florida Cattlemen's Association
Florida Farm Bureau
Georgia Cattlemen's Association
Independent Cattlemen's Association
Illinois Beef Association
Indiana Beef Cattle Association
Iowa Cattlemen's Association
Kansas Livestock Association
Kentucky Cattlemen's Association
Louisiana Cattlemen's Association
Maryland Cattlemen's Association
Michigan Cattlemen's Association
Minnesota State Cattlemen's Association
Mississippi Cattlemen's Association
Montana Stockgrowers Association
Nebraska Cattlemen's Association
Nevada Cattlemen's Association
New Mexico Cattle Growers Association
New Mexico Federal Lands Council
New Mexico Wool Growers
New York Beef Producers Association
North Carolina Cattlemen's Association
North Dakota Stockmen's Association
Ohio Cattlemen's Association
Oklahoma Cattlemen's Association
South Carolina Cattlemen's Association
South Dakota Cattlemen's Association
Southeast Milk Producers
Sunbelt Milk Producers
Tennessee Cattlemen's Association
Texas and Southwest Cattle Raisers
Texas Cattle Feeders Association
Utah Cattlemen's Association
Virginia Cattlemen's Association
Washington Cattlemen's Association
Washington Cattle Feeders Association
West Virginia Cattlemen's Association
Wyoming Stock Growers Association





By law, the Operating Committee reviews and recommends approval of checkoff programs and must contract with national industry-governed organizations to carry them out. Some of the primary contractors are the National Cattlemen's Beef Association (NCBA), American National CattleWomen (ANCW), the National Livestock Producers Association (NLPA), the United States Meat Export Federation (USMEF) and the Meat Importers Council of America (MICA). All programs and budgets must be approved by the United States Department of Agriculture (USDA).

*1 States may invest a portion of their 50 cents in national programs.

*2 The Beef Promotion Operating Committee has 10 members from Cattlemen's Beef Board and 10 members from NCBA's Federation of State Beef Councils.

*3 National programs and materials are used by states to extend national priorities.

The Beef Promotion and Research Act outlines the specific responsibilities of the organizations that comprise the checkoff structure.

Beef Board

Created by the Beef Promotion and Research Act to administer the Beef Checkoff Program, the Beef Board is made up of volunteers nominated by state producer organizations and importers, and appointed by the U.S. Secretary of Agriculture. Duties include certification of state beef councils, evaluation of programs, annual budget approval and overseeing collection of the \$1-per-head beef checkoff. Administrative costs for the Beef Board are capped at 5 percent of projected revenue, and the board has always remained well below this level.

State Beef Councils

State beef councils collect the \$1-per-head checkoff and retain control of 50 cents of every dollar to conduct and implement state-

level programs that are consistent with the Beef Promotion and Research Act. States may invest a portion of their 50 cents in national programs and then elect producers to serve on the Federation of State Beef Councils Division of the NCBA Board to oversee program development and implementation.

Operating Committee

The Beef Promotion Operating Committee reviews and approves national checkoff programs and contracts with national industry-governed organizations to implement programs. The Beef Board selects 10 of its members to serve on the Beef Promotion Operating Committee. Together as the Federation, state beef councils select the other 10 producers to serve on the 20-member committee.

**THE CATTLE INDUSTRY'S
GUIDELINES FOR THE
CARE AND HANDLING OF
CATTLE**

INTRODUCTION

Cattlemen have long recognized the need to properly care for livestock. Sound animal husbandry practices, based on decades of practical experience and research, are known to impact the well-being of cattle, individual animal health and herd productivity. Cattle are produced in very diverse environments and geographic locations in the United States. There is not one specific set of production practices that can be recommended for all cattle producers. Personal experience, training and professional judgment can serve as a valuable resource for providing proper animal care.

PRODUCER CODE OF CATTLE CARE

Beef cattle producers take pride in their responsibility to provide proper care to cattle. The Code of Cattle Care below lists general recommendations for care and handling of cattle:

- Provide necessary food, water and care to protect the health and well-being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of cattle.
- Use appropriate methods to humanely euthanize terminally sick or injured livestock and dispose of them properly.
- Provide personnel with training/experience to properly handle and care for cattle.
- Make timely observations of cattle to ensure basic needs are being met.
- Minimize stress when transporting cattle.
- Keep updated on advancements and changes in the industry to make decisions based upon sound production practices and consideration for animal well-being.
- Persons who willfully mistreat animals will not be tolerated.

FEEDING AND NUTRITION

Diets for all classes of beef cattle should meet the recommendations of the National Research Council (NRC) and/or recommendations of a nutritional consultant.

- Cattle must have access to an adequate water supply. Estimated water requirements for all classes of beef cattle in various production settings are described in the NRC Nutrient Requirements of Beef Cattle.
- Provide adequate feed. Avoid feed and water interruption longer than 24 hours.
- Feedstuffs and feed ingredients should be of satisfactory quality to meet nutritional needs.
- Under certain circumstances (e.g., droughts, frosts, and floods), test feedstuffs or other dietary components to determine the presence of substances that can be detrimental to cattle well-being, such as nitrate, prussic acid, mycotoxins, etc.
- Producers should become familiar with potential micronutrient deficiencies or excesses in their respective geographical areas and use appropriately formulated supplements.
- Use only USDA, FDA and EPA approved products for use in cattle. These products must be used in accordance with the approved product use guidelines.

Feeding Guidelines for Beef Cows

Body condition scoring of beef cows is a scientifically approved method to assess nutritional status. Body condition scores (BCS) range from 1 (emaciated, skeletal) to 9 (obese).

- A BCS of 4-6 is most desirable for health and production. A BCS of 2 or under is not acceptable and immediate corrective action should be taken.
- During periods of prolonged drought and widespread shortages of hay and other feedstuffs, the average BCS of cows within a herd may temporarily decline. This is not desirable, but may be outside the cattle owner's control until drought relief is achieved.
- During periods of decreasing temperature, feeding plans should reflect increased energy needs.



Feeding Guidelines for Stocker Cattle

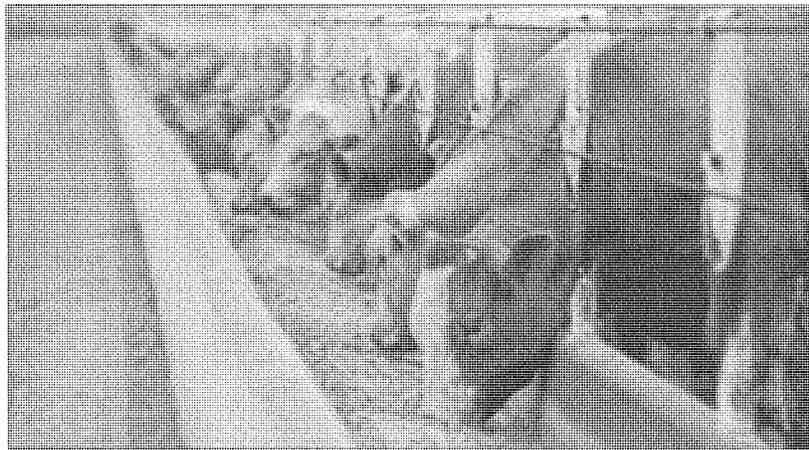
Stocker cattle are raised on a wide variety of forages (native pasture, annuals, improved pasture) with minimal additional nutrient supplementation.

- On growing forages, stocking rates should be established that meet production goals for growth and performance.
- On dormant pastures, supplement cattle as needed to meet maintenance or growth requirements for the animal's weight, breed, and age as established by NRC guidelines and targeted production goals of the operation.

Feeding Guidelines for Feeder Cattle

Feedyard cattle can eat diverse diets, but the typical ration contains a high proportion of grain(s) (corn, milo, barley, grain by-products) and a smaller proportion of roughages (hay, straw, silage, hulls, etc.). The NRC lists the dietary requirements of beef cattle (based on weight, weather, frame score, etc.) and the feeding value of various commodities included in the diet.

- Consult a nutritionist (private consultant, university or feed company employee) for advice on ration formulation and feeding programs.
- Avoid sudden changes in ration composition or amount of ration offered.
- Monitor changes in feces, incidence of digestive upsets (acidosis or bloat) and foot health to evaluate the feeding program.
- A small percentage of cattle in feedyards develop laminitis or founder. Mild cases do not affect animal welfare or performance; however, hooves that are double their normal length compromise movement. Extreme cases should be provided appropriate care and marketed as soon as possible.



DISEASE PREVENTION PRACTICES AND HEALTH CARE

Like other species, cattle are susceptible to infectious diseases, metabolic disorders, toxins, parasites, neoplasia and injury. Control programs should be based on risk assessment and efficacy of available products. Economic losses are reduced by early intervention through health management programs. Healthy herds are more productive.

The producer should work with a veterinarian and/or nutritionist to determine the risk of infectious, metabolic and toxic diseases and to develop effective management programs when designing a herd health plan.

Producers and their employees should have the ability to recognize common health problems and know how to properly utilize animal health products and other control measures.

When prevention or control measures are ineffective, the producer should promptly contact a veterinarian for a diagnosis and treatment program to reduce animal suffering and animal losses.

Cows

- It is desirable for cows to have a BCS of at least 4 before the calving season.
- During calving season, cows should be checked regularly for calving difficulties. First-calf heifers may require more frequent observation and care.
- Producers should consider contacting a veterinarian for advice or assistance if cows or heifers have calving difficulties that cannot be corrected by the producer within a reasonable amount of time.
- Cows with mild lameness, early eye problems such as ocular neoplasia, mastitis or loss of body condition should be examined to determine well-being and in some cases be promptly marketed.

Calves

- Castration and dehorning are done for the protection of the animal, other cattle in the herd and people who handle the cattle. Castration prior to 120 days of age or when calves weigh less than 500 pounds is strongly recommended.
- When horns are present, it is strongly recommended that calves be dehorned prior to 120 days of age. Dehorning should be done before the diameter of the horn base grows to one-inch in diameter or more.
- Weaning can be less stressful by castrating and dehorning calves early in life, vaccinating against respiratory diseases prior to weaning, and providing proper pre-weaning nutrition.

Stocker and Feeder Cattle

- All incoming stocker and feeder cattle should be vaccinated against Bovine Respiratory Disease (BRD). Stocker cattle that will be grazing rangeland or pasture should be vaccinated against clostridial diseases. The use of other vaccines and parasite control should be based on risk assessment and efficacy of available animal health products.
- **It is strongly recommended that a local anesthetic (cornual nerve block) be used when the horn base is one-inch or more in diameter.**
- A local anesthetic should be used when heifers are spayed using the flank approach.
- High risk cattle should be checked at least daily for illness, lameness or other problems during the first 30 days following arrival.
- Pregnancy in immature heifers can result in calving difficulties and subsequent trauma to the birth canal, paralysis or death of the heifer. For these reasons it is often more humane to abort pregnant heifers. This should be done under the direction of a veterinarian.
- If heifers in the feedyard or a stocker operation deliver a full-term, healthy calf, it should be allowed to nurse to obtain colostrum. At all times, these calves must be handled humanely and provided proper nutrition. Compromised calves or fetuses should be promptly euthanized and disposed of according to local regulations.
- "Bulling" is a term to describe aggressive riding of a steer by one or more penmates. Bullers should be promptly removed from the pen to prevent serious injury.



IDENTIFICATION

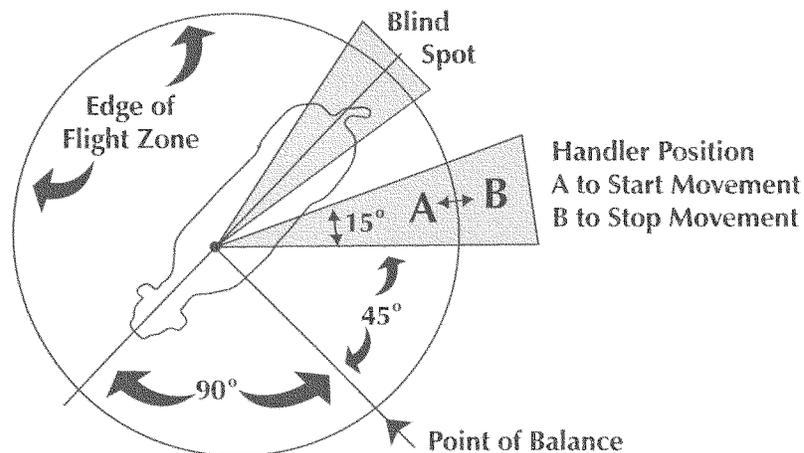
- If cattle are branded, it should be accomplished quickly, expertly and with the proper equipment.
- Feeder cattle should not be re-branded when entering a feedlot unless required by law.
- Brands should be of appropriate size to achieve clear identification.
- Jaw brands should not be used.
- Ear notching may be used to identify cattle.
- Wattling, ear splitting and other surgical alterations for identification are strongly discouraged.

SHELTER AND HOUSING

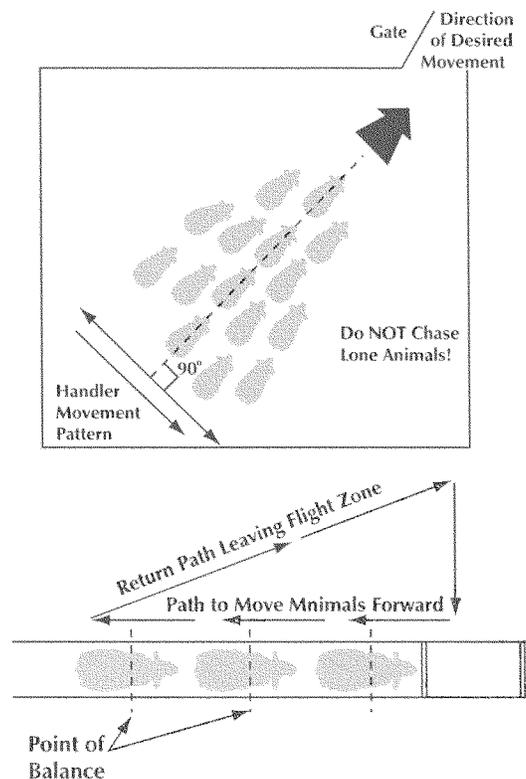
- Cattle in backgrounding facilities or feedyards must be offered adequate space for comfort, socialization and environmental management.
- Pen maintenance, including manure harvesting, will help improve pen conditions.
- Mud is more of a problem in the winter with low evaporation rate or improper drainage conditions. Accumulation of mud on cattle should be monitored as a measure of pen condition and cattle care in relation to recent weather conditions.
- Feedyards should use dust reduction measures to improve animal performance.
- Floors in housing facilities should be properly drained and barns and handling alleys should provide traction to prevent injuries to animals and handlers.
- Handling alleys and housing pens must be free of sharp edges and protrusions to prevent injury to animals and handlers.
- Design and operate alleys and gates to avoid impeding cattle movement. When operating gates and catches, reduce excessive noise, which may cause distress to the animals.
- Adjust hydraulic or manual restraining chutes to the appropriate size of cattle to be handled. Regular cleaning and maintenance of working parts is imperative to ensure the system functions properly and is safe for the cattle and handlers.
- Mechanical and electrical devices used in housing facilities must be safe.

CATTLE HANDLING

- Abuse of cattle is not acceptable under any circumstances.
- Avoid slippery surfaces, especially where cattle enter a single file alley leading to a chute or where they exit the chute. Grooved concrete, metal grating (not sharp), rubber mats or deep sand can be used to minimize slipping and falling. Quiet handling is essential to minimize slipping. Under most conditions, no more than 2% of the animals should fall outside the chute. A level of more than 2% indicates a review of the process may be of value, including asking questions such as: is this a cattle temperament issue, has something in the handling area changed that is effecting cattle behavior, etc.
- Take advantage of cattle's flight zone and point of balance to move them. For safety and welfare reasons, minimize the use of electric prods. Non-electric driving aids, such as plastic paddles, sorting sticks, flags or streamers (affixed to long handles) should be used to quietly guide and turn animals. When cattle continuously balk, cattle handlers should investigate and correct the reason rather than resort to overuse of electric prods.



- Under desirable conditions, 90% or more of cattle should flow through cattle handling systems without the use of electric prods.
- When cattle prods must be used, avoid contact with the eyes, rectum, genitalia and udder.
- Driving aids powered by AC current should never be used unless manufactured and labeled specifically for that purpose.
- Some cattle are naturally more prone to vocalize, but if more than 5% of cattle vocalize (after being squeezed but prior to procedures being performed) it may be an indication that chute operation should be evaluated.
- If more than 25% of cattle jump or run out of the chute there should be a review of the situation and questions asked such as: is this a result from cattle temperament or prior handling issue, was the chute operating properly, etc.
- Properly trained dogs can be effective and humane tools for cattle handling. Insure that barking or impeding cattle flow is minimized.



MARKETING CATTLE

The overwhelming majority of cattle are marketed in good health and physical condition. Some compromised cattle should not enter intermediate marketing channels because of animal welfare concerns. Instead, these cattle should be sold directly to a processing plant or euthanized (see Euthanasia section), depending upon the severity of the condition, processing plant policy, and state or USDA regulations.

TRANSPORTATION

- Cattle sorting and holding pens should allow handling without undue stress, be located near the loading/unloading facility and be suitable for herd size.
- Provide properly designed and maintained loading facilities for easy and safe animal movement. Proper design of loading chutes as well as personnel that are knowledgeable of their proper use can assure the safety of both cattle and cattle handlers. Ramps and chutes should be strong and solid, provide non-slip footing, and have sides high enough to keep cattle from falling or jumping off. A ramp angle of 25 degrees or less will improve cattle movement.
- All vehicles used to transport cattle should provide for the safety of personnel and cattle during loading, transporting and unloading.
- Strictly adhere to safe load levels with regard to animal weight and space allocation.
- Producers hauling cattle in farm and ranch trailers must ensure that adequate space is provided so that cattle have sufficient room to stand with little risk of being forced down because of overcrowding.
- Cattle that are unable to withstand the rigors of transportation should not be shipped.
- When the vehicle is not full, safely partition cattle into smaller areas to provide stability for the cattle and the vehicle.
- Knowingly inflicting physical injury or unnecessary pain on cattle when loading, unloading or transporting animals is not acceptable.
- No gap which would allow injury to an animal should exist between the ramp, its sides, and the vehicle.
- Vehicle doors and internal gates should be sufficiently wide to permit cattle to pass through easily without bruising or injury.
- Cattle should be loaded, unloaded, and moved through facilities with patience and as quietly as possible to reduce stress and injury.

NON-AMBULATORY (DOWNER) CATTLE

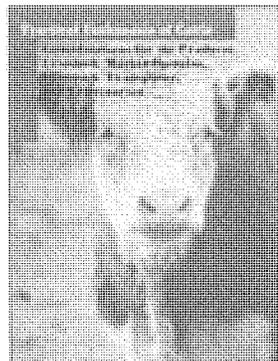
- A prompt diagnosis should be made to determine whether the animal should be humanely euthanized or receive additional care.
- Provide feed and water to non-ambulatory cattle at least once daily.
- Move downer animals very carefully to avoid compromising animal welfare. Dragging downer animals is unacceptable. Likewise, animals should not be lifted with chains onto transportation conveyances. Acceptable methods of transporting downers include a sled, low-boy trailer or in the bucket of a loader. Animals should not be "scooped" into the bucket, but rather should be humanely rolled into the bucket by caretakers.
- When treatment is attempted, cattle unable to sit up unaided (i.e. lie flat on their side) and which refuse to eat or drink should be humanely euthanized within 24-36 hours of initial onset.
- **Even though signs of a more favorable prognosis may exist, cattle that are non-ambulatory must not be sent to a livestock market or to a processing facility.**
- Marketing cattle promptly before this issue occurs will promote better quality of life for the animal and economic benefit for the operation.

EUTHANASIA

Euthanasia is humane death occurring without pain and suffering. The decision to euthanize an animal should consider the animal's welfare. The producer will most likely perform on-farm euthanasia because a veterinarian may not be immediately available to perform the service. When euthanasia is necessary, an excellent reference is the Practical Euthanasia of Cattle guidelines developed and published by the American Association of Bovine Practitioners.

Reasons for euthanasia include:

- Severe emaciation, weak cattle that are non-ambulatory or at risk of becoming downers
- Downer cattle that will not sit up, refuse to eat or drink, have not responded to therapy and have been down for 24 hours or more
- Rapid deterioration of a medical condition for which therapies have been unsuccessful
- Severe, debilitating pain
- Compound (open) fracture
- Spinal injury
- Central nervous system disease
- Multiple joint infections with chronic weight loss



HEAT STRESS PROCEDURES

- During periods of high heat and humidity and little wind, actions should be taken to minimize the effects of heat stress as cattle are processed.
- Provide adequate water.
- If possible, avoid handling cattle when the risk of heat stress is high. The final decision must consider temperature, humidity, wind speed, phenotype and cattle acclimation. If cattle must be handled, a general rule is to work them before the Temperature Humidity Index (THI) reaches 84, if possible. As an example, when the temperature is 98° F and the humidity is 30%, the THI is 83. At a constant temperature, the THI increases as the relative humidity increases. Each one mile per hour increase in wind speed decreases the THI by approximately one. More information can be found in NebGuide G00-1409-A (www.gpvec.unl.edu).
- Work cattle more prone to heat stress first, earlier in the day or later if conditions moderate. For example, larger cattle should be processed during lower stress times of the day.
- Limit the time cattle spend in handling facilities where heat stress may be more significant.
- Heat management tools, such as shades and sprinklers, should be considered if sufficient natural shade is not available.

PASTURE CATTLE HEAT STRESS PROCEDURES

- During the summer the THI in the southeastern United States can be high.
- Breeding programs in the southeast consider cattle's heat tolerance and ability to adapt to their regional environment.
- Trees are abundant on most farms and ranches in the southeast, providing natural shade and relief from heat. Cattle instinctively use shade and ponds for cooling when the THI is high.
- When heat stress is extreme:
 1. Ensure adequate drinking water is available.
 2. Move or process cattle during the cooler part of the day.
- Heat management tools, such as shades and sprinklers, should be considered if sufficient natural shade is not available.

Training and Education for Maintaining and Improving Cattle Care and Handling Implementation and Review Programs

Management practices should be informally assessed every day to ensure that animal welfare is not compromised. Regardless, producers are encouraged to implement a system to verify efforts directed towards animal care and handling. This can be accomplished by:

- Establishing a network of resources on cattle care
- Following the Cattle Care and Handling Guidelines
- Keeping track of training and education activities
- Conducting self-audits or external audits of animal care and handling procedures

Informal self-reviews should be periodically conducted by those involved with cattle feeding and care.

Training of those who handle cattle should include:

- An understanding of the animal's point of balance and flight-zone
- Avoiding sudden movement, loud noises or other actions that may frighten cattle
- Proper handling of aggressive/easily excited cattle to ensure the welfare of the cattle and people
- Proper use of handling and restraining devices
- Recognizing early signs of distress and disease
- How to properly diagnose common illnesses and provide proper care
- Administration of animal health products and how to perform routine animal health procedures
- Recognizing signs associated with extreme weather stress and how to respond with appropriate actions
- Basic feeding/nutritional management of beef cattle

Management programs should be science-based and common-sense driven.



SELF EVALUATION

Cattle Comfort:

Cattle have free access to feed, water, and space for freedom of movement. Yes No
 During periods of high heat and humidity and little wind, cattle are processed early in the morning. Yes No
 Pens or other housing areas are properly maintained. Yes No

Feeding:

All cows have a Body Condition Score of 4 or higher. Yes No
 Avoid sudden ration changes. Yes No
 Use only approved feedstuffs and additives. Yes No

Non-Ambulatory (Downer) Cattle:

Downer cattle are properly moved (i.e., loader, trailer, etc.). Yes No
 Downer cattle responding to treatment are receiving proper care (i.e., feed, water, etc.). Yes No
 Downer cattle unable to eat or drink are humanely euthanized within 24-36 hours of initial onset. Yes No

Cattle Treatment Programs:

Cattle treatment programs are designed by a veterinarian. Yes No
 Check for sick animals daily. Yes No
 Treatment of animals when found. Yes No

Health Care:

Castration and dehorning are completed before the bull calf reaches 120 days of age or 500 lbs. Yes No
 Use a local anesthetic when dehorning animals with horn base more than one inch in diameter. Yes No
 Cattle are regularly vaccinated to prevent disease. Yes No

Cattle Handling:

When running cattle through the chute, use the following checklist to evaluate how effective your facilities and staff are at properly working cattle. Assign one or more of the letters below to each cow brought through the chute.

1. Use of electric prods — "E"
 2. Cattle that fall when exiting the chute — "F"
 3. Cattle that jump or run when exiting the chute — "J"
 4. Cattle that vocalize after being restrained in the chute, but before procedures are performed — "V"
 5. Cattle observed being handled without issue — "✓"
- 1__ 2__ 3__ 4__ 5__ 6__ 7__ 8__ 9__ 10__ 11__ 12__ 18__ 19__ 20__ 21__
 22__ 23__ 24__ 25__ 26__ 27__ 28__ 29__ 30__ 31__ 32__ 33__ 34__ 35__
 36__ 37__ 38__ 39__ 40__ 41__ 42__ 43__ 44__ 45__ 46__ 47__ 48__ 49__
 50__ 51__ 52__ 53__ 54__ 55__ 56__ 57__ 58__ 59__ 60__ 61__ 62__ 63__
 64__ 65__ 66__ 67__ 68__ 69__ 70__ 71__ 72__ 73__ 74__ 75__ 76__ 77__
 78__ 79__ 80__ 81__ 82__ 83__ 84__ 85__ 86__ 87__ 88__ 89__ 90__ 91__
 92__ 93__ 94__ 95__ 96__ 97__ 98__ 99__ 100__

	Percentage Observed	Maximum Acceptable Percentage	Pass/Fail
Electric prods:	___%	10 %	P / F
Cattle falling:	___%	2 %	P / F
Cattle jumping or running:	___%	25 %	P / F
Cattle vocalizing	___%	5 %	P / F

Continued on back

Transportation and Facilities:

- No sharp edges, broken sides or floors that may cause damage to animals being transported. Yes No
- Floors, ramps provide sure footing with traction strips, slip protection of surfaces to prevent slipping. Yes No
- Observe proper loading densities of transport area of truck, trailer or vehicle. Yes No
- Cattle sorting and holding pens allow handling without undue stress. Yes No
- Vehicle doors and gates are sufficiently wide enough to permit cattle to pass through easily without bruising or injury. Yes No

Record Keeping:

- Keep all records for at least 3 years. Yes No
- Records of feedstuff source, date received, description, amount, etc. Yes No
- Cattle leaving premise meet regulatory requirements. Yes No
- Records kept in appropriate form, organized and accessible. Yes No

Training:

- Employees know common procedures used on production unit. Yes No
- Training on basic feeding/nutritional management of cattle. Yes No
- Employees recognize early signs of distress and disease. Yes No
- Network of resources on cattle care for employees. Yes No
- Employees are required to follow Cattle Care and Handling Guidelines. Yes No
- Informal self-evaluations on care and handling done on regular basis. Yes No

If you answered no to any one of these questions or failed on one or more of the animal handling check sheet, how are you going to correct the situation to comply with proper animal care practices?

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12305

**Testimony
Of
Janet M. Riley
Senior Vice President, Public Affairs and Professional Development
American Meat Institute
To
House Agriculture Committee Subcommittee on Livestock, Dairy and Poultry
May 8, 2007**

Mr. Chairman, my name is Janet Riley and I am senior vice president at the American Meat Institute, the nation's oldest and largest association representing the U.S. meat packing industry. Since 1991, I have had the honor of leading U.S. meat packing industry's animal welfare programs and watching what has been at some points evolution and at others, a revolution. I appreciate the opportunity to testify for this committee about one of the most important aspects of my industry's business: how we care for animals in our plants.

Our industry is unique because we must comply at all times with the Humane Slaughter Act, which is enforced by federal inspectors who are in our packing plants continuously. No other sector of animal agriculture has this level of regulatory oversight. But it is important to note that our industry seeks not just to meet federal humane slaughter requirements – we seek to exceed them.

Optimal welfare is ethically appropriate and good for livestock. But it also creates safer workplaces, better morale among employees and higher quality products.

Our industry took four key steps that have changed the way we handle our animals and improved animal welfare in measurable ways. These four steps include formation of a partnership with leading animal welfare expert Dr. Temple Grandin in 1991; launching the first industry specific animal welfare audit in 1997; developing training initiatives beginning in 1999 to encourage continuous improvement and finally, making animal welfare a non-competitive issue in our industry in 2002. I'd like to touch on each of those developments now.

In 1991, Dr. Grandin, now the subject of books and television programs, was relatively new to animal welfare. As a result of her lifelong battle to emerge from autism, she had developed a special appreciation for the way animals think visually and for the things that can be overwhelming to animals from a sensory perspective. The parallels between autism and animal behavior are striking. As we came to know Dr. Grandin, we came to appreciate the unique perspective she offered. We were blessed to have such a remarkable person take an interest in our industry and work with us in a cooperative way.

Looking back, it is clear that she earned the trust of our companies because she did not speak from an ivory tower. She offered practical, applied ideas about how to enhance welfare by working with – and not against – an animal’s natural tendencies. For example, she recommended using serpentine chutes that leveraged an animal’s natural curiosity to see what is around a corner to encourage them to move forward. This reduced the need for aggressive driving and electric prod use.

She taught us how animals see and said that by entering their flight zones at the proper point or by using something visual like a stick with a flag or grocery pack attached to end, we could prompt animals to move forward with minimal excitement. She also taught us to minimize distractions that can frighten livestock. By trying to look at our plants as an animal would, we now understand how to use lighting, air flow and certain color paints, we can help livestock remain calm, which is more humane and which also enhances the quality of the meat they yield. She and others now in the field have shown convincingly that physiology and economics work together when it comes to welfare. Treating animals in an optimal way is not just the right thing from an ethical perspective, it is the right thing economically.

These practices were detailed in our first 1991 *Recommended Animal Handling Guidelines for Meat Packers*, which she authored for us.

In 1996, after Dr. Grandin audited U.S. meat packing plants, she concluded that animal welfare in meat packing plants could be evaluated objectively. She argued that by developing measurable criteria and auditing regularly, we could monitor welfare in our plants and strive for continuous improvement.

Our Animal Welfare Committee endorsed this idea and in 1997, we released our first animal welfare audit document which we called *Good Management Practices for Animal Handling and Stunning*. We began counting:

- Slips and falls by livestock
- How often they vocalize
- How frequently we used electric prods
- How accurately we stun
- Whether any willful acts of abuse were observed
- And how effectively our livestock are made insensible during the slaughter process.

Dr. Grandin argued that you manage what you measure. The act of counting and measuring with regularity ensures that when a deviation occurs, a plant can explore and rectify the cause. For example, if suddenly livestock are slipping more than they have in the past, it may suggest that the floor may need to be re-grooved. If stunning accuracy declines, it may signal the need for equipment maintenance or for retraining of the stunner operator.

By 1999, major customers like McDonald’s, Wendy’s and Burger King were requiring the use of this audit as requirement for doing business. Our audit is used around the world and by certification groups like Certified Humane and Free Farmed. It also is the basis for efforts by Humane Society International’s training efforts in Central America. We are proud that this document has become so widely respected and utilized.

Also in 1999, we launched a conference to train our members in the principles of this audit. We worried about whether people would register and attend. But they did and each year more come. In March, 300 members of our industry attended two days of training in Kansas City. Our conference was the first of its kind and today remains the largest.

It is gratifying to see people who work in livestock pens and animal handling areas of a plant have the opportunity to come together to learn, to ask questions and to exchange information. Perhaps most importantly, during these two days, our plant employees learn from Dr. Grandin's colorful style of training and they are encouraged to ask questions of her and of their peers and other academics, who co-present with her. Through this conference, we have sought to professionalize the role of the animal handler and to emphasize the significance of the jobs these employees do.

Even more recently, in 2002, our Board affirmed a motion by the Animal Welfare Committee to make animal welfare a non-competitive issue. In doing so, our members now openly share ideas with one another to enhance welfare.

This motion was the outgrowth of a gutsy step by Odom's Tennessee Pride Sausage Company in Nashville, which invited the entire committee into their plant with Dr. Grandin. After we toured the plant, Dr. Grandin offered her comments and the committee had the opportunity to engage in open and honest discussion that benefited everyone.

At the conclusion of the meeting, we realized that this sort of exchange needed to be encouraged – it could not end with that plant tour. And this is why today, our committee visits a plant every August and tours it together with Dr. Grandin. We consider our animal welfare programs dynamic. We seek to share new ideas as they are uncovered.

As a result of this non-competitive philosophy, if a member has an animal handling challenge, he or she can contact AMI and we will facilitate dialogue with other members with similar operations. In some cases, members have traveled to competitors' plants to learn from their experience. All of our ideas, our efforts, materials and our guidelines may be found on www.animalhandling.org. The entire site is public and the guidelines are free. This is yet another extension of our non-competitive philosophy on animal welfare.

My years in this area have shown me that people are a critical factor in animal welfare. Often, we read in this newspaper that groups are arguing for one system over another. The animal welfare debate is cast in black and white terms with one system being good and another being bad. But I have learned that systems can be managed well and they can be managed poorly. A small, low-tech plant with well-trained people can achieve the same kind of outcomes as a larger, high-tech plant. It takes management commitment and continuous monitoring. What matters most is the outcome and that is why we focus so heavily on achieving measurable outcomes.

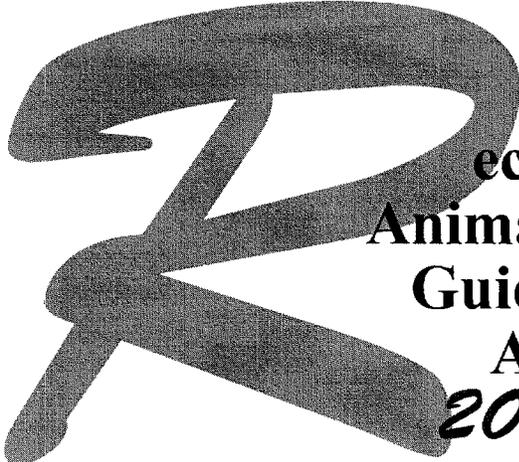
In summary, the change that I have witnessed in 16 years is truly remarkable. It is also measurable. Data collected by Dr. Grandin show that performance on our audit points throughout our industry has improved substantially over the last decade.

Our industry's comprehensive animal welfare efforts come as a surprise to many. But I'm pleased to say that they are second nature to us. There is no doubt, that ten years ago, the thought of counting moos in a meat packing plant raised some eyebrows. But now, we don't let a week go by without it. Dr. Grandin has provided inspiration and motivation. And our members have provided the commitment to make what were once her theories a reality. Indeed, she acknowledges our partnership in her recent best-selling book *Animals in Translation*.

Certainly, there is a small percentage of people who believe that eating meat is immoral. Those who hold that view are unlikely to be satisfied with our industry's efforts. But for the more than 95 percent of Americas who do eat meat and poultry, I believe that our efforts in this area will reassure them of our commitment to ensuring that livestock from which their meat products are derived are handled in an optimal and humane way while they are in our care.

Thank you for the opportunity to present this important case study in animal welfare to this committee.

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**Recommended
Animal Handling
Guidelines *and*
Audit Guide
2007 Edition**

AMI Foundation
AMERICAN MEAT INSTITUTE

Published by
American Meat Institute Foundation

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Executive Summary and Historical Perspective

The Humane Methods of Slaughter Act of 1958 was the first federal law governing the handling of livestock in meat plants. The 1958 law applied only to livestock that were slaughtered for sale to the government. In 1978, the Humane Methods of Slaughter Act was reauthorized and covered all livestock slaughtered in federally inspected meat plants. As a result of the Act, federal veterinarians are in meat packing plants continuously, monitoring compliance with humane slaughter regulations. Additional guidance is found in the Code of Federal Regulations and in specific USDA regulations and notices.

The AMI Foundation has a demonstrated commitment to voluntary animal handling programs that go above and beyond regulatory requirements.

In 1991, the American Meat Institute published *Recommended Animal Handling Guidelines for Meat Packers*, the first voluntary animal welfare guidelines for meat packing operations. Authored by Temple Grandin, Ph.D., of Colorado State University, the illustrated guidelines offered detailed information about optimal handling of animals, how to troubleshoot animal handling problems in packing plants, how to stun animals effectively and maintain equipment thoroughly and how to move non-ambulatory animals while minimizing stress. The guidelines were implemented widely by members of the meat packing industry.

In 1997, Dr. Grandin developed a new document called *Good Management Practices (GMPs) for Animal Handling and Stunning*. The new document detailed measurable, objective criteria that could be used to evaluate the well-being of livestock in meat packing plants. Self-audits using the criteria were recommended in an effort to identify and address any problems and sustain continuous improvement. When the GMPs were developed and implemented, they were envisioned as a tool for use voluntarily by meat companies. In the years that followed, major restaurant chains began developing animal welfare committees and conducting audits of their meat suppliers. They utilized the AMIF *Good Management Practices* as their audit tool. Beginning in 1999, compliance with AMIF's GMPs became part of many customer purchasing specifications.

In 2004, the American Meat Institute Animal Welfare Committee determined that the two animal welfare documents should be merged into a single, updated document that included official AMI Foundation audits for pig, cattle and sheep slaughter. Official forms can be recognized by the use of the official AMI Foundation logo. The forms can be reformatted to suit corporate needs, but any change to the numerical criteria on the forms would make the audit inconsistent with the AMIF audit. The merged document was released in 2005. In 2007, the document was updated based upon feedback from the field and key clarifications were added. AMI's Animal Welfare Committee also recommended that the audits include measurement of slips and falls unloaded.

Relative to other areas of scholarly research, only limited basic research has been conducted in the area of animal welfare. The objective criteria in the document were developed based on survey data collected over time in plants throughout the United States. The AMI Animal Welfare Committee, together with Dr. Temple Grandin, have determined what "targets" are reasonably achievable when plants employ good animal handling and stunning practices.

AMIF's audit guidelines recommend that companies conduct both internal (self-audits) and third party audits using the following criteria:

Effective Stunning – Cattle and sheep should be rendered insensible with one shot at least 95 percent of the time. For pigs, electrical wands should be placed in the proper position at least 99 percent of the time. For gas stunned pigs, no more than 4 percent of gondolas may be overloaded.

Hot Wanding (Pigs only) – No more than one percent of pigs should vocalize due to hot wanding. Hot wanding is defined as the application of electrodes that are already energized.

Bleed Rail Insensibility – A sensible animal on the bleed rail is an automatic failure. However, it is possible that over longer time spans, this may occur. Plants are encouraged to aggregate audit scores to monitor system performance. While the target is clearly zero, no more than two cattle per 1,000 and no more than one pig or sheep per 1,000 should be sensible on the bleed rail. Numbers in excess of this indicate a serious system problem. Animals showing any sign of return to sensibility should be immediately re-stunned. All animals must be completely insensible before procedures such as skinning, head removal or dehorning.

Slips and Falls – For both species, fewer than three percent of livestock should slip and fewer than one percent should fall down with the body touching the floor. A slip is when a knee touches the ground or a foot loses contact with the ground.

Vocalizations – Pig vocalization levels should be monitored in the restrainer. Three percent or fewer of cattle should vocalize and 5 percent or fewer of pigs should vocalize. For pigs, room vocalizations (vocalizations heard throughout a room and not strictly in the restrainer) should be monitored for internal audits only. For pigs, noise should be heard during fewer than 50 percent of stunning cycles. Due to differences in plant acoustics and the potential for auditor variability, these numbers cannot be compared from plant to plant and should not be measured on third-party audits. Do not measure vocalizations for sheep as they are not meaningful.

Cattle vocalization are monitored in the crowd pen, Lead-up chute, restrainer and/or stun box

Electric Prod Use – Prods should be used on 25 percent or less of cattle, pigs and sheep. Prods should never be used in CO₂ or group stunning systems. In cases where a single file chute is used for loading the gondola, prods could be used and scored at 25 percent or less mentioned above.

Willful Acts of Abuse – Any willful act of abuse, like dragging a conscious animal, applying prods to sensitive parts of the animal, slamming gates on livestock, purposefully driving livestock on top of one another or hitting or beating an animal, constitutes an automatic audit failure.

The Committee noted, however, that audits represent a “snapshot in time.” Many variables can impact audit outcomes, especially when live animals are involved. These can include:

- **Change in plant personnel.** It may take time for a new employee to become as skilled an animal handler as a more experienced employee. However, willful acts of abuse can NEVER be tolerated.
- **Breed, age and gender of livestock.** These factors all can affect temperament.
- **Previous handling or lack of handling and human contact at the farm level.** Animals that are accustomed to seeing people generally are less skittish at the plant.
- **Weather.** Livestock sometimes react to weather or seasonal changes, like a thunderstorm.
- **Auditor influence.** This includes reaction by staff, auditor expertise and management response to auditor presence.

For these reasons, it is essential that if a plant performs poorly on an audit, those results should be viewed in the context of historical performance to determine if this is an anomaly or a pattern. A plant’s proposed corrective/preventive measures also should be considered.

Just as plants strive for continuous improvement based on new practices and information, so, too, the AMI Foundation will strive for continuous improvement and refinement of this document. The general recommendations and the audit criteria are based on real data and observation. However, as additional research is completed and new information is generated, the AMI Foundation will seek to improve and update these documents based upon new information.

Chapter One: Recommended Animal Handling Guidelines

Optimal livestock handling is extremely important to meat packers for obvious ethical reasons. Once livestock – cattle, pigs and sheep—arrive at packing plants, proper handling procedures are not only important for the animal’s well-being, they can also mean the difference between profit and loss. Research clearly demonstrates that many meat quality benefits can be obtained with careful, quiet animal handling. In addition, the Humane Slaughter Act of 1978, the regulations that evolved from it, as well as more than two decades of directives and notices, dictates strict animal handling and slaughtering standards for packing plants. This booklet provides practical information that can be used to develop animal handling programs and to train employees in the principles of good animal handling practices.

Management Commitment

A key factor in establishing and maintaining optimal animal handling and stunning in plants is a clearly communicated management commitment to animal handling. Top management must play an active role. This can include:

- Development of an animal welfare mission statement that is widely circulated and/or posted visibly in various places in a plant.
- Ongoing monitoring and measurement of animal handling and stunning practices and outcomes (See Chapter 2).
- Regular internal training and providing opportunities to attend outside training programs.
- Recognition and rewards for jobs well done.

This manual provides employees and managers with information that will help them improve both handling and stunning. Properly handled animals are not only an important ethical goal, they also keep the meat industry running safely, efficiently and profitably.

Section 1: Trucking Practices

Managing the transportation and holding of livestock, including careful temperature management, can result in enhanced livestock welfare and improved meat quality.

The following items should be considered when transporting livestock.

Maintenance—Trailers should be kept in good repair, should be kept clean (which is especially helpful in preventing pig skin blemishes) and should have non-slip floors.

Truck Driving Practices—Careful truck driving helps prevent bruises, shrink and injuries. Sudden stops and acceleration that is too rapid increases injuries and stress. Selection of routes that are the most direct, but which minimize time on unpaved roads and avoidance of potholes will also provide benefits.

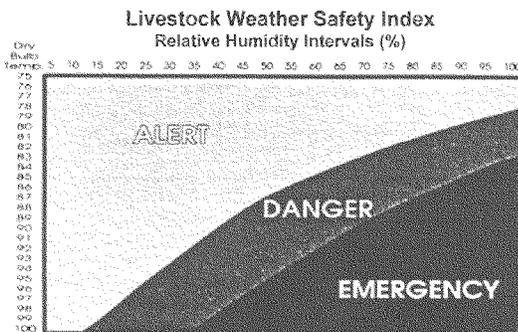
Design—It is essential that semi-trailers have sufficient height between decks to prevent back injuries. To comply with environmental regulations, truck floors should be leak proof to prevent urine and manure from dripping onto the highway.

Loading—Research shows that overloading livestock trucks can increase bruising. Overloading pig trucks can increase death losses and pale, soft exudative tissue (PSE).

Temperature Management

Temperature extremes can be harmful to livestock, but careful planning and temperature mitigation strategies can protect livestock.

Cold



Heat Stress Chart—The chart provides a guide for plant managers and truckers to help reduce heat stress of livestock. Hazard to the animal increases when both temperature and humidity increase. When conditions are in the alert zone, truckers need to be careful to keep livestock cool. When conditions get into the danger and emergency zone, try to shift loading schedules to avoid the hottest part of the day. Problems with heat stress in pigs may start as low as 60°F. (16°C.) Source: NIAA

Temperature Management for Pigs

Freezing temperatures and wind chills can be dangerous as well as, particularly for pigs. The combination of cold ambient temperatures and wind speed can create significant wind chill. For example, if a truck is moving at 40 miles per hour (64 km per hour) in 40°F. (3.7°C.) weather, pigs are exposed to a wind chill that makes it feel to the pigs like it is 10°F. or -12.2°C. Rain can exacerbate these extremes. Wind protection should be provided when the air temperature drops below 32°F. or zero°C.

The following chart offers guidance for Truck set-up procedures during temperature extremes.

Truck Set-Up Procedures During Temperature Extremes			
Air Temp (F)	Bedding	Side Slats	
Less than 10	Heavy	90% closed	10% open*
10 – 20	Medium	75% closed	25% open*
20 – 40	Medium	50% closed	50% open
40 – 50	Light	25% closed	75% open
More than 50	Light**	0% closed	100% open

*Minimum openings are needed for ventilation even in the coldest weather
 **Consider using sand or wetting bedding if it is not too humid and trucks are moving

Source: National Pork Board, Trucker Quality Assurance Handbook

The chart on page 9 offers rough guidelines for the space that should be provided per running foot of truck floor for various pig weights when temperatures are below 75°F. When the Livestock Weather Safety Index is in the "Alert" condition, load 10 to 20 percent fewer pigs. Pigs that will travel more than 12 hours may need more space. Non-ambulatory pigs and dead pigs increase after 12 hours.

Recommended Transport Space Requirements			
Avg. Weight (lbs)	Number of hogs per running foot Of Truck Floor		Square Feet Per Head
	Normal Weather		
	Truck or Trailer Width (inches) 96 (243.8 cm)	102 (259 cm)	
50 (22.7 kg)	5.23	5.56	1.53 (0.142 sq.m)
100 (45.4 kg)	3.44	3.66	2.32 (0.215 sq.m)
150 (68 kg)	2.71	2.88	2.95 (0.274 sq.m)
200 (90.7 kg)	2.30	2.44	3.48 (0.323 sq.m)
250 (113 kg)	1.88	1.99	4.26 (0.395 sq.m)
300 (136 kg)	1.67	1.77	4.79 (0.445 sq.m)
350 (159 kg)	1.45	1.55	5.48 (0.509 sq.m)
400 (181.4 kg)	1.25	1.33	6.39 (0.593 sq.m)

Source: National Pork Board, Trucker Quality Assurance Handbook

Cold Temperature Management for Cattle, Veal and Sheep

While cattle and sheep are less sensitive than pigs to cold weather, it is still important to manage temperatures to protect animals and ensure meat quality.

Keeping livestock dry when possible is essential to protecting them from wind chill. Veal calves also are particularly temperature sensitive and require special care during transport. Take care in cooler temperatures (below 60°F. / 16°C.) to provide straw bedding and plug some air holes so in trucks so the calves do not become too cold. Also, it is critical to keep calves dry. Wetting a calf is the equivalent of lowering the outside temperature by 40-50°F. (4.4 – 10°C.).

The charts below offers rough guidelines for the space that should be provided. These charts offer two approaches to calculating space: based upon square foot needed for various weights or per running foot of truck floor (based on 92-inch truck width) for various cattle, calf and sheep weights.

Recommended Animal Handling Guidelines and Audit Guide 2007 Edition

Recommended Truck Loading Densities
(Source: National Institute for Animal Agriculture)

Feedlot Fed Steers Or Cows, Avg. Wt.	Horned or Tipped or more than 10 percent Horned and Tipped	No Horns (polled)
800 lbs. (360 kg)	10.90 sq. ft. (1.01 sq m)	10.40 sq. ft. (0.97 sq m)
1000 lbs. (454 kg)	12.80 sq. ft. (1.20 sq m)	12.00 sq. ft. (1.11 sq m)
1200 lbs. (545 kg)	15.30 sq. ft. (1.42 sq m)	14.50 sq. ft. (1.35 sq m)
1400 lbs. (635 kg)	19.00 sq. ft. (1.76 sq m)	18.00 sq. ft. (1.67 sq m)
Lambs and Sheep	Shorn	Full Fleece
60 lbs. (27 kg)	2.13 sq. ft. (0.20 sq m)	2.24 sq. ft. (0.21 sq m)
80 lbs. (36 kg)	2.50 sq. ft. (0.23 sq m)	2.60 sq. ft. (0.24 sq m)
100 lbs. (45 kg)	2.80 sq. ft. (0.26 sq m)	2.95 sq. ft. (0.27 sq m)
120 lbs. (54 kg)	3.20 sq. ft. (0.30 sq m)	3.36 sq. ft. (0.31 sq m)

Truck Space Requirements for Cattle
(Cows, range animals or feedlot animals with horns or tipped horns;
for feedlot steers and heifers without horns, increase by 5 percent)

Avg. Weight	Number of cattle per running foot of truck floor (92 in. internal truck width or 233.7 cm.)*
600 lbs. / 272 kg	.9
800 lbs. / 363 kg	.7
1,000 / 453 kg	.6
1,200 / 544 kg	.5
1,400 / 635 kg	.4

Examples (1,000 lb. cattle):

44 foot single deck trailer – $44 \times 0.6 = 26$ head horned, 27 head polled.

44 ft. possum belly (four compartments, 10 ft. front compartment; two middle double decks, 25 ft. each; 9 ft. rear compartment, total of 69 ft. of lineal floor space) - $69 \times .06 = 41$ head of horned cattle and 43 head of polled cattle.

Measure the total lineal footage of floor space in YOUR truck. *In metric, this is the number of animals in each 31 cm. long segment of truck length.

Truck Space Requirements for Calves
(Applies to all animals in the 200 to 450 lb. / 90-203 kg. weight range)

Avg. Weight	Number of calves per running foot of truck floor (92 inch or 233.7 cm. internal truck width)*
200 lbs. / 90 kg	2.0
250 lbs. / 113 kg	1.8
300 lbs. / 136 kg	1.6
350 lbs. / 159 kg	1.4
400 lbs. / 181 kg	1.2
450 lbs. / 204 kg	1.1

Examples (450 lb. calves)

44 ft. single deck trailer - 44 X 1.1 = 48 head 44 ft. double deck trailer - 88 Z 1.1 97 head.

***In metric, this is the number of animals in each 31 cm. long segment of truck length.**

Truck Space Requirements for Sheep

(Use for slaughter sheep, load 5 percent fewer if sheep have heavy or wet fleeces.)

Avg. Weight	Number of sheep per running foot of truck floor (92-in. or 233.7 cm. internal truck width)*
60 lbs. / 27 kg	3.6
80 lbs. / 36 kg	3.0
100 lbs. / 45 kg	2.7
120 lbs. / 54 kg	2.4

Example (120 lb. sheep)

44 ft. triple deck trailer - 44 X 3 X 2.4 = 317 shorn sheep, 302 wooly sheep.

***In metric, this is the number of animals in each 31 cm. long segment of truck length.**

Hot Weather Management for Pigs

According to federal regulation, all livestock must have access to clean drinking water in lairage. Water also can help prevent heat stress because it replaces fluids. Hot weather and humidity are deadly to pigs because they do not have functioning sweat glands. Therefore, special precautionary measures must be taken in hot weather conditions.

Use the following procedures to keep animals cool and eliminate unnecessary transport losses during extreme weather conditions.

1. Adjust your load conditions during temperature extremes.
2. If possible, schedule transportation early in the morning or at night when the temperature or relative humidity is cooler.
3. Never bed livestock with straw during hot weather, i.e. when the temperature is over 60°F (15°C), use wet sand or small amounts of wet shavings to keep pigs cool. Deep bedding in the summer may increase death losses.
4. If the temperature is 80°F (27°C) or higher, sprinkle pigs with water prior to loading at buying stations or on the farm (use a coarse heavy spray but not mist).
5. Remove grain slats from farm trucks.
6. Open nose vents.
7. Unplug ventilation holes and remove panels.
8. Load and unload promptly to avoid heat buildup.
9. Pigs are very sensitive to heat stress. Problems with heat stress may start to occur at 60°F. (16°C.). At 90°F. (32°C.) death losses almost double compared to 60°F. (16°C.).

Stockyards at packing plants should have sufficient capacity so that animals can be promptly unloaded from trucks. Heat builds up rapidly in a stationary vehicle. If trucks can't be unloaded, they may need to keep driving until they can.

In the stockyard pens, when the temperature is greater than 70°F (21° C.), facilities should be available and procedures for sprinkling pigs with water should be undertaken. For maximum cooling effect, the sprinklers should have a spray coarse enough to penetrate the hair and wet the skin. Sprinklers that create a fine mist can increase humidity without penetrating the hair and should not be used.

If it is not possible to follow these recommendations and protect the animals during hot conditions, make every effort to postpone the shipment until weather moderates.

When postponing is impossible, trucks should be kept moving and drivers should not be allowed to stop with a loaded trailer. When the truckers reach the plant, livestock must be unloaded promptly. Heat and humidity become extremely critical at 80°F. (27° C.) and 80 percent humidity.

Hot Weather Management for Cattle, Calves, Sheep and Goats

During hot weather, cattle, calves, sheep and goats should be hauled in early morning or at night whenever possible. It is important to keep trucks moving and avoid any unnecessary stops. In addition, livestock should be unloaded promptly upon arrival at a plant and water should be provided.

Developing an Emergency Livestock Management Plan

It is essential that plants have an emergency livestock management plan in place. Each plant should assess potential vulnerabilities based on geographic location, climate and other issues that would require swift action to assure animal welfare. The plan should include:

- How food and water will be provided during an emergency like a major snowstorm.
- How electricity can be provided through backup generators should power be lost.
- What housing will be provided to livestock should housing become uninhabitable due to fire or weather conditions such as flood or snowstorm?
- How animals will be evacuated in an emergency like a fire or flood.

The plan should be kept in a visible location and should be reviewed at least annually.

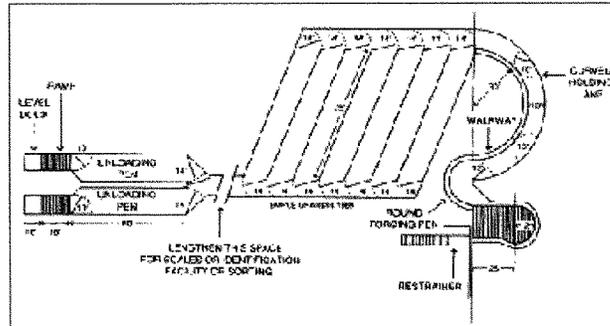
The plant also should develop a contingency plan for truckers that may, for example, state that trucks should keep driving under certain conditions until unloading can occur or, if they park at a plant, that fans or water be used to keep the internal truck temperature at an optimal level.

Section 2: Pen Space and Facility Layout

To improve meat quality, pigs should be rested two hours prior to stunning. When possible, animals should be kept in their transport groups. In large plants, pens should be designed to hold one or two truckloads. A few smaller pens will also be required for small lots.

Pen space allocations may vary depending upon weather conditions, animal sizes and varying holding times. As a rough guideline, 20 sq. feet (1.87 sq. m) should be allotted for each 1,200-pound (545 kg) steer or cow and six sq. feet (.55 sq. m) per pig. Sows will require 11-12 sq. feet (1.03 – 1.12 sq. m) and boars require 40 sq. feet (3.74 sq. m). (Source: Swine Care Handbook, National Pork Board, 2003). These stocking rates will provide adequate room for “working space” when animals are moved out of the pen. If the animals are stocked in the pen more tightly, it will be more difficult for the handler to empty the pen. The recommended stocking rates provide adequate space for all animals to lie down.

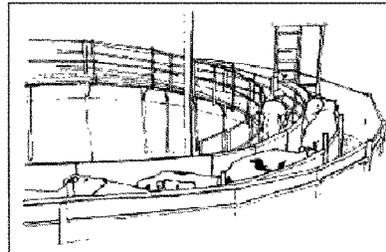
Recommended Handling Facility Layout – This diagram illustrates a modern cattle stockyard and chute system. Animal movement is one-way and there is no cross traffic. Each long narrow pen holds one truckload. The animals enter through one end and leave through the other. The round crowd pen and curved chute facilitate movement of cattle to the stunner.



Facility Layout – Modern cattle facility with many good features. The unloading ramps have a 10-foot (3 meter) level dock for the animals to walk on before they go down the ramps. Each unloading pen can hold a full truck load. Unloading pens are recommended for both pig and cattle facilities to facilitate prompt unloading. Long, narrow diagonal pens eliminate sharp corners and provide one-way traffic flow.

The round crowd pen and curved single file chute take advantage of the natural tendency of cattle to circle. A curved chute is more efficient for cattle because it takes advantage of their natural circling behavior. It also prevents them from seeing the other end while they are standing in the crowd pen. A curved chute should be laid out correctly. Too sharp a bend at the junction between the single file chute and the crowd pen will create the appearance of a dead end. In fact, all species of livestock will balk if a chute looks like a dead end.

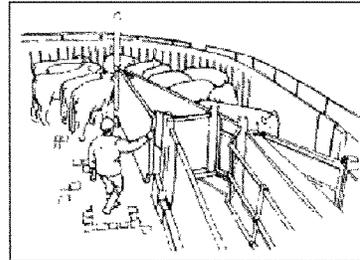
As a guideline, the recommended radii (length of crowd gate) are: Cattle, 12 feet; (3.5 m) pigs, 8 feet (2.5 m) and sheep, 8 feet (2.5 m). The basic layout principles are similar for all species, but there is one important difference. Cattle and sheep crowd pens should have a funnel entrance and pig crowd pens must have an abrupt entrance. Pigs will jam in a funnel. A crowd pen should never be installed on a ramp because animals will pile up in the crowd pen. If ramps have to be used, the sloped portion should be in the single file chutes. In pig facilities, level stockyards and chute systems with no ramp are most effective.



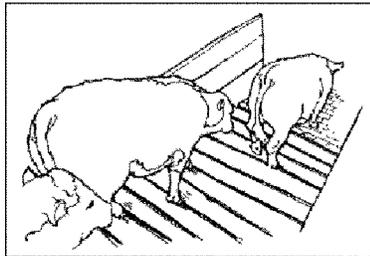
A well-designed, curved chute with solid sides for cattle.

Unloading Animals Properly

For all species, a plant should have sufficient unloading ramp capacity so trucks can be unloaded promptly. Unloading ramps should have a level dock before the ramps go down so that animals have a level surface to walk on when they exit the truck. A good target for the slope of the ramp is no more than 20° (It may go up to 25° for pigs if the ramp is adjustable). With concrete ramps, stair steps are recommended because they provide better traction than cleats or grooves when ramps become dirty.



Round crowd pen with correct number of cattle



Well-designed unloading ramp

Truck drivers should seldom need to use an electric prod, also termed a hot shot, to unload a truck. Attempting to rush livestock during unloading can be a major cause of bruises, particularly loin bruises. Management should closely supervise truck unloading. For cattle, the recommended stair step dimensions are 3 ½ inch (10 cm) rise and a 12-inch (30 cm) long tread. If space permits, an 18-inch (45 cm) long tread will create a more gradual ramp. For market pigs, a 2 ½ inch (6.5 cm) rise and a 10-inch (26 cm) tread works well. On adjustable ramps, cleats with 8 inches (20 cm) of space between them are recommended. All flooring and ramp surfaces should be non-slip to avoid injury.

Section 3: Recommended Livestock Handling Principles

The principles of good livestock handling are similar for the different species. All livestock are herd animals and will become agitated when separated from the others. If a lone animal becomes agitated, place it with other animals where it is likely to become calmer. Never get in the crowd pen or other confined space with one or two agitated, excited livestock.

Understanding Flight Zone and Point of Balance

Handlers who understand the concepts of flight zone and point of balance will be able to move animals more easily. The flight zone is the animal's personal space and the size of the flight zone is determined by the wildness or tameness of the animal. Completely tame animals have no flight zone and people can touch them. Other animals will begin to move away when the handler penetrates the edge of the flight zone. If all the animals are facing the handler, the handler is outside the flight zone.

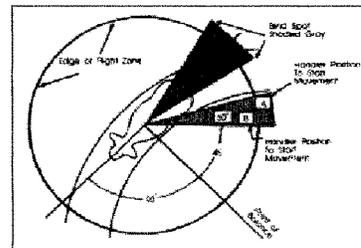
To keep animals calm and move them easily, the handler should work on the edge of the flight zone. The handler penetrates the flight zone to make the animals move and he backs up if he wants them to stop moving. The best positions are shown on the diagram. The handler should avoid the blind spot behind the animal's rear. Deep penetration of the flight zone should be avoided.

Animals become upset when a person is inside their personal space and they are unable to move away. If cattle turn back and run past the handler while they are being driven down a drive alley in the stockyard, overly deep penetration of the flight zone is a likely cause. If animals start to turn back away from the handler, the handler should back up and increase distance between him and the animals. Backing up must be done at the first indication of a turn back.

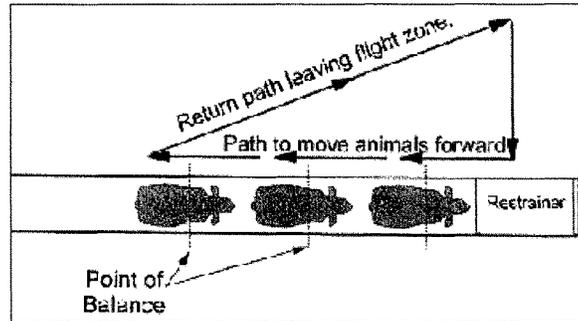
If a group of animals balk at a smell or a shadow up ahead, be patient and wait for the leader to cross the shadow. The rest of the animals will follow. If cattle rear up in the single file chute, back away from them. Do not touch them or hit them. They are rearing in an attempt to increase the distance between themselves and the handler. They will usually settle down if left alone.

Point of Balance

The point of balance is at the animal's shoulder. All species of livestock will move forward if the handler stands behind the point of balance. They will back up if the handler stands in front of the point of balance. Many handlers make the mistake of standing in front of the point of balance while attempting to make an animal move forward in a chute. Groups of cattle or pigs in a chute will often move forward without prodding when the handler walks past the point of balance in the opposite direction of each animal in the chute. If the animals are moving through the chute by themselves, leave them alone. It is not necessary and not recommended to prod every animal; often they can be moved by lightly tapping.



Flight Zone Diagram – This diagram shows the correct positions for the handler to move livestock. To make an animal go forward, he should work on the edge of the flight zone in positions A and B. The handler should stand behind the point of balance to make an animal go forward and in front of the point of balance at the shoulder to make an animal back up.

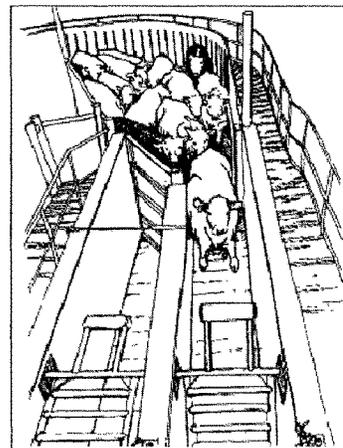


Cattle will move forward when the handler passes the point of balance at the shoulder of each animal. The handler walks in the opposite direction along side the single file race.

Moving Animals

Livestock will follow the leader and handlers need to take advantage of this natural behavior to move animals easily. Animals will move more easily into the single file chute if it is allowed to become partially empty (though livestock must be able to see the animal ahead) before attempting to fill it.

A partially empty chute provides room to take advantage of following behavior. Handlers are often reluctant to do this because they are afraid gaps will form in the line and slow the process. But once a handler learns to use this method, he will find that keeping up with the line will be easier. As animals enter the crowd pen, they will head right up the chute. Calm animals are easier to move than excited animals. Pigs hauled for a short, 15-minute trip may be harder to unload because they have not had sufficient time to calm down after being loaded on the farm. It takes 20 to 30 minutes for excited pigs or cattle to calm down.

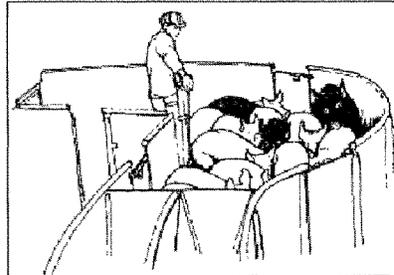


Cattle move into single file, following the leader.

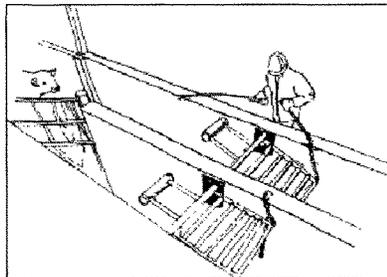
One of the most common mistakes is overloading the crowd pen that leads to the single file chute. The crowd pen and the staging alley between the crowd pen and the yards should be filled half full so

that animals have room to turn.

Handlers must also be careful not to push the crowd gate up too tightly on the animals. It often works best to leave the crowd gate on the first notch and to let the animals flow into the single file chute. This will work after all the distractions have been removed from a facility. The crowd pen should become the “passing through” pen. The crowd gate may be used to follow the animals and should never be used to forcibly push them. The handler should concentrate on moving the leaders into the chute instead of pushing animals at the rear of the group. One-way or sliding gates at the entrance to the single file chute must be open when livestock are brought into the



Pig crowd pen with an abrupt entrance to prevent jamming.



Holding a one-way gate open to facilitate cattle entry into the chute.

crowd pen. Cattle will balk at a closed gate. One-way flapper gates can be equipped with a rope to open them by remote control from the crowd pen. When the crowd pen is operated correctly, electric prods can usually be eliminated and non-electric driving aids such as flags, paddles and sticks with streamers can be used. Animals can easily be turned with these aids. To turn an animal, block the vision on one side of its head with the aid. If the leader balks at the chute entrance, a single touch with the prod may be all that is required. Once the leader enters, the rest of the animals will follow.

Some highly excitable pigs are difficult to drive at the packing plant. These animals squeal, bunch and pile up and it can be difficult to make these pigs separate and walk up the chute. Highly excitable pigs can have severe pale, soft, exudative tissue or PSE due to agitation during handling, even though these pigs are negative on the genetic test for the halothane gene.

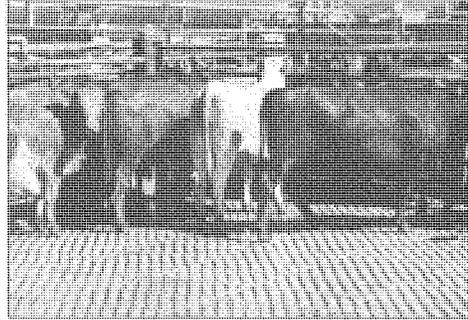
Excitability problems can be reduced and pigs will be easier to drive if people walk through the finishing pens at least once a week. The person should walk quietly in a different random direction each time to train the pigs to get up quietly and flow around them. Playing a radio in the finishing barn also gets the animals accustomed to different kinds of sounds.

Preventing Injuries and Bruises

Non-slip flooring is essential to prevent falls and crippling injuries. Humane, efficient handling is very difficult on slick floors because animals can become agitated and excited when they lose

their footing. All areas where livestock walk should have a non-slip surface. Existing floors can be roughened with a concrete grooving machine. Grooves should be ¼-inch (.64 cm) deep, ¼ inch (.64 cm) wide and spaced ¼ inch (.64 cm) apart. For pigs, steel bars may be used. Concrete flooring also can be used on weight scales to prevent slipping.

For cattle, on scales, crowd pens and other high traffic areas, a grid of one-inch steel bars will provide secure footing. Construct a 12-inch (30 cm) by 12-inch (30 cm) grid and weld each intersection. Use heavy rod to prevent the grid from bending. Non-slip flooring is particularly important in stunning boxes and restrainer entrances.



A good sample of non-slip flooring.

New concrete floors for cattle should have an 8-inch (20 cm) diamond or square pattern with deep 1-inch (2.5 cm) grooves. For pigs and sheep, stamp the pattern of raised expanded metal into the wet concrete. A rough broom finish will become worn smooth. It is also essential to use the right concrete mix for maximum resistance to wear.

Smooth Edges and Surfaces—Gates, fences and chutes should have smooth surfaces to prevent bruises. Sharp edges with a small diameter, such as angle irons, exposed pipe ends and channels, will cause bruises. Round pipe posts with a diameter larger than 3 inches (8 cm) are less likely to bruise. Vertical slide gates in chutes should be counter-weighted to prevent back bruises. The bottom of these gates should be padded with cut tires or conveyor belting. The gate track should be recessed into the chute wall to eliminate a sharp edge that will bruise.

In pork plants, the bottom 18 inch (46 cm) to 24 inch (61 cm) of a vertical slide gate (guillotine) can be cut off and replaced with a curtain made from conveyor belting. The pigs will not attempt to go through



This bad bruise point could cause damage to both hide and meat.

the curtain. This change will prevent back injuries if the gate is closed on a pig. Pressing up against a smooth flat surface such as a concrete chute fence will not cause bruises. However, a protruding bolt or piece of metal will damage hides and bruise the meat. Bruise points can be detected by tufts of hair or a shiny surface. Contrary to popular belief, livestock can be bruised moments before slaughter until they are bled. The entrance to the restrainer should be inspected often for broken parts with sharp edges.

Surveys show that groups of horned cattle will have twice as many bruises as polled (hornless) cattle. A few horned animals can do a lot of damage. Cutting off the horn tips will not reduce bruising because the animal still has most of its horn length.

Improving Animal Movement

Calm animals are easier to handle and move than excited animals. Animals can become agitated very quickly, but it can require 20 to 30 minutes for them to become calm again. Calm animals will move naturally through well-designed systems with a minimum of driving and prodding. To keep animals calm, take the following steps:

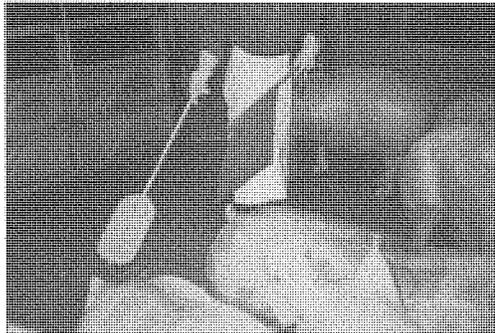
- ✓ Handlers should be quiet and calm. Yelling and arm-waving excite and agitate animals.
- ✓ When handling sheep, never, ever grab or lift the animal by the wool.
- ✓ Use lighting to your advantage. Animals tend to move from a darker area to a more brightly lit area and may refuse to enter a dark place. Lamps can be used to attract animals into chutes. The light should illuminate the chute up ahead. It should never glare directly into the eyes of approaching animals. Another approach is illuminating the entire chute area. This approach eliminates patches of light and dark which may confuse animals. Animals may be difficult to drive out of the crowd pen if the pen is brightly illuminated by sunlight and the chute is inside a darker building. Another common lighting problem is that a handling system may work well when lamps are new, but the animals will balk more and more as the lamps dim with age. Experiment with portable lights to find the most efficient and consistent lighting.
- ✓ Eliminate visual distractions. Get down in the chutes to see them from the animal's perspective. Livestock balk at shadows, puddles of water or any object that stands in their way, from a coffee cup to a piece of paper. A drain or a metal plate running across an alley can cause animals to stop and should be located outside the areas where animals walk. Flapping objects, such as a coat hung over a fence or a hanging chain, will also make livestock balk. Install shields or strips of discarded conveyor belting to prevent animals from seeing movement up ahead as they approach the restrainer or stunning box.
- ✓ Redirect air flow. Air hissing and ventilation drafts blowing in the faces of approaching animals can seriously impede movement. Ventilation systems may need to be adjusted.

- ✓ Use solid sides in chutes and crowd pens leading up to chutes. Solid sides in these areas help prevent animals from becoming agitated when they see activity outside the fence – such as people. Cattle tend to be calmer in a chute with solid sides. The crowd gate on the crowd pen should also be solid to prevent animals from attempting to turn back towards the stockyard pens they just left.
- ✓ Reduce noise. Animals are very sensitive to noise. Reducing high-pitched motor and hydraulic system noise along with banging or reverberation can improve animal movement. Clanging and banging metal should be reduced and hissing air should be muffled.
- ✓ Move animals in small groups – When cattle and pigs are being handled, the crowd pen and the staging areas which lead up to the crowd pen should never be filled more than three-quarters full. Do not push crowd gates up tight against the animals as cattle and pigs need room to turn. For sheep, large groups may be moved and the crowd pen can be filled all the way up.
- ✓ Spray water from above. When wetting pigs in the chute, be sure not to spray the animal's face with water because they will back up.

Section 4: Livestock Driving Tools

Electric prods should be used sparingly to move livestock and should not be a person's primary driving tool. In most plants, the only place an electric prod is needed is at the entrance to the stun box or restrainer. Cattle and pigs can often be moved along a chute when the handler walks by them in the opposite direction of desired movement, taking advantage of the point of balance at the animal's shoulder. Electric prods should only be picked up and used on a stubborn animal and then put back down. Certainly, the need for electric prod use can vary depending on breeds of animals, production practices on the farm, gender, the group of animals, the day and the handling system used.

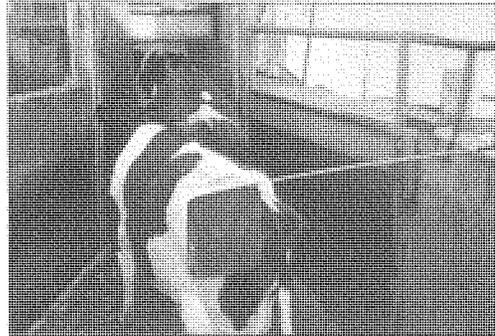
Many well-managed plants have totally eliminated electric prods in the holding pens and the crowd pen that leads to the single file chute. In beef plants with well-trained handlers, survey data showed that up to 95 percent of the animals could be moved through the entire plant without the use of an electric prod. Plants should strive to use the electric prod on 25 percent or fewer cattle,



Moving pigs with a plastic prod and a large flag.

pigs and sheep. Plants that use prods on five percent or fewer cattle and pigs are achieving excellent scores. A well-designed plant that has eliminated distractions and other handling impediments detailed above can greatly reduce electric prods, though they may not be entirely eliminated.

Substitutions for electric prods are possible in many instances. They include plastic paddles, sticks with flags on the end or large flags for pigs. Plastic streamers or strips cut from garbage bags attached to a stick also can be used. Cattle can be easily turned and moved in the crowd pen by shaking the streamers near their heads. For moving pigs, a large flag on a short handle or rattle paddle work well. Rattles work well for moving sheep.



Moving cattle with a flag.

Flags can be made from lightweight plasticized tarp material and can vary in size from 20 inches x 20 inches to 30 inches x 30 inches (50 cm x 50 cm to 76 cm x 76 cm). Lightweight sorting boards can be used to move livestock, although they quickly become heavy for handlers to use. In addition, a new vibrating prod that does not use electrical stimulus is showing promise in moving animals with a minimum of stress.

Using Proper Electric Prod Voltage

USDA regulations require that electric prods have a voltage of 50 volts or less. If most livestock bellow or squeal in direct response to being touched with the electric prod, the power may need to be reduced. Prods which have sufficient power to knock an animal down or paralyze it must not be used. Electric prods must never be applied to sensitive parts of the animal such as the eyes, ears, mouth, nose or anus. In practical terms, the prod should not be used on the animal's head.

When used, electric prods must never be wired directly to house current. A transformer must be used; a doorbell transformer works well for pigs. Fifty volts is the maximum voltage for prods hooked to an overhead wire. Progressive managers have removed wired-in prods and use only battery-operated prods.

The prod voltage for pigs should be lower than for cattle, which can help reduce both PSE and blood spots in the meat. The voltage required to move an animal will vary depending on the wetness of the animal and the floor. Battery-operated prods are best for livestock handling because they provide a localized directional stimulus between two prongs. Prods also should have an off switch and not be on constantly.

Section 5: Proper Design and Use of Restraints

Pigs and cattle should enter a restraint device easily with a minimum of balking. Correcting problems with animal restraint devices can also help reduce bruises and meat quality defects such as blood splash. The basic principles of low stress restraint which will minimize vocalization and agitation are:

- ❑ For cattle, block the animal's vision with shields so that they do not see people or objects that move while they are entering the restrainer. Install metal shields around the animal's head on box-type restrainers to block the animal's vision.
- ❑ Block the animal's vision of an escape route until it is fully held in a restraint device. This is especially important on restrainer conveyors. A flexible curtain made from discarded conveyor belts at the discharge end of the conveyor works well. Cattle often become agitated in a conveyor restrainer if they can see out from under the solid hold down cover before their back feet are off the entrance ramp. Extending the solid hold down cover on a conveyor restrainer will usually have a calming effect and most animals will ride quietly. Solid hold-downs can also be beneficial for pigs on conveyor restrainers.
- ❑ Eliminate air hissing and other distractions such as clanging and banging. Refer to the section on distractions.
- ❑ The restraint device must be properly lighted. Animals will not enter a dark place or a place where direct glare from a light is blinding them. To reduce balking at the entrance of a conveyor restrainer, install a light above the entrance. The light should be above the lead-up chute. It should illuminate the entrance of the restrainer, but it must not glare into the eyes of approaching animals. Light coming up from under a conveyor restrainer should be blocked with a false floor to prevent animals from balking at the "visual cliff effect."
- ❑ Provide non-slip flooring in box-type restrainers and a non-slip, cleated entrance ramp on conveyor restrainers. Animals tend to panic and become agitated when they lose their footing. Stunning boxes should have a non-slip floor.
- ❑ Parts of a restrainer device operated by pneumatic or hydraulic cylinders that press against the animal's body should move with a slow steady motion. Sudden jerky motion excites animals. On existing equipment, install flow control valves to provide smooth steady movement of moving parts that press against the animal.
- ❑ Use the concept of optimum pressure. The restraint device must apply sufficient pressure to provide the feeling of being held, but excessive pressure that causes pain should be avoided. Install a pressure regulator to reduce the maximum pressure that can be applied. Very little pressure is required to hold an animal if it is fully supported by the device. If an animal bellows or squeals in direct response to the application of pressure, the pressure should be reduced.

- ❑ A restraint device must either fully support an animal or have non-slip footing so the animal can stand without slipping. Animals panic if they feel like they may fall.
- ❑ Restraint devices should hold fully sensible animals in a comfortable, upright position. Shackling and hoisting, shackling and dragging, trip floor boxes and leg clamping boxes are not acceptable. Restrainers that rotate animals on their backs are used rarely in glatt Kosher operations in the United States, but more commonly in glatt Kosher operation in South America and Europe. For information on using and auditing these devices, refer to: www.grandin.com (Ritual Slaughter Section).
- ❑ Restraint devices must have controls that enable the operator to control the amount of pressure that is applied. Different sized animals may require differing amounts of pressure. Hydraulic or pneumatic systems should have controls that enable a cylinder on the device to be stopped in mid-stroke.
- ❑ Never hold an animal in a head restraint device for more than a few seconds. The animal should be stunned or ritually slaughtered immediately after the head holder is applied. Head restraint is much more aversive than body restraint. Animals can be held in a comfortable body restraint for longer periods. The animal's reaction should be observed. If the animal struggles or vocalizes, it is an indication that the device is causing discomfort.
- ❑ Restraint devices should not have sharp edges that dig into an animal. Parts that contact the animal should have smooth rounded surfaces and be designed so that uncomfortable pressure points are avoided.
- ❑ On V conveyor restrainers, both sides should move at the same speed. To test this, mark each side with tape or a crayon. If after a minute of movement the marks do not appear in synch, the speed should be adjusted.

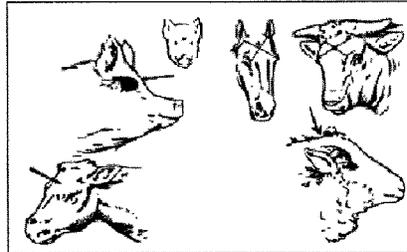
It is possible to modify existing restraint devices to lower vocalization and agitation scores. Balking at the entrance is also easy to reduce. Most of the modifications that would reduce animal agitation and vocalizations can be installed at a minimum expense. Floor grating, lighting and shields to block vision are examples of some relatively inexpensive but effective modifications.

Section 6: Recommended Stunning Practices

Good stunning practices are also required to achieve compliance with federal humane slaughter regulations. Good stunning also promotes animal welfare and meat quality. When stunning is done correctly, the animal feels no pain and it becomes instantly unconscious. Stunning an animal correctly also results in better meat quality. When using electric stunning systems, improper stunning will cause blood spots in the meat and bone fractures.

Reduce Noise in Stunning Area

Because animals are so sensitive to noises, it is important to reduce noise in the stunning area in particular. Calm animals facilitate accurate and effective stunning. As in other areas, mufflers can be used on air valve exhausts or they can be located outside. Rubber stops on gates can be used to stop clanging and braking devices on the shackle return improve safety and reduce noise.



Proper captive bolt stunner placement positions.

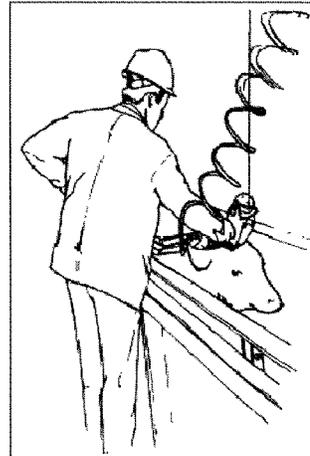
In addition, consider replacing small with large diameter plumbing, which makes less noise, and replace pumps with quieter ones. Rubber hose connections between the power unit and metal plumbing will help prevent power unit noise from being transmitted throughout the facility. Any new equipment that is installed in animal holding or stunning areas should be engineered for quietness.

Captive Bolt Stunning

To produce instantaneous unconsciousness, the bolt must penetrate the brain with a high concussive impact. The correct positions for stunner placement are shown in the diagram. For cattle, the stunner is placed on the middle of the forehead on an "X" formed between the eyes and the base of the horns. If a non-penetrating mushroom-head stunner is used, accurate aim is very critical to achieve instantaneous insensibility. A head-holding device may be needed to position the head for non-penetrating captive bolt.

For sheep, a captive bolt is placed on the top of the head. This position is more effective for sheep because they have a very thick skull over the forehead. For pigs, the captive bolt is placed on the forehead.

A good stunner operator learns not to chase the animal's head. He takes the time to aim and get one good, effective shot. The stunner must be placed squarely on the animal's head. All equipment manufacturers' recommendations and instructions must be followed.



Captive bolt stunner placed on the head of a steer in the correct position.

Pneumatic stunners must have an adequate air supply. Low air pressure is one cause of poor stunning. The pressure gauge on the compressor should be checked to make sure that the stunner is receiving the air pressure recommended by the manufacturer. Heavy pneumatic stunners should be equipped with an ergonomic handle to aid positioning.

Poor maintenance of captive bolt stunners is a major cause of bad stunning. Stunners must be cleaned and maintained per the manufacturer's instructions. Good maintenance requires a person who has dedicated time each day to maintain stunners. A verified maintenance program where a mechanic signs off each day that he/she has tested the stunners is recommended. If a test stand is available for your brand of stunner, it should be used daily to test bolt velocity. It is important to keep stunner cartridges dry and the correct cartridge strength must be used. Store cartridges in a room with low humidity such as an office. Damp cartridges which have not been stored properly will cause poor stunning.

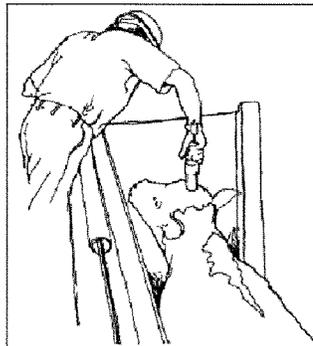
Captive Bolt Maintenance and Design

The most common cause of poor captive bolt stunning is poor maintenance of the captive bolt stunners. Stunners must be cleaned and serviced per the manufacturer's recommendations to maintain maximum hitting power and to prevent misfiring or partial firing. If a "test stand" to measure bolt velocity is available, daily use is strongly recommended. Each plant should develop a system of verified maintenance for captive bolt stunners.

Another major cause of failure to render animals insensible with one shot is a poor ergonomic design of bulky pneumatic stunners. Aversive methods of restraint, which cause three percent or more of the cattle or pigs to vocalize, must not be used as a substitute for improvements in gun ergonomics. Ergonomics for stunning in a conveyor or restrainer can be improved with a handle extension on the stunner and hanging the pneumatic stunner on an angle. Still another cause of poor stunning is damp cartridges. Cartridges must be stored in a dry place.

Another cause of missed captive bolt shots is an overworked or fatigued operator. Scoring at the end of the shift will pinpoint this problem. In some large plants two stunner operators may be required. Rotating the stunner operator to other jobs throughout the day may help prevent errors caused by fatigue.

Using electrical devices to cause immobilization prior to or during stunning is not recommended. Several scientific studies have shown that it is highly aversive. Vocalization scoring is impossible in electrically immobilized animals because paralysis prevents vocalization. Electrical immobilization must not be confused with electric stunning. Properly done, electric stunning passes high amperage



Well-designed cattle stunning box.

current through the brain and induces instantaneous insensibility. Electrical immobilization keeps a sensible animal still by paralyzing the muscles. It does not induce epileptiform changes in an electroencephalogram (EEG).

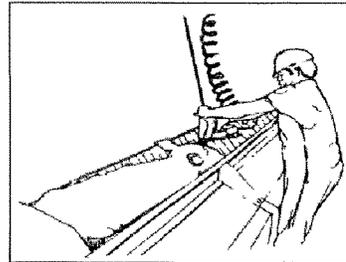
Cattle Restraint for Stunning

If a stunning box is used, it should be narrow enough to prevent the animal from turning around. The floor should be non-slip so the animal can stand without losing its footing. It is much easier to stun an animal that is standing quietly. Only one animal should be placed in each stunning box compartment to prevent animals from trampling each other.

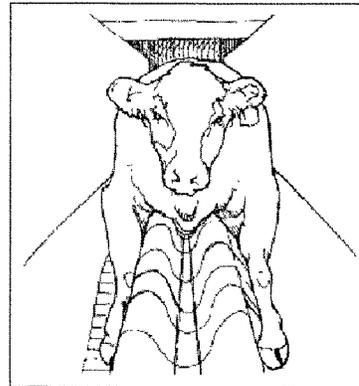
Most large plants restrain cattle and pigs in a conveyor restrainer system. There are two types of conveyor restrainers: the V restrainer and the center track system, which is used in many beef plants. In a V restrainer system, the cattle or pigs are held between two angled conveyors. In the center track system the cattle ride astride a moving conveyor. The center track system provides the advantages of easier cattle stunning and improved ergonomics because the stunner operator can stand closer to the animal. Either type of restrainer system is much safer for workers than cattle in a stunning box. Restrainer conveyors are recommended for all plants that slaughter more than 100 head per hour.

Lighting over the top of the conveyor in the restrainer room will help induce cattle to raise their heads for the stunner. However, both cattle and pigs should not be able to see light coming up from under the restrainer because it may cause balking at the entrance. Restrainer systems should be equipped with a long, solid hold-down rack to prevent rearing. For cattle, the hold-down should be long enough so that the animal is fully settled down onto the conveyor before it emerges from under it. This hold-down should not press on the animal's back. It is a visual barrier.

If an animal is walking into the restrainer by itself, do not poke it with an electric prod. Center track systems require less prodding to induce cattle to enter it. Workers need to break the "automatic prod reflex" habit.



V restrainer system for cattle.



Center track restrainer for cattle.

Electric Stunning of Pigs and Sheep

To produce instantaneous, painless unconsciousness, sufficient amperage (current) must pass through the animal's brain to induce an epileptic seizure. Insufficient amperage or a current path that fails to go through the brain will be painful for the animal. It will feel a large electric shock or heart attack symptoms, even though it may be paralyzed and unable to move. When electric stunning is done correctly, the animal will feel nothing. Animals that are dehydrated also may have high electrical resistance and be difficult to stun.

There are two types of electric stunning: head only stunning, which is reversible, and head-to-back cardiac arrest stunning, which stops the heart.

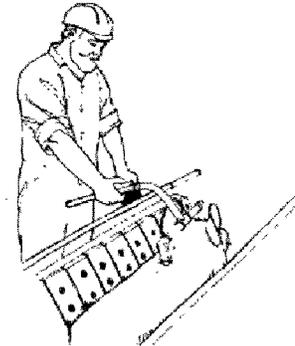
When head only stunning is used, the electrodes may be either placed on the forehead or clamped over around the sides of the head like ear muffs. Pigs should be wetted prior to stunning. The stunning wand must be applied to the animal for two to three seconds to stun properly. Stunners should be equipped with a timer. Pigs and sheep that are stunned with a head only stunner must be bled within a maximum interval of 30 seconds to prevent them from regaining consciousness.

Most large plants use cardiac arrest head to back or head to side-of-body stunning. It produces a still carcass that is safer and easier to bleed. Cardiac arrest stunning requires the use of a restraining device to prevent the animal from falling away from the stunning wand before it receives the complete stun. Cardiac arrest stunning kills the animal by electrocution.

When cardiac arrest stunning is used, one electrode must be placed on either the forehead or in the hollow behind the ears. The other electrode is placed on either the back or the side of the body. The head electrode should not be allowed to slide back onto the neck or onto the pig's jowls.

Meat packers should use amperage, voltage and frequency settings, which will reliably induce unconsciousness. Both properly and improperly stunned cardiac arrested animals can look similar. Current flow through the spine masks the epileptic seizure.

To prevent bloodspots in the meat and pain to the animal, the wand must be pressed against the animal before the button is pushed. The operator must be careful not to break and re-make the circuit during the stun. This causes the animal's muscles to tense up more than once and bloodspots may increase. If the stunning wand is energized before it is in full contact with the pig, the pig will squeal. This is called "hot wandling." This is detrimental to pig welfare and is likely to increase blood spots in the meat. Stunning wands and wiring should be checked often for electrical continuity. A worn switch may break the circuit enough to cause bloodspots. Electrodes must be kept clean to provide a good electrical contact. Operators must never double stun animals or use the stunning wand as a prod.



Electric head-to-back stunner placed in the correct position on a pig in V restrainer.

Electrical Specifications for Electric Stunning of Pigs and Sheep

Electric stunning equipment must operate within the electrical parameters that have been verified by scientific research to induce instantaneous insensibility.

Modern stunning circuits use a constant amperage design. The amperage is set and the voltage varies with the pig or sheep's resistance. Older style circuits are voltage regulated. These circuits are inferior because they allow large amperage surges, which can fracture bones and cause blood splash. The distance between the head electrode and the back electrode should not exceed 14 inches. The most modern sheep stunners from New Zealand use water jets to conduct electricity down through the wool.

Amperage—Scientific research has shown that an electric stunner must have sufficient amperage to induce a grand mal seizure to insure that the animal will be made instantly insensible. Insufficient amperage can cause an animal to be paralyzed without losing sensibility. For market pigs (180 - 200 lbs. / 82-91 kg.—not mature sows or boars) a minimum of 1.25 amps is required (Stunning market pigs with less than 1.25 amps should not be permitted unless the results of lower amperages are verified by either electrical or neurotransmitter recordings taken from the brain). Large sows (more than 350 lbs. / more than 160 kg.) will require 2 or more amps. If lower amperages are used, the stunner may induce cardiac arrest but the animal will feel the shock because the seizure was not induced. For sheep a minimum of one amp is required. These amperages must be maintained for a minimum of one second to give instant insensibility.

The Council of Europe (1991) recommends the above minimum amperages. Some plants stun animals below the Council of Europe recommended minimum amperages in an attempt to reduce blood spots in the meat. Since only a one-second application at 1.25 amps is required to induce instant insensibility in market pigs, it is the author's opinion that plants should be permitted to use circuits that lower the amperage setting after an initial, one second stun at 1.25 amps for pigs and one amp for sheep. Plants should also be encouraged to use electronic constant amperage electronic circuits that prevent amperage spiking. Both practical experience and research has shown that these types of circuits greatly reduce petechial hemorrhages (blood spots).

Voltage—There must be sufficient voltage to deliver the recommended minimum amperage; 250 volts is the recommended minimum voltage for pigs to ensure insensibility. Amperage is the most important variable to measure. The voltage that will be required will depend on the type of stunner, the wetness of the animal and whether or not it is dehydrated. For sheep, a minimum of one amp is required.

Frequency—Research has shown that too high an electrical frequency will fail to induce insensibility. Research indicates that insensibility is most effectively induced at frequencies of 50 cycles. Frequencies from 2000 to 3000 hz failed to induce instant insensibility and may cause pain. However, in pigs weighing under 200 lbs (80 kg), research has shown that a high frequency 1592 hz sine-wave or 1642 hz square wave head; only stunning at 800 ma

(0.80 amp) would induce seizure activity and insensibility in small pigs. One disadvantage is that the pigs regained sensibility more quickly compared to stunning at 50 to 60 cycles. The pigs in this experiment weighed one-third less than comparable U.S. market pigs and this probably explains why the lower amperages were effective.

Equipment is commercially available for stunning pigs at 800 hz applied across the head by two electrodes and a second stun with 50 to 60 hz from head to body. Research has shown that 800 hz is effective when applied by two electrodes across the head.

Research has shown that stunning pigs with frequencies higher than 50 to 60 cycles is effective. In this experiment, the pigs were stunned with a head only applicator. High frequency stunning has never been verified to induce instant insensibility when applied as a single stun with a head to body electrode. This is the type of electrode used in many large U.S. pork slaughter plants.

Vocalization As an Indicator of Stress

Vocalizations immediately prior to stunning, such as squeals in pigs, and moos and bellows in cattle and pigs, can be signs of discomfort and stress. To prevent vocalizations the electrodes must be in firm contact with the animal prior to being energized.

Squealing of pigs during electric stunning can be more frequent in plants that have return to sensibility problems. Research conducted in commercial pork slaughter plants where squealing was measured with a sound meter indicated that the intensity of pigs squealing in the stunning chute area is correlated with physiological measures of stress and poorer meat quality determined that the intensity of pig squeals is correlated with discomfort.

Due to natural vocalization behavior, vocalization scoring is not recommended for sheep.

Ensuring Insensibility Following Electric Stunning

Adequate electrical parameters for cardiac arrest stunning cannot be determined by clinical signs, because cardiac arrest masks the clinical signs of a seizure. Measurement of brain function is required to verify any new electrical parameters that may be used in the future. Common causes of a return to sensibility after electric stunning are:

- 1) Wrong position of the electrode
- 2) Amperage that is too low
- 3) Poor bleed out, or
- 4) Poor electrode contact with the animal

Other factors that may contribute to poor electrical stunning are: dirty electrodes, insufficient wetness, electrode contact area that is too small, animal dehydration, dirty animals and long hair or wool. Interrupted contact during the stun may also be a problem. For all species, processing plants with an excessively long stunning to bleed time are more likely to have return to sensibility problems.

Electrodes must be cleaned frequently to ensure a good electrical connection. The minimum cleaning schedule should be once a day. For personal safety, the electrode wand must be disconnected from the power supply before cleaning.

Electric Cattle Stunning

Unlike pigs and sheep, electrical stunning of cattle may require a two-phase stun. Due to the large size of cattle, a current should first be applied across the head to render the animal insensible before a second current is applied from the head to the body to induce cardiac arrest. Modern systems may have a third current to reduce convulsions. A single 400 volt, 1.5 amp current passed from the neck to the brisket failed to induce epileptic form changes in the brain. Observations in plants outside the U.S. indicate that a single current passed from the middle of the forehead to the body appears to be effective. Research is needed to verify this. To insure that the electrodes remain in firm contact with the bovine's head for the duration of the stun, the animal's head must be restrained in a mechanical apparatus. Due to the high electrical resistance of cattle hair, the electrode should be equipped with a water system to provide continuous wetting during the stun.

The Council of Europe (1991) requires a minimum of 2.5 amps applied across the head to induce immediate epileptiform activity in the electro-encephalogram (EEG) of large cattle. A frequency of 60 or 50 cycles should be used unless higher frequencies are verified in cattle by either electrical or neurotransmitter measurements taken from the brain. A more recent study has shown that 1.15 amps sinusoidal AC 50 Hz applied for one second across a bovine's head is effective to induce insensibility (Wotton et al., 2000). A longer application is usually required to depolarize the spine to reduce kicking (up to 15 seconds).

CO₂ Stunning

According to CFR 9, Section 313.5, CO₂ stunning may be used in swine to induce death or to result in a state of surgical anesthesia. These states are dependent on the relationship between exposure time and CO₂ concentration, and systems will produce pigs in both states.

Handlers must be careful not to overload the gondolas (elevator boxes) that hold groups of pigs. In a properly loaded gondola, the pigs must have sufficient room to stand or lie down without being on top of each other. Handlers must never overload the gondolas by forcing pigs to jump on top of each other.

CO₂ Stunning Parameters

In the scientific literature, there are conflicting results on how pigs react to the induction of CO₂ anesthesia. One researcher found that purebred Yorkshire pigs have a calm induction and that convulsions and excitation occur after the pig becomes unconscious. Some genetic types of pigs actively attempt to escape from the container when they first sniff the gas and others respond with a calm anesthetic induction. Other research has observed that the reaction of pigs to CO₂ was highly variable. A Dutch researcher found that the excitation phase occurred prior to the onset of unconsciousness. Australian researchers found that being shocked with an electric prod

was more aversive than inhaling CO₂. Research in people indicates that genetics affect the aversiveness of CO₂ inhalation.

In evaluating gas stunning, one must look at the entire system, which includes the handling system and the gas mixture. One advantage of gas stunning is that these systems can be designed to eliminate the need for pigs to line up in single file chutes, which is contrary to their natural behavior. Regardless of gas type or mixture, the pigs should have little reaction when they first contact the gas and convulsions should not begin until after the pigs collapse.

If conscious pigs squeal, struggle vigorously or attempt to escape when they first contact the gas, this is a serious problem. Genetics may be a contributing factor and may require a different gas mixture or other adjustment. Observations in several plants indicate that elimination of the stress Halothane gene may reduce problems with stressful anesthetic induction. The gas parameters for each plant should be evaluated for ease of anesthesia induction by observing the behavior of the animals. The gas mixture is not acceptable if the pigs attempt to climb out of the container. It is normal to have violent kicking and convulsions after the pig falls over.

It should be noted that it is important to strive for optimal loading density for pigs in gondolas when CO₂ systems are used. Pigs should not be overcrowded, but gondolas or other conveyances should also not be under-filled.

Roughly 0.019 ft² (.001765 sq.m) usable gondola space/lb body weight should approximately determine the maximum number of animals loaded into the gondola at various body weights. This will ensure that pigs can stand without being on top of one another.

For example, for a gondola measuring 9'1.5"x4' wide, a good, approximate target for loading densities would be:

240 lbs and less	= 8 head
240-275	= 7 head
275-320	= 6 head
320-385	= 5 head

How to Determine Insensibility

In both captive bolt and electrically stunned animals, kicking will occur. Ignore the kicking and look at the head. To put it simply, **THE HEAD MUST BE DEAD**. When cattle are shot with a captive bolt, it is normal to have a spasm for 5 to 15 seconds. After the animal is rolled out of the box or hung up, its eyes should relax and be wide open.

When pigs are stunned using CO₂ to induce surgical anesthesia, some animals may have slow limb movement or gasping. This is permissible. However, there must be no spontaneous eye blinking, righting reflex or response to a painful stimulus applied to the nose.

Below are the signs of a properly stunned animal:

- The legs may kick, but the head and neck must be loose and floppy like a rag. A normal spasm may cause some neck flexing, generally to the side, but the neck should relax and the head should flop within about 20 seconds. Check eye reflexes if flexing continues. Animals stunned with gas stunning equipment should be completely limp and floppy, though animals may exhibit slow limb movement and gasping.
- The tongue should hang out and be straight and limp. A stiff curled tongue is a sign of possible return to sensibility. If the tongue goes in and out, this may be a sign of partial insensibility.
- For all methods of stunning, when the animal is hung on the rail, its head should hang straight down and the back must be straight. It must NOT have an arched back righting reflex. When a partially sensible animal is hung on the rail it will attempt to lift up its head. Sometimes the head will flop up momentarily when a back leg kicks. This should not be confused with a righting reflex.
- When captive bolt is used, the eyes should be wide open with a blank stare. There must be no eye movements. Immediately after electrical stunning, the animal will clamp its eyes shut, but they should relax into a blank stare.
- When captive bolt is used, the animal must NEVER blink or have an eye reflex in response to touch. In electrically stunned pigs, eye movements can be misinterpreted when untrained people indiscriminately poke at the eyes. It is often best to observe without touching the eye. For all stunning methods if the animal blinks with a natural blink where the eye closes and then re-opens, it is not properly stunned. If you are not sure what a natural blink looks like, look at live animals in the yards (lairage) before assessing insensibility.
- Rhythmic breathing must be absent. Intermittent gasping is a sign of a dying brain and is acceptable. A twitching nose (like a rabbit) may be a sign of partial sensibility.
- In captive bolt-stunned animals, insensibility may be questionable if the eyes are rolled back or they are vibrating (nystagmus). Nystagmus is permissible in electrically stunned animals, especially those stunned with frequencies higher than 50 to 60 cycles.
- Shortly after being hung on the rail, the tail should relax and hang down.
- No response to a nose pinch. When testing for response to a painful stimulus the pinch or prick must be applied to the nose to avoid confusion with spinal reflexes. Animals entering a scald tub must not make a movement that is in direct response to contact with the hot water. For all types of stunning, this is an indicator of possible return to sensibility.

- No vocalizations (moo, bellow or squeal).
- If an electrically stunned animal blinks within five seconds after stunning, this is a sign that the amperage is too low. In electrically stunned animals, blinking should be checked within 5 seconds and after 60 seconds. In most plants, blinking will not be found immediately after stunning because the plant is using the correct amperage. After it has been verified that the amperage is set correctly, the most important point to observe for signs of return to sensibility is 60 seconds after electrical stunning. This provides time for the eyes to relax after the epileptic seizure. Checking for signs of return to sensibility after bleeding ensures that the animal will not recover.

Order of the events indicating Return to Sensibility in head only electrically stunned pigs (In CO₂ stunned pigs, the order of the first two events is reversed):

1. Corneal reflexes in response to touch (not recommended for electric stunning).
2. Return of rhythmic breathing.
3. Spontaneous natural blinking without touching.
4. Response to a painful stimulus such as pricking the nose with a pin.
5. Righting reflex and raising the head.
6. Fully conscious and sensible. Complete return to sensibility can occur within 15 to 20 seconds after eye reflexes appear if an electrically stunned animal is not bled.

Stunning to Bleed Interval

Captive Bolt—Both penetrating and non-penetrating captive bolts are effective. However, non-penetrating bolts will cause less damage to the brain (Finnie et al., 2000). Practical experience has shown that for non-penetrating captive bolts to be effective the aim must be more precise. Animals stunned with a non-penetrating captive bolt should be bled within 60 seconds.

Electric Cardiac Arrest—Sixty seconds maximum. All large plants are already using less than this interval.

Head Only Reversible Electric—Fifteen seconds is strongly recommended (Blackmore and Newhook, 1981). 30 seconds maximum (Hoenderken, 1983). Scientific research clearly shows that pigs will start returning to sensibility after 30 seconds when stunned by the head only method. When frequencies of greater than 50 to 60 hz are used, these times may need to be shortened. When head only electric stunning is used for cattle or sheep the animal should be bled within 10 seconds.

Preventing Bloodsplash (Bloodspots)

Gentle handling prevents damage to small blood vessels caused by excited animals jamming against each other or equipment.

- ✓ Electric prod usage should be kept at a minimum.
- ✓ Animals should never be left in the restrainer system during breaks and lunch.
- ✓ Be sure that one side of a V restrainer does not run faster than the other. This causes stretching of the skin that damages blood vessels.
- ✓ Minimize time to bleeding after stunning to minimize meat damage.
- ✓ The slats on the V restrainer and hold-down rack and chutes should be insulated to prevent current leakage, which can cause bloodsplash.
- ✓ Rapid temperature fluctuations and periods of extremely hot weather can greatly increase the incidence of bloodsplash. In these circumstances, plants should take extra care in handling animals to minimize bloodsplash problems.

Section 7: Religious Slaughter (Kosher and Halal)

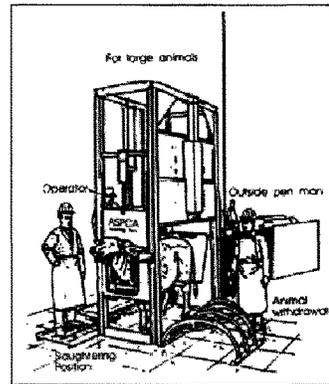
Cattle, calves, sheep or other animals that are ritually slaughtered without prior stunning should be restrained in a comfortable upright position. For both humane and safety reasons, plants should install modern upright restraining equipment whenever possible. Shackling and hoisting, shackling and dragging, trip floor boxes and leg clamping boxes should never be used. In a very limited number of glatt Kosher plants in the United States and more commonly in South America and Europe, restrainers that position animals on their backs are used. For information about these systems and evaluating animal welfare, refer to www.grandin.com (Ritual Slaughter Section).

The throat cut should be made immediately after the head is restrained (within 10 seconds). Small animals such as sheep and goats can be held manually by a person during ritual slaughter. Plants that conduct ritual slaughter should use the same scoring procedures except for stunning scoring, which should be omitted in plants that conduct ritual slaughter without stunning.

Cattle vocalization percentages should be five percent or less of the cattle in the crowd pen, lead up chute and restraint device. A slightly higher vocalization percentage is acceptable because the animal must be held longer in the restraint device compared to conventional slaughter. A five percent or less vocalization score can be reasonably achieved. Scoring criteria for electric prod use and slipping on the floor should be the same as for conventional slaughter.

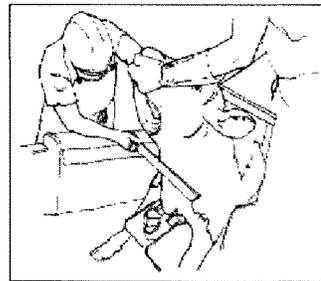
Animals must be completely insensible before any other slaughter procedure is performed (shackling, hoisting, cutting, etc.) If the animal does not become insensible, it should be stunned with a captive bolt gun or other apparatus and designated as non-Kosher or non-Halal).

ASPCA Pen—This device consists of a narrow stall with an opening in the front for the animal's head. After the animal enters the box, it is nudged forward with a pusher gate and a belly lift comes up under the brisket. The head is restrained by a chin lift that holds it still for the throat cut. Vertical travel of the belly lift should be restricted to 28 inches (71.1 cm) so that it does not lift the animal off the floor. The rear pusher gate should be equipped with either a separate pressure regulator or special pilot-operated check valves to allow the operator to control the amount of pressure exerted on the animal. Pilot operated check valves enable the operator to stop the air cylinders that control the apparatus at mid-stroke positions. The pen should be operated from the rear toward the front.



ASPCA Pen for religious slaughter of cattle

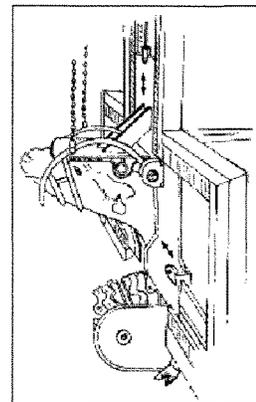
Head restraint is the last step. The operator should avoid sudden jerking of the controls. Many cattle will stand still if the box is slowly closed up around them and less pressure will be required to hold them. Ritual slaughter should be performed immediately after the head is restrained (**within 10 seconds of restraint**).



Restrainer system for religious slaughter of calves and sheep

An ASPCA pen can be easily installed in one weekend with minimum disruption of plant operations. It has a maximum capacity of 100 cattle per hour and it works best at 75 head per hour or less. A small version of this pen could be easily built for calf plants.

Conveyor Restrainer Systems—Either V restrainer or center track restrainer systems can be used for holding cattle, sheep or calves in an upright position during shehita or Halal slaughter. The restrainer is stopped for each animal and a head holder positions the head for the ritual slaughter official. For cattle, a head holder similar to the front of the ASPCA pen can be used on the center track conveyor restrainer. A bi-parting chin lift is attached to two horizontal sliding doors.



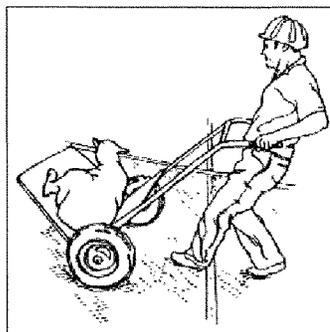
Center track restrainer being used for ritual slaughter.

Small Restrainer Systems—For small locker plants that ritually slaughter a few calves or sheep per week, an inexpensive rack constructed from pipe can be used to hold the animal in a manner similar to the center track restrainer. Animals must be allowed to bleed out and become completely insensible before any other slaughter procedure is performed (shackling, hoisting, cutting, etc.).

Section 8: Recommended Handling of Disabled or Crippled Livestock

Aggressive handling can lead to injured, stressed or fatigued livestock. Although non-ambulatory animals (sometimes called “downers, slows or subjects”) represent a small fraction of all livestock arriving at packing plants, they are significant because they require special attention in the areas of handling, transporting, holding pens and inspection. Trucks carrying non-ambulatory livestock should park as close to the slaughter area as possible and disabled animals should be inspected by a USDA veterinarian, stunned and either condemned or moved to slaughter quickly.

Since December 30, 2003, all non-ambulatory cattle arriving at packing plants are to be condemned. Non-ambulatory pigs may be slaughtered if inspected and passed by a USDA veterinarian.



A well-designed cart for moving crippled livestock.

Non-Ambulatory Cattle

Many incidents of non-ambulatory cattle can be prevented by better management at the dairy or ranch. If non-ambulatory cattle arrive on trucks, offload ambulatory cattle first, taking care not to compromise the non-ambulatory animals. Non-ambulatory cattle should be stunned with a captive bolt stunner on the truck and disposed of.

If a steer or cow becomes non-ambulatory after it has passed ante mortem inspection, the USDA veterinarian will make a decision about whether the animal must be condemned, or whether it may proceed to slaughter.

If a steer or cow – or any animal—becomes non-ambulatory in the single file chute that leads to the stunner, it must be stunned prior to dragging. A cartridge-fired captive bolt on a long handle is recommended. If blood gets on the chute, wash it off to prevent balking.

Mounting activity and animal fights can cause injuries that can cause animals to become non-ambulatory. This is a problem especially with bulls and boars. Bulls that are mounting other animals should be placed in separate pens. Mounting by bulls is a common cause of bruises and crippling injuries on cows. Producers need to work to reduce the occurrence of non-ambulatory animals that are caused by either poor management or neglect.

Non-Ambulatory Pigs

There are two basic types of non-ambulatory pigs. The first type is those that are in a poor physical state before leaving the farm, often older breeding stock. Another type is a fatigued pig that

becomes non-ambulatory. According to the National Pork Board, a fatigued pig is defined as having temporarily lost the ability to walk but has a reasonable expectation to recover full locomotion with rest. These animals are often called “NANIs” or “non-ambulatory, non-injured”. Many of these animals can recover and walk independently if given time to rest.

Trucks carrying disabled pigs should unload ambulatory animals first taking care not to compromise the non-ambulatory ones. Ambulatory pigs must not be driven over non-ambulatory pigs. Then, promptly unload the animals unable to walk. Delayed unloading can cause death losses and downer animals due to extreme temperatures, exposure and stress.

To offload a non-ambulatory pig from a truck, plants should use the truck exit nearest to the animal and should place as little stress as possible on the animal. Live pigs must never be dropped to the ground from a truck. In some cases, a slide board or cripple cart may be helpful. Animals may be rolled onto a wide piece of conveyor belting that has been stiffened on one end with metal bars to prevent curling when the belting with the animal on it is dragged. The board can then be dragged off the truck and the animal loaded into a suitable mechanical device for transport to an inspection area.

Federal humane slaughter regulations prohibit dragging of downed or crippled livestock in the stockyards, crowd pen or stunning chute. (If the animal is stunned, it may be dragged). By using slideboards, sleds and cripple carts, animals can be transported humanely and efficiently to a pen or other area where they can be examined by an inspector, stunned and moved to slaughter. In order to prevent further injury to non-ambulatory animals by equipment or other animals, minimal movement may be required to roll the animal or slide it onto carts and other devices. The stress of this movement must be weighed against the potential harm to the animal if it is not moved promptly. In pig plants, the stunning chute should be equipped with side doors so that non-ambulatory pigs can be easily removed.

Inspection and Slaughtering Considerations

USDA rules require that any “suspect” animal – an animal with signs of abnormalities or diseases – must be held separately and examined by a USDA FSIS veterinarian. At pig plants, non-ambulatory animals must be held apart from other animals in a “suspect” pen for USDA inspection. “Suspect” pigs may be slaughtered separately so inspectors can conduct additional examinations.

Disabled or suspect animals should be segregated upon arrival for USDA inspection. Once the USDA inspector has examined the animal, plants should identify the earliest possible point in the production when that animal may be slaughtered “separately.” This separation point should be discussed with the USDA inspector. It should be noted that plants need not always wait until the end of a shift to slaughter a “suspect” animal. Waiting can prolong a disabled animal’s suffering. Plants and inspectors should cooperate to ensure non-ambulatory pigs are slaughtered as soon as possible after arrival.

At cattle plants, non-ambulatory cattle arriving on trucks should be stunned on the truck and removed from the truck for disposal. Some cattle may be deemed suspect and yet still be ambulatory. These cattle should be moved to separate pens for examination by USDA inspectors.

Chapter 2: Auditing Animal Handling and Stunning

“You manage what you measure.” That is certainly true when it comes to assuring optimal animal welfare. A number of objective criteria can be used to measure animal welfare in packing plants. By measuring welfare indicators regularly, problems can be detected and continuous improvement achieved.

This chapter details what criteria to use in evaluating livestock welfare in packing plants. The AMI Foundation recommends conducting audits at least weekly and varying those audit days and times during shifts to assess the role that employee experience, behavior and fatigue may play in animal handling and stunning.

AMIF is committed to an audit program that is simple to conduct. Audits that are easy to understand and execute are more likely to be conducted with greater frequency and fewer errors. Each of AMIF’s objective criteria is designed to measure a multitude of potential issues. For example, counting slips and falls can assess whether a ramp is too steep, whether animals are being driven too aggressively and whether a floor may be too slippery and need re-grooving. Measuring vocalization levels will indicate if prods are being overused, if restrainers are too small for livestock, and a host of other issues. Each of these individual items need not be evaluated on audits if the core criteria scores are within the target range, but notes may be taken to indicate which factors may have contributed to the score.

If a score falls below the acceptable range specified in these guidelines, plant management should take steps to correct the problem. The results of the 1996 Survey of Stunning and Handling in Federally Inspected Beef, Pork, Veal and Sheep Slaughter Plants (sponsored by USDA’s Animal and Plant Health Inspection Service) indicated that the recommended minimum acceptable levels specified in this guide are reasonably achievable. Additional data collected during audits of beef and pork plants have further verified that the minimum standards are attainable.

Objective scoring of percentages should be done in the following areas that are the core criteria for good animal welfare (Grandin, 1998).

1. Percentage of cases in which electric stunner was misapplied to pigs, cattle, and sheep
2. Percentage of cattle stunned more than once with the captive bolt stunner.
3. Percentage of sensible and partially sensible animals on the bleed rail.
4. Percentage of animals falling down or slipping.
5. Percentage of cattle vocalizing in the stunning chute area, which includes the stunning box, restrainer, lead-up chute, and crowd pen.
6. Percentage of pigs vocalizing in the stunning pen or restrainer conveyor.
7. Percentage of animals prodded with an electric prod.
8. Non-ambulatory animal procedures.

Poor performance on any of these core criteria could result in reduced animal welfare. These guidelines also contain criteria and recommendations for stunning equipment, which will enable a plant to maintain acceptable welfare scores. Other areas of animal welfare concern that will be covered are ritual slaughter and the handling of non-ambulatory animals.

Chapter Three includes the AMI Foundation Pig, Cattle, and sheep slaughter audit forms that can be used as part of a corporate animal welfare program.

Core Criteria 1: Effective Stunning

Core Criteria 1: Effective Captive Bolt Stunning of Cattle

When evaluating the effectiveness of captive bolt stunning, the auditor monitors whether or not an animal is rendered insensible with a single shot.

Score a minimum of 100 animals in large plants and 50 in small plants. In very small plants, score one hour of production. For a more accurate assessment in small plants, data collected over a period of time should be averaged.

- **Excellent** – 99 to 100 percent instantly rendered insensible with one shot
- **Acceptable** – 95 to 98 percent instantly rendered insensible with one shot
- **Not Acceptable** – 90 to 94 percent instantly rendered insensible with one shot
- **Serious Problem less than** – 90 percent instantly rendered insensible with one shot

If one-shot efficacy falls below 95 percent, immediate action must be taken to improve the percentage. Note that shots in the air where the animal is not touched do not count as missed shots. If the stunner bolt touches the animal, a missed shot is counted. Touches with the outer housing that surrounds the bolt does not count as a missed shot

Core Criteria 1: Effective Electrical Stunning of Pigs and Sheep

When evaluating effective electrical stunning, the auditor monitors the correct placement of stunning wands and tongs.

If head only stunning is used, the tongs must be placed so that the current passes through the brain. Tongs may be placed on both sides of the head or one tong on the top and the other on the bottom of the head. Another scientifically verified location for head only stunning is one electrode placed under the jaw and the other placed on the side of the neck, right behind the ears.

For cardiac arrest stunning of pigs and sheep with a single stunning current, one electrode must be placed on the body and the other one must be placed on the forehead, side of the head, top of the head, or in the hollow behind the ear. The head electrode must never be placed on the neck because this would cause the current to bypass the brain. Electrodes must not be applied to sensitive areas such as inside the ear or in the eye or rectum. Electrodes must be placed firmly against the animal because breaking electrical contact during the stun may reduce the effectiveness of the stun. In addition, it is essential that electrodes be fully energized only after they are in full and firm contact with animals. If electrodes are energized and then applied, animals will squeal. This is called "hot wandering." No more than one percent of animals should vocalize due to hot wandering. Hot wandering should not be measured for sheep.

Score a minimum of 100 pigs or sheep in large plants and 50 in small plants. In very small plants score one hour production. Use the whole numbers for 100 and 50 animal audits. For data collection on large numbers of animals, the fractional percentages can also be used.

- **Excellent**—99.5 to 100 percent correct placement of stunning wand or tongs and no vocalization due to energizing the electrode before it is firmly positioned.
- **Acceptable**—99.4 to 99 percent correct placement and 1 percent or less of the animals vocalize in response to electrode placement.
- **Not Acceptable**—98 to 96 percent correct placement or two to three percent of the animals vocalize due to energizing the electrodes before they are firmly positioned.
- **Serious Problem**—Less than 96 percent correct placement or more than 4 percent vocalization in response to electrode placement.

Core Criteria 1: CO₂ Stunning of Pigs

The efficacy of CO₂ and other types of gas stunning methods is determined when insensibility is scored. The core criterion is that the animal remains insensible after exiting the chamber. However, the gondola or other conveyance for moving animals into the gas system must also be evaluated for animal handling. The gondolas, elevator boxes or other apparatus used for moving the animals in and out of the gas must not be overloaded.

Score 50 gondolas in large plants to determine the percentage of gondolas (elevator boxes) that are overloaded. In small plants score 25 gondolas. A gondola or elevator is to be scored as overloaded if there is not sufficient space for the animals to stand or lie down without being on top of each other. Score on a per gondola basis:

- **Excellent** – No gondolas are overloaded on a 50 gondola audit
- **Acceptable** – Four percent or less of gondolas are overloaded
- **Not Acceptable** – More than four percent are overloaded
- **Serious Problem** – The person moving the animals forces more than one pig to jump on top of the other pigs in the gondolas with an electric prod or by hitting, shoving or kicking.

For gas systems where the animals ride head to tail on a continuous conveyor that does not have separate animal compartments, do not use this scoring system. Omit this score and score the percentage of animals prodded with an electric prod. Electric prod scoring is discussed in another section of these guidelines.

Stunning to Bleed Interval

This parameter does not have to be measured for welfare reasons unless non-penetrating captive bolt is used. To avoid return to sensibility, animals stunned with a non-penetrating captive bolt should be bled promptly, but no longer than 60 seconds after stunning.

Core Criteria 2: Bleed Rail Insensibility

Properly stunned animals should not display signs of sensibility on the bleed rail. Auditors should monitor a minimum of 100 animals in large plants and looking for signs of partial sensibility, like eye reflexes, nose twitches or the righting reflex. When a 100 animal audit is performed, 100 percent must be rendered insensible. There is a zero tolerance for beginning any slaughter procedure such as skinning the head, leg removal or scalding on an animal that shows any sign of return to sensibility. It must be immediately restunned.

The signs of returning to sensibility are: 1) rhythmic breathing, 2) vocalizations while hanging on the bleed rail, 3) eye reflexes in response to touch, 4) eye blinking, 5) arched back righting reflex with the head bent straight back. Any one or combination of these signs represents a sensible animal. Animals will sometimes have a sideways neck flexion that relaxed in a few seconds. This must not be confused with a righting reflex.

Animals should hang straight on the rail and have a floppy head. A head that flops upward for a brief moment when the legs kick should not be confused with a righting reflex. Limb movements should be ignored. If the tongue is hanging straight out and is limp and soft, the animal is definitely insensible. Gasping is a sign of a dying brain and should be ignored. However, twitching noses, or the tongue moving in and out are signs of a possible return to sensibility.

Touching the eye and observing the corneal reflex is a good method for determining insensibility in animals stunned with captive bolt. Touching an electrically stunned pig's eye may cause it

to pop open suddenly which may be misinterpreted as a blink. The person scoring insensibility should look for spontaneous natural blinks. A pig that blinks spontaneously would be scored as sensible. Nystagmus, or vibrating eyelids, is a sign of a poor stun in captive bolt stunned animals. However, in electrically stunned animals, it is permissible to have some animals with vibrating lids or eyes.

While no sensible animal should be observed on the bleed rail during a 100-head audit, on rare occasions, it is possible that a sensible animal will be observed. Use these figures when evaluating plant performance over time by averaging the scores of many audits.

Core Criteria 2: Cattle Insensibility

Excellent – 1 per 1,000 or less

Acceptable – 1 per 500 or less

Core Criteria 2: Pig and Sheep Insensibility

Excellent – 1 per 2,000 or less

Acceptable – 1 per 1,000 or less

Core Criteria 3: Slipping and Falling

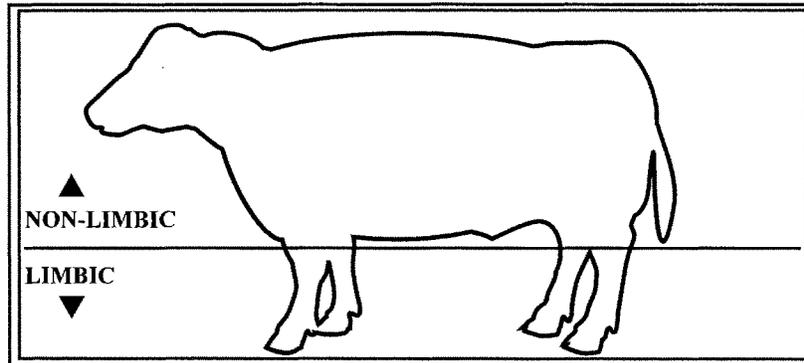
Good animal welfare and quiet calm handling is impossible if animals slip or fall on the floor. All areas where animals walk should have non-slip footing. Animals should be observed during all phases of handling and if slipping or falling is observed, steps should be taken to correct the problem. Because survey results indicate that the greatest slipping and falling problems were in the stunning chute area, scoring should be done in this area.

Because of concerns about slipping at unloading, slipping and falling should also be measured here.

It is important to be clear about the definitions of slips and falls. They are as follows:

Slip: When a portion of the leg other than the foot touches the ground, or a foot loses contact with the ground in a non-walking manner.

Fall: When an animal loses an upright position suddenly in which a part of the body other than the limbs touches the ground.



Scoring of Slipping and Falling in the Unloading Area (All Species)— In large plants where multiple vehicles are continuously unloaded, 100 cattle, pigs or sheep should be scored. For cattle, unloading is continuously observed until 100 cattle from three different vehicles are scored. For pigs and sheep where a large truck holds more than 100 animals, a minimum of two vehicles should be observed. Fifty animals are scored from each truck. For all species, an equal number of animals from each deck should be scored. Vehicles should be scored in the order of arrival at the unloading ramp.

In small plants where vehicles are not continuously unloaded, a single vehicle should be scored. If no vehicle arrives, the score sheet is marked “unloading not observed.”

- **Excellent** – No slipping or falling
- **Acceptable** – Fewer than three percent slipping; fewer than one percent falling (body touches floor)
- **Not Acceptable** – More than three percent slipping; more than one percent falling down
- **Serious Problem** – Five percent falling down or 15 percent or more slipping

Scoring of Slipping and Falling in the Stunning Chute Area (All Species)— Score a minimum of 50 animals in large plants. In most plants that have non-slip flooring, falling seldom occurs. In fact, problems with slipping or falling are usually either a big problem or almost no problem. Formal scoring should be done if slipping or falling is observed.

Score in the restrainer entrance, stunning box, lead up chute, crowd pen and in the final loading pen where pigs move into a gondola or other conveyance for gas stunning. Observation without formal scoring should be made in the stockyard pens and scales.

- **Excellent** – No slipping or falling
- **Acceptable** – Three percent or less slipping; fewer than one or less percent falling (body touches floor)
- **Not Acceptable** – More than three percent slipping; more than one percent falling down
- **Serious Problem** – Five percent falling down or 15 percent or more slipping

Core Criteria 4: Vocalization

Core Criteria 4: Cattle Vocalization Scoring in the Crowd Pen, Lead-up Chute, Stunning Box or Restraint Device

Vocalization is an indicator of cattle discomfort during handling, restraint and stunning.

(Score a minimum of 100 animals in large plants and 50 in smaller plants. For data collection on large numbers of animals, the fractional percentages can be used.)

- **Excellent** – One percent or less of the cattle vocalize
- **Acceptable** – Three percent or less of the cattle vocalize
- **Not Acceptable** – Between three and 10 percent vocalize
- **Serious Problem** – More than 10 percent vocalize

Where a head holders is used, five percent vocalization is acceptable.

Cattle should be stunned immediately after they enter a stun box or restrainer. Isolated animals will often vocalize. The author has observed that vocalization scoring is very efficient for identifying plants with cattle handling or equipment problems. Vocalization scoring works well in packing plants because cattle are stunned quickly after they are restrained.

When vocalization is being evaluated, cattle from more than one feedlot or ranch should be observed. There are variations in the tendency of some cattle to vocalize. To make the scoring simpler, each animal should be classified as either a vocalizer or a non-vocalizer.

Cattle vocalizations are tabulated in the crowd-pen, lead-up chute, restrainer and stun box. All vocalizing animals in the stun box, restrainer or religious slaughter box are scored. Vocalizing animals in the crowd-pen and lead-up chute are scored only during active handling when the handler is moving the animals. Vocalizations occurring in the yards should not be tabulated because cattle standing quietly in the yards will often vocalize to each other.

Core Criteria 4: Vocalization Scoring of Pigs

Because it is impossible to count individual pig squeals when a group of pigs is being handled, vocalization scoring of individual pigs can only be conducted in the restrainer, stun box or group stunning pen. A group of pigs that excessively squeals should be assessed to identify the cause.

It is important to count squeals only and not grunts. The U.S. Department of Agriculture defines a squeal as an extended sound (0.5 - 2.0 sec.) of both high amplitude and high frequency produced with an open mouth, indicative of a high level of excitement, fear, or pain. Score only squeals than can be determined to be provoked by equipment or humans. Squealing that occurs when pigs root under each other or jump on top of each other is counted if provoked by electric prods, yelling, poking or hitting the pigs.

There are six major causes of provoked squeals/vocalizations that include, but are not limited to:

1. Electric prod use
2. Sharp edges
3. Sores or poor body condition
4. Pressure from the hold-down rack,
5. Sides of a v-restrainer moving at different speeds, and
6. Hitting or poking livestock.

If you cannot determine a cause, the squeal should be treated as unprovoked.

Score pig squeals after the most posterior part of the hind end is past the restrainer entrance. The definition of the restrainer entrance for different types of equipment is listed below.

1. V conveyor restrainer – The entrance point is located on the outer circumference of the slats where they turn around the sprocket (pivot).
2. Center track conveyor restrainer – The entrance point is located at the point where the conveyor emerges from the housing and is exposed. In the unlikely event that a pig squeals because both legs and feet get on one side of the center track, the squeal would be counted.
3. Stun box – The entrance point is located on the inside surface of the tailgate.
4. Group floor stunning – The entrance point is the gate where the pigs enter the stunning pen. Score after the pigs enter and the gate is closed.
5. In plants that use CO₂ group stunning systems, squeals should be counted in the final loading pen where gates move pigs into a gondola or other conveyance.

Another simple method for monitoring continuous improvement within a plant is estimating the percentage of time that the entire stunning room is quiet. As each pig is stunned, the person doing the scoring checks off whether or not the room was quiet. The score is the percentage of stunning cycles where the room was quiet. When CO₂ stunning is evaluated, a stunning cycle consists of the time to fill a gondola. Because vocalization scores can vary by auditor, number of pigs and by room acoustics, **vocalization scores are difficult to compare across plants and should not be measured by third party auditors. This is for internal use only.**

However, one can conclude that a plant that has continuous constant squealing may have pig welfare problems. This method is excellent for internal plant monitoring over time.

Criteria for Vocalization of Pigs in Conveyor Restrainers

Do not score grunts, squeals that can be attributed to a misapplied stun wand or squeals that appear unprovoked by humans or by equipment. Score a minimum of 100 pigs in large plants and 50 pigs in smaller plants.

- **Excellent** – Two percent or less of the pigs squeal.
- **Acceptable** – Five percent or less of the pigs squeal due to the restrainer; none due to a misapplied stunner
- **Not Acceptable** – Six percent or more squeal in the restrainer
- **Serious Problem** – 10 percent or more squeal in the restrainer

When 50 or less pigs are scored, a single squealing pig is acceptable. When more data is collected and averaged, use the five percent level for an acceptable rating.

Criteria for Room Vocalization

(Should be used in internal audits only and not compared across plants)

Score a minimum of 100 pigs in large plants and 50 pigs in smaller plants.

- **Acceptable** – 50 percent or less of the pigs in the room vocalize

Vocalization Scoring of Sheep

Observations at a sheep slaughter plant indicated that vocalization during handling is not an effective measure of handling problems in sheep. Sheep walking quietly up the stunning chute often vocalized to each other. Sheep which balked and had to be pushed by a person never vocalized. This is a species difference between cattle and sheep and neither the presence nor absence of vocalization should be used as a measure.

Core Criteria 5: Electric Prod Use

Reducing the use of electric prods will improve animal welfare. Shocking livestock with electric prods significantly raises heart rate, open mouth breathing and many other physiological measures.

Revisions to this standard are based on data collected from 26 plants that were audited by McDonald's during 1999 and 2000 (www.grandin.com). In 2000, 68 percent of the plants used no electric prods in the crowd pen and 62 percent used an electric prod on fifteen percent or less of the pigs at the restrainer entrance.

Core Criteria 5: Electric Prod Scoring Criteria for Cattle**Percentages of Animals Prodded**

Excellent	5 percent or less
Acceptable	25 percent or less
Not Acceptable	26 to 49 percent
Serious Problem	50 percent or more

Core Criteria 5: Electric Prod Scoring Criteria for Pigs**Percentages of Animals Prodded**

Excellent	10 percent or less
Acceptable	25 percent or less
Not Acceptable	26 percent to 79 percent
Serious Problem	80 percent or more

Core Criteria 5: CO₂/Group Stunning System for Pigs - No Single File Chute

Excellent/Acceptable 0 percent

Core Criteria 5: Electric Prod Scoring of Sheep

Electric prods should only rarely be used on sheep. The only place they should be used is at the restrainer entrance on large sheep that refuse to enter.

Core Criteria 6: Willful Acts of Abuse

Any willful act of abuse is automatic grounds for an audit failure.

In all species, these offenses include, but are not limited to, dragging a conscious, non-ambulatory animal, intentionally applying prods to sensitive parts of the animal like the eyes, ears, nose or rectum; deliberate slamming of gates on livestock; intentionally driving livestock on top of one another or hitting or beating an animal. In sheep operations, lifting an animal by the wool or throwing a sheep also is an act of abuse.

Core Criteria 7: Access to Water

All livestock should have access to clean water in holding pens in plants. Each pen should have a water trough, water nipples (in the case of pigs) or other water source. If livestock are non-ambulatory, plants should provide shallow water pans, buckets or water sources within easy reach of livestock.

Scoring of Very Small Plants

Small beef plants that process 25 or fewer beef cattle per hour may need adjustments in scoring due to small sample size and differences in cattle behavior. Ideally 50 or more cattle should be scored, but this is often not practical in a plant that processes 5 to 10 cattle per hour.

For a plant's own internal audit, data should be pooled and averaged. Pooled small data sets can be scored per the American Meat Institute Foundation's guidelines.

When an outside auditor audits a small plant, sometimes only 10 to 20 cattle are observed. If one stun were missed, the plant would not achieve the 95 percent acceptable score. If passing or failing the stunning audit is based on a single small data set, one miss should be permitted. However, on pooled data, the 95 percent first shot efficacy score must be maintained. On small data sets of 10 to 20 cattle, all cattle (100 percent) must be rendered insensible prior to hoisting to pass the audit.

In very small beef plants with line speeds of less than 25 cattle per hour, the animals may stand for long periods in the single file chute (race) and "talk" to each other. Their "talking" vocalizations are not scored. "Talking" vocalizations in the handling system occur more often at slow line speeds. An animal should be scored as a vocalizer if the vocalization is associated with:

1. Poking with an electric prod.
2. Slipping or falling.
3. Vocalizing in the stun box.
4. Poking by sharp edges on equipment.
5. Hitting with a gate.
6. Excessive pressure from a restraint device.
7. Missed stuns.
8. Physical abuse by a person.
9. Signs of agitation such as rearing, jumping, repeated backing up in the single file race or frantic attempts to escape.
10. Isolation of a single animal away from other cattle.

Conclusion

An acceptable level of animal welfare can be maintained if scores for the core criteria for stunning, animal insensibility, slipping and falling, vocalization and electric prod use are in the acceptable range. Scoring performance on these variables is simple and easy to do under commercial plant conditions.

In conclusion, managers must be committed to good animal welfare. Plants that have managers who insist on good handling and stunning practices tend to have better results. Positive and negative feedback also is very important. You manage the things that you measure, which is why auditing is important. Maintaining good handling and stunning practices requires continuous measurement, monitoring and management.

Chapter Three: Official AMI Foundation Audit Forms

Official AMI Foundation Audit Forms are included in the following section and are indicated with the AMI Foundation logo. These forms are dated. Updates to these forms may be made based upon new information and user feedback. Any updated forms will be posted on www.animalhandling.org



CATTLE AND CALVES SLAUGHTER AUDIT FORM

Date: _____ Time: _____

Plant: _____ Auditor: _____

Weather: _____ Line Speed: _____

Stunner Type: _____ Operator: _____

Plant Contact Name: _____ Phone: _____

Email: _____ Establishment No.: _____

CORE CRITERIA 1: EFFECTIVE STUNNING — Conventional Only

Score 100 cattle in plants with line speeds greater than 100 cattle per hour. Fifty cattle should be audited in slower plants processing fewer than 100 head per hour. Ninety-five percent accuracy is required for a passing score. If audit is conducted in a religious slaughter facility, skip to Core Criteria 2.

It can be helpful to note observations about missed stuns using the following guide:

- X = stunned correctly
- G = stunning failed due to apparent lack of maintenance
- A = missed stun due to poor aim

Animal Number:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Stun Efficacy Percent _____

Notes:

CORE CRITERIA 2: BLEED RAIL INSENSIBILITY — Conventional and Religious

Any sensible animal on the bleed rail constitutes an automatic audit failure. It is CRITICAL that animals showing signs of a return to sensibility be restunned immediately. There is "zero tolerance" for beginning any procedures like skinning the head or leg removal on any animal that shows signs of a return to sensibility. However, it is important to complete the audit and note observations about insensibility using the following guide:

- X = completely insensible; no signs of return to sensibility
- E = eyes moved when touched
- BL = blinking
- RB = rhythmic breathing
- VO = vocalization
- RR = righting reflex/animal attempts to lift head

Note signs of sensibility observed by animal number:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent Insensible _____

Notes:

CORE CRITERIA 3: SLIPS AND FALLS — Conventional and Religious

3A: Count the number of cattle that slip or fall during unloading. In large plants where multiple vehicles are continuously unloaded, 100 cattle from three different vehicles are scored. For all species, an equal number of animals from each deck should be scored. Vehicles should be scored in the order of arrival at the unloading ramp. In small plants where vehicles are not continuously unloaded, a single vehicle should be scored. If no vehicle arrives, the scoresheet is marked "unloading not observed."

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent falling _____ Percent slipping _____

Note where slipping/falling occurred:

Notes:

3B: Count the number of cattle that 1) slip and 2) fall during handling in any of the following locations: crowd pen, single file chute, barns, alleys or stunning box. A slip is recorded when a knee or hock touches the floor. In cattle stun boxes and the single file chute, a slip should be recorded if the animal becomes agitated due to multiple short slips. A fall is recorded if the body touches the floor. One percent or fewer falls and three percent or fewer slips are required for a passing score.

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent falling _____ Percent slipping _____

Note where slipping/falling occurred:

Notes:

CORE CRITERIA 4: VOCALIZATION — Conventional and Religious

Monitor the number of cattle that vocalize (provoked by stress or agitation) in the crowd pen, lead-up chute stunning box or restrainer. Vocalizing animals in the crowd-pen and lead up chute are scored during active handling. Score an animal as a vocalizer if it makes any audible vocalization. Three percent or less of cattle should moo or bellow. In Kosher or Halal operations or any operation using a head holder, up to five percent vocalization is acceptable for a passing score. It is helpful to note the possible cause of vocalization using the codes below:

- | | |
|-------------------|---------------------|
| X = non-vocalizer | P = prod |
| S = stun | F = fell or slipped |
| U = unknown cause | R = restrainer |
| M = missed stuns | SE = sharp edges |
| UN = unprovoked | |

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent vocalizing: _____ Percent vocalizing: _____

Notes:

CORE CRITERIA 5: PROD USE — Conventional and Religious

Monitor the percentage of 100 cattle prodded with an electric prod at the restrainer entrance. Twenty-five percent or fewer cattle should be prodded for passing score. If multiple employees use prods, score 100 animals passing by each employee. Add the percentages together to determine final score. Note whether or not a prod was used for each animal and the apparent reason for prod use:

- X = moved quietly without an electric prod
- P = electric prod used without apparent reason
- B = electric prodded in response to balking

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent prodded _____

Percent balking _____

Notes:

CORE CRITERIA 6: WILLFUL ACTS OF ABUSE — Conventional and Religious

Any willful act of abuse is grounds for automatic audit failure. Willful acts of abuse include but are not limited to: 1) dragging a conscious, non-ambulatory animal; 2) intentionally applying prods to sensitive parts of the animal like the eyes, ears, nose or rectum; 3) deliberate slamming of gates on livestock; 4) purposeful driving of livestock on top of one another; 5) hitting/beating an animal. Note any such acts observed.

Were any willful acts of abuse observed?

Yes ____ No ____

If yes, detail incident(s) below:

Notes:

CORE CRITERIA 7: ACCESS TO WATER — Conventional and Religious

Observe access to water. Do animals in all pens have access to clean drinking water?

Yes ____ No ____

Notes:

SECONDARY AUDIT ITEMS

These items may be helpful in gathering general information about a facility. However, because they involve a high degree of subjectivity and because they are almost impossible to score objectively, they should not be used in determining whether a facility passes or fails an audit.

1. Does the facility have a documented training program for its employees or use an outside training program to teach the principles of good animal handling?
Yes ____ No ____
2. Does the facility have a protocol that is written or widely understood for handling non-ambulatory animals?
Yes ____ No ____
3. Are facility personnel trained in handling non-ambulatory animals?
Yes ____ No ____
4. Do they inspect the facility weekly and document for repair any damage or sharp protrusions that may injure animals?
Yes ____ No ____
5. Does the facility provide special training to stunner operators to ensure proper equipment use and stunning efficacy?
Yes ____ No ____
6. Does the facility have a protocol for stunning equipment maintenance?
Yes ____ No ____
7. Does the facility train its personnel and have a written procedure or protocol about how to handle a sensible animal on the bleed rail?
Yes ____ No ____
8. Is non-slip flooring provided throughout the facility?
Yes ____ No ____

- 9. Are non-electrical devices the primary tool used to move livestock?
Yes ____ No ____
- 10. Do crowd pens generally appear to be less than 75 percent full?
Yes ____ No ____
- 11. Are animals unloaded from trucks promptly (target is within one hour of delivery)?
Yes ____ No ____
- 12. If mounting behaviors were observed, are animals that chronically mount removed from the pen?
Yes ____ No ____ NA ____
- 13. Does the company perform internal audits at least weekly?
Yes ____ No ____
- 14. Does the company have an emergency management plan for livestock on file?
Yes ____ No ____

Notes related to secondary audit items:



PIG SLAUGHTER AUDIT FORM

Date: _____ Time: _____
 Plant: _____ Auditor: _____
 Weather: _____ Line Speed: _____
 Stunner Type: _____ Operator: _____
 Plant Contact Name: _____ Phone: _____
 Email: _____ Establishment No.: _____

CORE CRITERIA 1: STUNNING

Effective Electrical Stunning – Pigs

Electrodes must be applied properly to pigs to achieve effective stunning. Score 100 pigs. Fifty pigs should be audited in slower plants (fewer than 100 head per hour). A score of 99 percent accurate placement of stunning electrodes is required for passing score. The following coding should be used:

X = electrode placed correctly W = wrong placement

Animal Number:

1	11	21	31	41	51	61	71	81	91	_____
2	12	22	32	42	52	62	72	82	92	_____
3	13	23	33	43	53	63	73	83	93	_____
4	14	24	34	44	54	64	74	84	94	_____
5	15	25	35	45	55	65	75	85	95	_____
6	16	26	36	46	56	66	76	86	96	_____
7	17	27	37	47	57	67	77	87	97	_____
8	18	28	38	48	58	68	78	88	98	_____
9	19	29	39	49	59	69	79	89	99	_____
10	20	30	40	50	60	70	80	90	100	_____

Percent correct placement: _____

Notes:

Amperage

Is the stunner set at a minimum of 1.25 amps for market weight pigs and two amps for sows?

Yes _____ Volts _____ Stun Time in Sec. _____
No _____ Amps _____

Hot Wanding

Score 100 pigs in the restrainer. Measure the percentage that vocalize due to application of fully energized electrodes. No more than one percent of animals may vocalize due to hot wanding.

Animal Number:

- 1 _____ 11 _____ 21 _____ 31 _____ 41 _____ 51 _____ 61 _____ 71 _____ 81 _____ 91 _____
- 2 _____ 12 _____ 22 _____ 32 _____ 42 _____ 52 _____ 62 _____ 72 _____ 82 _____ 92 _____
- 3 _____ 13 _____ 23 _____ 33 _____ 43 _____ 53 _____ 63 _____ 73 _____ 83 _____ 93 _____
- 4 _____ 14 _____ 24 _____ 34 _____ 44 _____ 54 _____ 64 _____ 74 _____ 84 _____ 94 _____
- 5 _____ 15 _____ 25 _____ 35 _____ 45 _____ 55 _____ 65 _____ 75 _____ 85 _____ 95 _____
- 6 _____ 16 _____ 26 _____ 36 _____ 46 _____ 56 _____ 66 _____ 76 _____ 86 _____ 96 _____
- 7 _____ 17 _____ 27 _____ 37 _____ 47 _____ 57 _____ 67 _____ 77 _____ 87 _____ 97 _____
- 8 _____ 18 _____ 28 _____ 38 _____ 48 _____ 58 _____ 68 _____ 78 _____ 88 _____ 98 _____
- 9 _____ 19 _____ 29 _____ 39 _____ 49 _____ 59 _____ 69 _____ 79 _____ 89 _____ 99 _____
- 10 _____ 20 _____ 30 _____ 40 _____ 50 _____ 60 _____ 70 _____ 80 _____ 90 _____ 100 _____

Percent hot wanded: _____

Notes:

CORE CRITERIA FOR CO₂ SYSTEMS: OVERLOADING OF GONDOLAS

Score 50 gondolas in large plants to determine the percentage of gondolas (elevator boxes) that are overloaded. In small plants score 25 gondolas. A gondola or elevator is to be scored as overloaded if there is not sufficient space for the animals to stand or lie down without being on top of each other. No more than four percent of gondolas may be overloaded for a passing score. Score on a per gondola basis:

Gondola Number:

- 1 _____ 11 _____ 21 _____ 31 _____ 41 _____
- 2 _____ 12 _____ 22 _____ 32 _____ 42 _____
- 3 _____ 13 _____ 23 _____ 33 _____ 43 _____
- 4 _____ 14 _____ 24 _____ 34 _____ 44 _____
- 5 _____ 15 _____ 25 _____ 35 _____ 45 _____
- 6 _____ 16 _____ 26 _____ 36 _____ 46 _____
- 7 _____ 17 _____ 27 _____ 37 _____ 47 _____
- 8 _____ 18 _____ 28 _____ 38 _____ 48 _____
- 9 _____ 19 _____ 29 _____ 39 _____ 49 _____
- 10 _____ 20 _____ 30 _____ 40 _____ 50 _____

Percent overloaded _____

* For gas systems where the animals ride head to tail on a continuous conveyor that does not have separate animal compartments, do not use this scoring system. Omit this score and score the percentage of animals prodded with an electric prod.

Notes:

CORE CRITERIA 2: INSENSIBILITY ON THE BLEED RAIL

Any sensible animal on the bleed rail constitutes an automatic audit failure. It is **CRITICAL** that animals showing signs of a return to sensibility be restunned immediately. There is "zero tolerance" for beginning any procedures like skinning the head or leg removal on any animal that shows signs of a return to sensibility. However, it is important to complete the audit and note observations about insensibility using the following guide:

- X = completely insensible; no signs of return to sensibility
- BL = blinking – do not count a vibrating eye as a blink; only natural blinks like those that might be observed in the yards should be documented
- RB = rhythmic breathing
- VO = vocalization no matter how small
- RR = righting reflex/animal attempts to lift head while hanging on the rail

Note signs of sensibility observed by animal number:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent Insensible _____

Notes:

CORE CRITERIA 3: SLIPS AND FALLS

3A: Count the number of pigs that slip or fall during unloading. In plants where a large truck holds more than 100 animals, a minimum of two vehicles should be observed. For all species, an equal number of animals from each deck should be scored. Vehicles should be scored in the order of arrival at the unloading ramp. In small plants where vehicles are not continuously unloaded, a single vehicle should be scored. If no vehicle arrives, the score sheet is marked "unloading not observed."

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Note where slipping/falling occurred:

Percent falling _____ Percent slipping _____

Notes:

3B: Count the number of pigs that 1) slip and 2) fall during handling in the crowd pen, single file chute, barns, alleys or stunning box. One percent or fewer pigs may fall and three percent or fewer pigs may slip for a passing score. A fall is recorded if the body touches the floor. Even slight slipping should be noted. If flooring results in slight slipping for most animals, this can result in fear or agitation and should be corrected.

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Note where slipping/falling occurred:

Percent falling _____ Percent slipping _____

Notes:

CORE CRITERIA 4: PIG VOCALIZATION

Vocalization — Electric Stunning

Monitor the number of pigs that squeal in the restrainer. Score only squeals determined to be provoked by humans or equipment. Pigs that are provoked to squeal should not exceed 5%. It is helpful to note the possible cause of squeals using the codes below. Do not count hot wanding in this section:

X = non-vocalizer P = prod S = stun
 F = fell or slipped O = other R = Restrainer

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent vocalizing: _____

Vocalization — CO₂ Stunning

Count the percentage of pigs that squeal as they enter a CO₂ gondola. Count as in the gondola if the squeal occurs when the pig's rear is past the entrance. No more than five percent of pigs may squeal for a passing score. In plants that use CO₂ group stunning systems, squeals should be counted in the final loading pen where gates move pigs into a gondola or other conveyance.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent vocalizing: _____

Room Vocalization – All Stunning Systems — FOR INTERNAL AUDITS ONLY:

Count the number of squeals that can be heard in the room during each stunning cycle. Count 100 stunning cycles. Note: there is a high degree of variability due to room acoustics and human factors. This criterion cannot be compared across plants, but is effective in monitoring internal performance. Fewer than 50 percent squeals is acceptable.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent vocalizing: _____

Notes:

CORE CRITERIA 5: ELECTRIC PROD USE

Monitor the percentage of 100 pigs prodded with an electric prod at the restrainer entrance. Twenty-five percent or less of pigs may be prodded for a passing score. Note whether or not a prod was used for each animal and the apparent reason for prod use. If multiple employees use prods, score 100 animals passing by each employee. Add the percentages together to come up with a final score:

X = moved quietly without an electric prod without apparent reason
 P = electric prod used
 B = electric prodded in response to balking

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent prod use _____

Percent balking _____

Note: prods should not be used in group/CO₂ stunning systems

Notes:

CORE CRITERIA 6: WILLFUL ACTS OF ABUSE

Any willful act of abuse is grounds for automatic audit failure. Willful acts of abuse include, but are not limited to: 1) dragging a conscious, non-ambulatory animal; 2) applying prods to sensitive parts of the animal like the eyes, ears, nose or rectum; 3) purposeful slamming of gates of livestock; 4) purposeful driving of livestock on top of one another; 5) hitting/beating an animal. Note any such acts observed.

Were any willful acts of abuse observed?

Yes _____ No _____

Notes:

CORE CRITERIA 7: ACCESS TO WATER

Observe access to water. Do animals in all pens have access to drinking water?

Yes _____ No _____

Notes:

Final Scoring – Pig Audit

Core Criteria	Passing Score	Actual Score
Core Criteria 1: Effective Stunning	1% or less inaccurate wand placement	_____
	1% or less hot wanded	_____
	4% or less overloaded gondolas	_____
Core Criteria 2: Bleed Rail Insensibility	100% insensible	_____
Core Criteria 3: Slips and Falls		
3A: Truck Unload	1% or less falls	_____
	3% or less slips	_____
3B: In Plant	1% or less falls	_____
	3% or less slips	_____
Core Criteria 4: Vocalization	5% or less	_____
Core Criteria 5: Prod Use	25% or less prodded	_____
Core Criteria 6: Willful Acts of Abuse	No willful acts of abuse	_____
Core Criteria 7: Access to Water	Yes – water provided	_____
Plant passed all numerically scored criteria?	Yes _____	No _____

Auditor signature

Date

SECONDARY AUDIT ITEMS

These items may be helpful in gathering general information about a facility. However, because they involve a high degree of subjectivity and because they are almost impossible to score objectively, they should not be used in determining whether a facility passes or fails an audit.

1. Does the facility have a training program for its employees or use an outside training program to teach the principles of good animal handling?
Yes ____ No ____
2. Does the facility have a protocol that is written or widely understood for handling non-ambulatory animals?
Yes ____ No ____
3. Are facility personnel trained in handling non-ambulatory animals?
Yes ____ No ____
4. Do employees inspect the facility daily for damage or sharp protrusions that may injure animals?
Yes ____ No ____
5. Does the facility provide special training to stunner operators to ensure proper equipment use and stunning efficacy?
Yes ____ No ____
6. Does the facility have a protocol for stunning equipment maintenance?
Yes ____ No ____
7. Does the facility train its personnel in how to handle a sensible animal on the bleed rail?
Yes ____ No ____
8. Is non-slip flooring provided throughout the facility?
Yes ____ No ____
9. Are non-electrical devices the primary tool used to move livestock?
Yes ____ No ____

10. Do crowd pens generally appear to be less than 75 percent full?

Yes ____ No ____

11. Are animals unloaded from trucks promptly (target is within one hour of delivery)?

Yes ____ No ____

12. If mounting behaviors were observed, are animals that chronically mount removed from the pen?

Yes ____ No ____ NA ____

If yes, detail incident(s) below:

Final Scoring

Plant passed all numerically scored criteria? Yes ____ No ____

Were any acts of abuse observed? Yes ____ No ____

Notes related to secondary audit items:



SHEEP SLAUGHTER AUDIT FORM

Date: _____ Time: _____
 Plant: _____ Auditor: _____
 Weather: _____ Line Speed: _____
 Stunner Type: _____ Operator: _____
 Plant Contact Name: _____ Phone: _____
 Email: _____ Establishment No.: _____

Note: Sheep naturally vocalize. Therefore vocalization scoring is omitted as a criterion for this audit. Hot wanding also is omitted as a criterion.

CORE CRITERIA 1: EFFECTIVE STUNNING — Conventional Only

Captive Bolt Stunning

Ninety-five percent or more sheep must be stunned effectively with a single shot. It can be helpful to note observations about missed stuns using the following guide:

- X = stunned correctly
- G = stunning failed due to apparent lack of maintenance
- A = missed stun due to poor aim

Animal Number:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent of sheep stunned effectively with a single shot: _____

Notes:

Electric Stunning — proper application of electrodes to sheep

Electrodes must be applied properly to sheep to achieve effective stunning. Score 100 sheep. A score of 99 percent accurate placement of stunning electrodes is required for passing score. The following coding should be used:

X = electrode placed correctly W = wrong placement

Animal Number:

1	___	11	___	21	___	31	___	41	___	51	___	61	___	71	___	81	___	91	___
2	___	12	___	22	___	32	___	42	___	52	___	62	___	72	___	82	___	92	___
3	___	13	___	23	___	33	___	43	___	53	___	63	___	73	___	83	___	93	___
4	___	14	___	24	___	34	___	44	___	54	___	64	___	74	___	84	___	94	___
5	___	15	___	25	___	35	___	45	___	55	___	65	___	75	___	85	___	95	___
6	___	16	___	26	___	36	___	46	___	56	___	66	___	76	___	86	___	96	___
7	___	17	___	27	___	37	___	47	___	57	___	67	___	77	___	87	___	97	___
8	___	18	___	28	___	38	___	48	___	58	___	68	___	78	___	88	___	98	___
9	___	19	___	29	___	39	___	49	___	59	___	69	___	79	___	89	___	99	___
10	___	20	___	30	___	40	___	50	___	60	___	70	___	80	___	90	___	100	___

Percent correct placement: _____

Is the stunner set at a minimum of 1 amp?

Yes ___ No ___

Notes:

CORE CRITERIA 2: INSENSIBILITY ON THE BLEED RAIL — Conventional and Religious

Any sensible animal on the bleed rail constitutes an automatic audit failure. It is CRITICAL that animals showing signs of a return to sensibility be restunned immediately. There is "zero tolerance" for beginning any procedures like skinning the head or leg removal on any animal that shows signs of a return to sensibility. However, it is important to complete the audit and note observations about insensibility using the following guide:

- X = completely insensible; no signs of return to sensibility
- BL = blinking – do not count a vibrating eye as a blink; only natural blinks like those that might be observed in the yards should be documented
- RB = rhythmic breathing
- VO = vocalization no matter how small
- RR = righting reflex/animal attempts to lift head while hanging on the rail

Note signs of sensibility observed by animal number:

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent Insensible _____

Notes:

CORE CRITERIA 3: ELECTRIC PROD USE — Conventional and Religious

Monitor the percentage of 100 sheep prodded with an electric prod. Twenty-five percent or less of sheep may be prodded for a passing score. Note whether or not a prod was used for each animal and the apparent reason for prod use. If multiple employees use prods, score 100 animals passing by each employee. Average the scores together to come up with a final score:

- X = moved quietly without an electric prod
- P = electric prod used without apparent reason
- B = electric prodded in response to balking

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Percent prod use _____

Percent balking _____

Notes:

CORE CRITERIA 4: SLIPS AND FALLS — Conventional and Religious

3A: Count the number of sheep that 1) slip and 2) fall during handling in the crowd pen, single file chute, barns, alleys or stunning box. One percent or fewer sheep may fall and three percent or fewer sheep may slip for a passing score. A fall is recorded if the body touches the floor. Even slight slipping should be noted.

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Note where slipping/falling occurred:

Percent falling _____ Percent slipping _____

Notes:

3B: Count the number of sheep that slip or fall during unloading. In plants where a large truck holds more than 100 animals, a minimum of two vehicles should be observed. For all species, an equal number of animals from each deck should be scored. Vehicles should be scored in the order of arrival at the unloading ramp. In small plants where vehicles are not continuously unloaded, a single vehicle should be scored. If no vehicle arrives, the score sheet is marked "unloading not observed."

X = no slipping or falling F = fell S = slipped

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Note where slipping/falling occurred:

Percent falling _____ Percent slipping _____

Notes:

CORE CRITERIA 6: WILLFUL ACTS OF ABUSE — Conventional and Religious

Any willful act of abuse is grounds for automatic audit failure. Willful acts of abuse include but are not limited to: 1) dragging a conscious, non-ambulatory animal; 2) applying prods to sensitive parts of the animal like the eyes, ears, nose or rectum; 3) purposeful slamming of gates of livestock; 4) purposeful driving of livestock on top of one another; 5) hitting/beating an animal; 6) throwing them; 7) lifting by the wool. Note any such acts observed.

Were any willful acts of abuse observed?

Yes _____ No _____

Notes:

CORE CRITERIA 7: ACCESS TO WATER — Conventional and Religious

Observe access to water. Do animals in all pens have access to drinking water?

Yes _____ No _____

Notes:

Final Scoring – Sheep Audit

Core Criteria	Passing Score	Actual Score
Core Criteria 1: Effective Stunning	95% or greater accuracy — captive bolt	_____
	99% or greater accurate placement — electric	_____
Core Criteria 2: Bleed Rail Insensibility	100% insensible	_____
Core Criteria 3: Slips and Falls		
3A: Truck Unload	1% or less falls	_____
	3% or less slips	_____
3B: In Plant	1% or less falls	_____
	3% or less slips	_____
Core Criteria 4: Prod Use	25% or less prodded	_____
Core Criteria 5: Willful Acts of Abuse	No willful acts of abuse	_____
Core Criteria 6: Access to Water	Yes – water provided	_____
Plant passed all numerically scored criteria?	Yes _____	No _____

Auditor signature

Date

Secondary Audit Items

These items may be helpful in gathering general information about a facility. However, because they involve a high degree of subjectivity and because they are almost impossible to score objectively, they should not be used in determining whether a facility passes or fails an audit.

1. Does the facility have a training program for its employees or use an outside training program to teach the principles of good animal handling?
Yes ____ No ____
2. Does the facility have a protocol that is written or widely understood for handling non-ambulatory animals?
Yes ____ No ____
3. Are facility personnel trained in handling non-ambulatory animals?
Yes ____ No ____
4. Do employees inspect the facility daily for damage or sharp protrusions that may injure animals?
Yes ____ No ____
5. Does the facility provide special training to stunner operators to ensure proper equipment use and stunning efficacy?
Yes ____ No ____
6. Does the facility have a protocol for stunning equipment maintenance?
Yes ____ No ____
7. Does the facility train its personnel in how to handle a sensible animal on the bleed rail?
Yes ____ No ____
8. Is non-slip flooring provided throughout the facility?
Yes ____ No ____
9. Are non-electrical devices the primary tool used to move livestock?
Yes ____ No ____

10. Do crowd pens generally appear to be less than 75 percent full?

Yes ____ No ____

11. Are animals unloaded from trucks promptly (target is within one hour of delivery)?

Yes ____ No ____

12. If mounting behaviors were observed, are animals that chronically mount removed from the pen?

Yes ____ No ____ NA ____

If yes, detail incident(s) below:

Final Scoring

Plant passed all numerically scored criteria? Yes ____ No ____

Were any acts of abuse observed? Yes ____ No ____

Notes related to secondary audit items:

Chapter Four: Troubleshooting Guides

Finding Distractions That Hinder Easy Movement

Problem: Animal refuses to move through an alley, chute or race.

Possible Causes:

If animals refuse to move through an alley, chute or race, there may be a very simple solution. Once the area is clear, step into the race to see what distractions may be hindering movement. Any one of these items on the following list may cause animals to stop moving or back up and prevent a properly designed facility from working efficiently. In some facilities, two or three different distractions must be removed before animals will move easily. Often, identifying the problem requires trial and error.

Look for:

- ✓ Sparkling reflections on puddles that can be eliminated by moving a ceiling lamp
- ✓ Reflections on smooth metal that can be minimized through lighting changes.
- ✓ Chains that jiggle and can be fastened.
- ✓ Metal clanging or banging that can be secured. Rubber stops can be used on gates, for example, to prevent clanging.
- ✓ High pitched noises and other loud or reverberating noises that can be silenced
- ✓ Air hissing, which can be silenced with mufflers or piped outside
- ✓ Air drafts blowing toward approaching animals, which can be redirected away from them.
- ✓ Clothing hung on the fence that can be removed.
- ✓ Moving piece of plastic that can be secured or removed.
- ✓ Fan blade movement. Install a shield to block the animals' view.
- ✓ Seeing people moving up ahead. Install a shield so approaching animals cannot see them.
- ✓ Small object on the floor such as a coffee cup, hose or paper.

- ✓ Changes in flooring and texture, which can be made uniform.
- ✓ Drain grate on the floor, which can be moved to another location outside races.
- ✓ Sudden changes in the color of equipment or flooring. Colors with high contrast like yellow are the worst. Use of single colors on floors and walls can facilitate movement.
- ✓ Race entrance is too dark. Animals prefer to move from a darker place to a brighter place.
- ✓ Bright light such as blinding sun. Animals will move from a darker place to a brighter place, but they will not move toward blinding light. Examples of blinding light are looking into the sun or a bare light bulb.
- ✓ One-way and back-up gates. Install them two to three body lengths away from the crowd pen. Equip the one-way gate near the crowd pen with a remote controlled rope so that they can be held open when the single file race is filled. Many facilities have too many backup gates. Try tying them open.

Resolving Problems in Center Track Conveyor Restrainer Systems and V Belt Restrainer Systems for Cattle, Pigs, and Sheep

Problem: Animal stops at entrance and refuses to enter.

Possible Causes:

1. Hold-down rack is too low and the animal bumps its shoulder as it enters. Raise hold-down so that there is approximately 4 in. (10 cm) of clearance for the tallest animal. The hold down should be solid to block vision.
2. Entrance is too dark – install a light that illuminates the entrance. The light must not shine in an approaching animal's eyes.
3. Slick Floor – Animals panic when they slip. Weld rods to floor to provide a non-slip floor. The entrance ramp into the restrainer must be non-slip.
4. Entrance ramp missing – Reinstall entrance ramp. See diagrams on www.grandin.com. Forcing an animal to jump into a restrainer frightens it.
5. Leg spreader is too wide and it bumps the inside of the animals' legs. This problem only occurs in center track restrainers. See diagrams on www.grandin.com.
6. No False Floor - on all types of restrainers, animals will be afraid to enter if they see a steep drop off (visual cliff) below the restrainer. Install a solid false floor approximately six inches (15 cm) below the feet of the largest animal. See diagrams on www.grandin.com.
7. No belly rails – on center track restrainers belly rails keep the animal centered over the leg spreader bar. See diagrams on www.grandin.com.

8. Distractions in plant – install a curtain at the exit end of the restrainer. Look through the Restrainer and see if you can see distractions such as moving conveyor, a yellow apron or sparkling reflections on a moving piece of equipment.
9. Broken sharp edges in entrance – repair or replace entrance parts. Plant should do pre-operations check daily on restrainers to ensure entrance is in good repair.

If an animal is walking into the restrainer by itself, do not poke it with an electric prod. Center track systems require less prodding to induce cattle to enter it. Workers need to break the “automatic prod reflex” habit.

Resolving Problems in Center Track Conveyor Restrainer Systems and V Belt Restrainer Systems for Cattle, Pigs and Sheep

Problem: Animals struggle in the restrainer

Causes:

1. V conveyor sides run at different speeds - Both sides must run at the same speed.
2. Hold down too short – on all types of restrainers, the animal must be completely restrained and riding on the conveyor with its feet off the entrance ramp **BEFORE** its head emerges from under the hold down. The principle is blocking vision until the animal is fully restrained.
3. Broken slats and other parts – sharp edges that stick into animals will cause struggling. On the center track restrainer, the metal guides along the conveyor must not be bent. Replace broken or bent slats. Slats must line up and provide a smooth continuous surface.
4. Hold-down too high – This is most likely to be a problem when small animals are handled. Install a rubber curtain made from conveyor belting on the discharge end of the hold down rack to block the vision of smaller animals.
5. Adjustable sides not centered - Struggling is more likely to occur if the adjustable sides of the center track conveyor push the animal to one side and make it feel off balance. Adjustable sides should be at the same setting on both sides.

Resolving Electrical Stunning Problems

Problem: Animal blinks within 5 seconds after stunning

Possible Causes:

1. Electrode is placed in the wrong position and the electrical current fails to go through the brain. The animal blinks because the stunner failed to induce a grand mal epileptic seizure that is required to induce instant insensibility.

2. The electrical amperage may be too low. Even though the electrode is in the correct position, there is not enough current passing through the brain to induce a grand mal epileptic seizure. The amperage and/or voltage should be checked and may need to be increased.
3. High electric resistance of the animal. This is especially a problem in old sows or dehydrated animals.
4. Electrode contact area is too small or the electrodes are dirty. Increase surface area of electrode or clean them.
5. The animal is too dry, which results in high electrical resistance. This is most likely to be a problem in cattle or sheep and continuous wetting during the stun may be required in these two species.

Problem: The initial stun appears to be done correctly but the animal blinks or shows other signs of return to sensibility 30 to 90 seconds after stunning.

Possible Causes:

1. The stunning-to-bleed interval is too long. This is especially a problem with head only reversible stunning. The solution is to shorten the interval between stunning and bleeding.
2. Poor bleeding if an animal shows a sign of return to sensibility after it has been bled. This can occur in cardiac arrested animals because there are always a few animals in which the heart is not stopped. Training of the person doing the bleeding will usually solve this problem.
3. Poor initial contact results in the animal receiving a stunning time that is too short. A common cause is a fatigued operator.
4. Interrupted contact – The stunning wand or tongs may bounce or slide during the stun and result in a stunning time that is too short. Poor design of the stunning wand is a likely cause. An other cause can be an overloaded stunner operator who is stunning more animals than he can easily handle.
5. Placement of the head electrodes in the wrong position on the head. Reposition the electrodes so that the electrical current will pass through the brain.

Resolving Captive Bolt Stunning Problems

Possible Reasons for Poor Stunning

1. Stunner has not been maintained. A dirty stunner will lose bolt velocity. High bolt velocity is required for an effective stun.
2. Damp cartridges for a cartridge fired stunner. Cartridges must be kept in a dry place. Do not store them in the slaughter room.

3. An overheated cartridge fired stunner will lose bolt velocity. Rotate cartridge fired stunners to prevent overheating.
4. Worn cylinder bore on a pneumatic stunner. Even when the stunner has been serviced correctly, the machined cylinder bore eventually wears out and the stunner will lose hitting power. At this point the stunner will have to be replaced. A clean air supply will help prevent cylinder wear.
5. Poor ergonomics of bulky pneumatic stunners. Adding additional handles will aid positioning. When a pneumatic stunner is used with a conveyor restrainer, it is often easier to position the stunner if it is hung from the balancer on a 30-degree angle.
6. Stunner operator chases the animal's head. The operator should be trained to wait for the animal to stop moving and then position the stunner. Chasing the head will result in poor stunning.
7. Excited animals. Careful quiet handling and driving of animals into the stun box or restrainer will provide calm animals that are easier to stun correctly.
8. Air pressure too low to power a pneumatic stunner. Use the air pressure setting recommended by the manufacturer. This usually requires a dedicated compressor, which powers only the stunner.
9. Slick floor in stunning box causes cattle to become agitated.
10. Poor placement. Stunner is not placing the captive bolt square against the center of the head or not placing the bolt in the "X" between the base of the horn (poll) and the eye.

Resolving CO₂ Stunning Problems

Problem: Stunning Ineffective, animals not completely insensible

Possible Causes:

1. Low CO₂ concentration. Increase the gas concentration.
2. Exposure time is too short. Slow down the number of pigs which are moved through the system.
3. The time between the exit from the CO₂ chamber and bleeding is too long. To prevent recovery from the anesthesia, bleed the animals more quickly.
4. Poor bleeding technique. If animals show signs of return to sensibility after bleeding, the person doing the bleeding may need more training.

Chapter 5: Worker Safety Tips for Animal Handlers and Stunners

Working with livestock in a plant setting can be challenging and unpredictable. It is essential that safety be a priority when handling and stunning animals. Below are a series of safety tips that can help protect employees.

Livestock Facility and Trucking

1. Battery operated prods are recommended. If prods are wired into the house current, they must always be wired through a transformer. A light bulb wired in series is dangerous to both people and livestock.
2. Man gates and other devices must be installed so people can easily escape from agitated cattle. This is especially important for areas with solid fences. In concrete fences, toeholds can be formed in the walls.
3. Be alert around the unloading dock. A truck driver backing in may not be able to see you.
4. Handle cattle quietly. Excited animals are more likely to cause accidents.

Electric Stunning of Sheep and Pigs

1. The stunner operator's station must be kept dry.
2. Stunning wands should be designed so that they can be operated with one hand. Avoid designs where the two electrodes are held separately in each hand. These can increase the hazard of an electrocution shock across the chest.
3. The operator should wear rubber boots and stand on non-conductive plastic grating. Hand stunning should be done with the operator standing on cement.
4. The restrainer frame and worker walkway structure should be grounded to a perfect ground. However, the side of the restrainer that the stunner operator can touch should be covered with heavy insulating materials such as a plastic meat cutting board.

Captive Bolt Stunning

1. Cartridge-fired stunners must ALWAYS be uncocked before they are set down.
2. NEVER, EVER throw a cartridge-fired stunner to another person.
3. Inspect latches on stunning boxes to make sure they latch securely. Before the next animal is admitted to the box, check the latch.
4. All guards must be kept in place over exposed pinch points that could be easily touched by employees during normal operation of the restrainer system equipment.
5. If a worker has to get inside a restrainer conveyor system to unjam it, lock it out first to prevent somebody else from turning it on.
6. Cartridge-fired stunners must always be kept unloaded when they are carried away from the stunning area.
7. Good maintenance is essential with pneumatic stunners to prevent excessive recoil, which can strain and injure the operator's hands, arm or back.
8. The use of a cartridge gun holder is considered a best practice. Do not lay a gun on the edge of a stun box.

Safe Livestock Handling

1. A single, lone, agitated steer is very dangerous. Many serious cattle handling injuries are caused by a single agitated steer or cow. Never leave a single animal alone during break.
2. Escaped cattle must never be chased. An animal that is loose on the plant grounds will return to the stockyard if it is left alone. If an animal gets loose inside the plant, employees should stay quiet while one designated person either stuns it or eases it out a door.
3. Stay out of the blind spot behind a steer's rear end. If he cannot see you, he is likely to kick you.
4. Install a safety fence consisting of upright posts around the cattle shackling area to prevent cattle from entering other parts of the plant.
5. Do not try to stop a pig that is running back from a group as a person may be knocked down or injure his or her knees.

Religious Slaughter Practices

Shackling and hoisting unstunned cattle and calves can be very dangerous. It has caused many serious accidents. In one plant, replacement of the shackle hoist with a restrainer resulted in a dramatic reduction in accidents. Shackling and hoisting of live sheep is also hazardous.

References:

- Anil, A.M. and McKinstry, J.L. 1992. The effectiveness of high frequency electrical stunning in pigs. *Meat Sci.*, 31:481-491.
- Anil, M.H. and McKinstry, J.L. 1998. Variations in electrical stunning tong placements and relative consequences in slaughter pigs. *Vet. J.*, 155:85-90.
- Bellodi, L., Giampaolo, P., Caldriola, D., Arancro, C., Bertani, A., and DiBelle, D. 1998. CO₂ induced panic attacks: A twin study, *Amer. J. Psychiatry* 155:1184-1188.
- Benjamin, M.E., Gonyou, H.W., Ivers, D.L., Richardson, L.F., Jones, D.J., Wagner, J.R., Seneriz, R. and Anderson, D.B. 2001. Effect of animal handling method on the incidence of stress response in market swine in a model system. *J. of An. Sci.* 79:279 (Supl. 1) (Abstract).
- Berghaus, A. and Troeger, K. 1998. Electrical stunning of pig's minimum current flow time required to induce epilepsy at various frequencies. *International Congress of Meat Science and Technology* 44:1070-1073.
- Blackmore, D.K. 1988. Quality control of stunning. Proc. Of the Intl Congress of Meat Sci and Tech, CSIRO, Brisbane, Australia.
- Blackmore, D.K. and Peterson G.V. 1981a. Stunning and slaughter of sheep and calves in New Zealand. *New Zealand Vet J.* 29:99-102.
- Blackmore, D.K. and Newhook, J.C. 1981b. Insensibility during slaughter of pigs in comparison to other domestic stock. *New Zealand Vet. J.* 29:219-222.
- Blackmore, D.K. and Newhook, J.C. 1983. The assessment of insensibility in sheep, calves and pigs during slaughter. In: G. Eikelenboom (Editor). *Stunning Animals for Slaughter*, Boston Marinus Nijhoff, pp. 13-25.
- Cook, C.J. 1992. *Stunning Science, a guide to better electrical stunning*, Meat Industry Research Conference, MIRINZ, Hamilton, New Zealand.
- Cook, C.J., Devine, C.E. and Gilbert K.V., et al., 1991. Electroencephalograms and electrocardiograms in young bulls following upper cervical vertebrae to brisket stunning. *New Zealand Vet. J.* 39:121-125.
- Council of Europe. 1991. Council Directive of 18 November on Stunning of Animals Before Slaughter (74/577/EEC). *Official Journal of the European Communities*, NO. L 316, 26 November 10-11.
- Croft, P.S. 1952. Problems with electrical stunning. *Vet. Record*, 64:255-258.

Dodman, N.H. 1977. Observations on the use of the Wernberg dip-lift carbon dioxide apparatus for pre-slaughter anesthesia pigs. *Br. Vet. J.* 133:71-80.

Dunn, C.S. 1990. Stress reaction of cattle undergoing ritual slaughter using two methods of restraint. *Vet. Record*, 126:522-525.

Finnie, J.W., Blumbergs, P.C., Manavis, J., Summersides, G.E. and Davies, R.A. 2000. Evaluation of brain damage from penetrating and non-penetrating captive bolt using lambs. *Australian Vet. J.* 78:775-778.

Forslid, A. 1987. Transient neocortical, hippocampal and amygdaloid EEG silence induced by one-minute inhalation of high concentration CO₂ in the swine. *Acta Physiologica Scandinavica* 130:1-10.

Gilbert, K.V., Cook, C.J. and Devine, C.E. 1991. Electrical stunning in cattle and sheep: Electrode placement and effectiveness, Proc. 37th *Int. Congress Meat Sci. Technol.*, 245-248, Kulmbach, Germany.

Grandin, T. 1985/1986. Cardiac arrest stunning of livestock and poultry. In: Fox M.W., Mickley, L.D. (eds.) *Advances in Animal Welfare Science*, Boston: Martinus Nijhoff pp. 1-30.

Grandin, T., Curtis, S.E., and Widowski, T.M. and Thurman, J.C. 1986. Electro-immobilization versus mechanical restraint in an avoid-avoid choice test, *J. of An. Sci.* 62:146-1480.

Grandin, T. 1988. Behavior of slaughter plant and auction employees towards animals, *Anthro-zoo*, 1:205-213.

Grandin, T. 1988. Possible genetic effect on pig's reaction to CO₂ stunning. *Proc. Intl. Congress of Meat Science and Tech.*, Brisbane, Australia 34:96-97.

Grandin, T. 1991a. Recommended Animal Handling Guidelines for Meat Packers, Washington, D.C., American Meat Institute.

Grandin, T. 1991b. Principles of abattoir design to improve animal welfare. In: J. Matthews (Editor) *Progress in Agricultural Physics and Engineering*, Wallingford, Oxon CAB International UK, CAB International, 279-304.

Grandin, T. 1993a. Report on Handling and Stunning Practice in Canadian Meat Packing Plants, conducted for Agriculture Canada, The Canadian Federation of Humane Societies and the Canadian Meat Council.

Grandin, T. 1994. Euthanasia and slaughter of livestock. *J. of Am. Vet. Med. Assoc.* 204:1354-1360.

Grandin, T. and Regenstein, J.M. 1994. Religious Slaughter and Animal Welfare: A Discussion for Meat Scientists, Meat Focus International, March, Wallingford, Oxon, UK, CAB International, pp. 115-123.

- Grandin, T. 1995. Restraint of livestock, Proc. of the Animal Behavior and the Design of Livestock and Poultry Systems International Conference, Northeast Regional Agricultural Engineering Service, Cornell University, Cooperative Extension, Ithaca, NY, pp. 208-223.
- Grandin, T. 1996. Factors that impede animal movement at slaughter plants. *J. Am. Vet. Med. Assoc.* 209:757-759.
- Grandin, T. 1997. Survey of Handling and Stunning in Federally Inspected Beef, Pork, Veal and Sheep Slaughter Plants. ARS Research Project No. 3602-32000-002-08G, USDA.
- Grandin, T. 1998a. Objective scoring on animal handling and stunning practices in slaughter plants. *J. of Am. Vet. Med. Assoc.* 212:36-39.
- Grandin, T. 1998b. The feasibility of using vocalization scoring as an indicator of poor welfare during slaughter. *Applied Animal Behavior Sci.* 56:121-128.
- Grandin, T. 2000. Welfare of livestock in slaughter plants. In: Grandin, T. (ed.) Livestock Handling and Transport, Wallingford, Oxon, UK, CAB International, pp.409-439.
- Grandin, T. 2000A. Effect of animal welfare audits of slaughter plants by a major fast food company on cattle handling and stunning practices. *J. of Am. Vet. Med. Assoc.* 216:848-851.
- Grandin, T. 2000B. Handling and welfare of livestock in slaughter plants. In: T. Grandin (ed.) Livestock Handling and Transport, 2nd edition, Wallingford, Oxon, UK, CAB International, pp. 409-439.
- Grandin, T. 2001a. Solving return to sensibility problems after electrical stunning in commercial pork slaughter plants. *J. Am. Vet. Met. Assoc.*, 219:608-611.
- Grandin, T. 2001b. Cattle vocalizations are associated with handling and equipment problems at beef slaughter plants. *Applied Animal Behavior Science* 71:191-201.
- Grandin, T. 2001c. Ante mortem handling and welfare. In: Hui, Y.H., Nip, W.K., Rogers, R.W. and Young, O.A. (ed.) Meat Science and Applications, Marcel Dekker, NY, pp. 221-253.
- Gregory, N.G. 1988. Humane slaughter, in Proceedings, 34th. Int. Cong., Meat Sci. Technol. Workshop on stunning livestock, Brisbane, Australia.
- Gregory, N.G. and Wotton, S.B. 1984. Sheep slaughtering procedures. III. Head to back electrical stunning, *British Vet. J.*, 140:570-575.
- Gregory, N.G. 1993. Slaughter technology. Electrical stunning of large cattle, Meat Focus International, Wallingford, Oxon, U.K. *CAB International*, 2:32-36.
- Gregory, N.G. 1994. Preslaughter handling, stunning and slaughter, *Meat Sci.* 36:45-46.

- Gregory, N.G. 2001. Current profiles during electrical stunning. *Intl. Congress of Meat Sci. and Technology*, 46:368-369.
- Griez, E., Zandbergen, J. and Pols, J. 1990. Response to 35percent CO₂ as a marker of panic and severe anxiety. *Am. J. Psychiatry*, 147:796-797.
- Hoenderken, R. 1983. Electrical and carbon dioxide stunning of pigs for slaughter. In: ikelenboom, G. (ed) *Stunning of Animals for Slaughter*, Boston: Martinus Nijhoff Publishers, 59-63.
- Jongman, E.C., Barnett, J.L. and Hemsworth, P.H. 2000. The aversiveness of carbon dioxide stunning in pigs and a comparison of CO₂ crate vs. the V restrainer. *Applied Animal Behavior Science* 67:67-76.
- Lambooy, E. 1985. Electro-anesthesia or electro immobilization of calves, sheep and pigs, by Fenix Stockstill. *Vet. Quarterly*, 7:120-126.
- Lambooij, B., Gerard, S., Merkus, M., Voorse, N.V. and Pieterse, C. 1996. Effect of low voltage with a high frequency electrical stunning on unconsciousness in slaughter pigs. *Fleischwirtschaft*, 76:1327-1328.
- Lanier, J.L., Grandin, T., Green, R.D., Avery, D. and McGee, K. 2000. The relationship between reaction to sudden intermittent movements and sounds and temperament. *J. of An. Sci.* 78:1467-1474.
- Pascoe, P.J. 1986. Humaneness of electro-immobilization unit for cattle, *Am. J. Vet. Res.* 10:2252-2256.
- Raj, A.B., Johnson, S.P., Wotton, S.B. and McInstry, J.L. 1997. Welfare implications of gas stunning of pigs. The time to loss of somatosensory evoked potentials and spontaneous electrocorticograms of pigs during exposure to gases. *Veterinary Rec.* 153:329-339.
- Rushen, J. 1986. Aversion of sheep to electro-immobilization and physical restraint. *Applied Animal Behavior Sci.*, 15:315-324.
- Troeger, K. and Woltersdorf, W. 1989. Measuring stress in pigs during slaughter, *Fleischwirtsch.* 69(3):373-376.
- Van de Wal, P.G., 1978. Chemical and Physiological Aspects of Pig Stunning in Relation to Meat Quality - A Review, *Meat Science*, 2:19-30.
- Velvarde, A., Ruiz de la Torre, J.L., Stub, C., Diestre, A., and Manteca, X. 2000. Factors affecting the effectiveness of head only electrical stunning in sheep. *Vet. Rec.* 147:40-43.
- Wrrington, P.D. 1974. Electrical stunning: A review of literature, *Veterinary Bulletin*, 44:617- 633

Warriss, P.D., Browth, S.N. and Adams, S.J.M. 1994. Relationships between subjective and objective assessments of stress at slaughter and meat quality in pigs. *Meat Sci.* 38:229-340.

Waynert, D.E. and Stookey, J.M. 2000. Vocal behavior in cattle. The animal's commentary on its biological process and welfare. *Applied Animal Behavior Sci.* 67:15-33.

Wenzlawowicz, M.V., Schutte, A., Hollenbon, K.V., Altrock, A.V., Bostelman, N. and Roeb, S. 1999. Field study on the welfare and meat quality aspects of Midas pig stunning device. *Fleischwirtschaft*, 2:8-13.

White, R.G., DeShazer, J.A. and Tressler, C.J., Borchert, G.M., Davey, S., Warninge, A., Parkhurst, A.M., Milanuk, M.J. and Clems, E.T. 1995. Vocalizations and physiological response of pigs during castration with and without anesthetic. *J. An. Sci.* 73:381386.

Wotton, S.B., Gregory, N.B. and Parkman, I.D. 2000. Electrical stunning of cattle. *Vet. Record*, 147:681-684.

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Supplemental Comments Provided to The House Committee on Agriculture,
Subcommittee on Livestock, Dairy and Poultry - May 18, 2007

Submitted by Gene Baur, MPS, President of Farm Sanctuary

Dear Mr. Chairman and members of the subcommittee, thank you for accepting these comments, which are being submitted for the record in response to statements that were made at the May 8th, 2007 subcommittee hearing regarding farm animal welfare.

At the outset I must respectfully disagree with the opinion expressed at the hearing that individuals in the animal farming industry are the best suited to determine appropriate guidelines for the humane treatment of farm animals. Voluntary 'humane' standards that have been developed by producer groups are grossly inadequate and demonstrate this point. Agribusiness, like other business, is driven largely by the desire to make a profit, a priority that tends to limit perspective and undermine the ability to objectively assess whether particular farming practices are humane. Rather than critically examining its practices, agribusiness proponents have tended to create rationalizations and 'scientific' studies to justify the use of cruel and unnatural farming systems.

During his May 8th testimony, Charles Stenholm defended the veal industry practice of denying calves solid food and fiber. Citing industry sources, he asserted that "it is typical to not give calves fiber because it is not healthy for a calf's developing digestive system." In fact, in a more normal environment (i.e. on pasture), calves start nibbling on grass and obtaining dietary fiber at just a few days old. This brings about the natural, healthy development of their digestive systems. In veal production, denying calves solid food prevents the development of their digestive system. While there may be research to show that veal calves who have been restricted to an all liquid diet can experience digestive ailments when they are suddenly given fiber (eg. hay), such findings should not be used to justify the veal industry's unhealthy, and unnatural feeding regimen wherein calves are denied solid food.

The animal farming industry has developed various questionable practices that have come to be accepted as 'normal', and it has tended to defend such practices, sometimes narrowly focused 'science'. Some veal industry proponents have even said that it's healthier for calves if they are removed from their mothers immediately at birth. While this attitude may serve a certain production oriented mindset, and while it may be possible to cite science to make the point, it does not comport with thousands of years of biological history, and it is rejected by most people who believe that it's better for calves to nurse and be raised with their mothers.

During her testimony, Dr. Gail Golab of the American Veterinary Medical Association (AVMA) mentioned the importance of assessing agricultural systems holistically, and there seemed to be a general acceptance of this concept. However, contrary to this approach, industrial farming proponents tend to look at things in isolated terms and to cite limited 'facts' to justify particular practices.

At the hearing, a pork industry representative was asked about sow productivity and responded that sows today are much more productive, and wean more piglets now than in the past. She implied that confining sows in crates helped ensure a better piglet survivability rate and that crating sows makes it less likely that they will lay on and crush their young. She failed to explain that it is common for up to 15% of piglets to die before weaning and for about half of these deaths to occur when piglets are crushed by the sow. Ironically, millions of piglets are crushed by sows in crates every year while industrialized pig farming proponents argue that these crates protect piglets from crushing.

Contrary to the notion that sows need to be confined to protect their piglets, thousands of years of biological history as well as common sense suggests that mother sows instinctively know how to raise their young. When given the chance, sows build nests, and raise their young cooperatively in groups with other sows.

On today's mass production animal farms, cruel procedures are sometimes promoted as a way to improve animal welfare because they minimize problems that are caused by cruel conditions. For example, parts of chickens and turkeys beaks are cut off to prevent injuries that could result when birds who are crowded in stressful, inhumane conditions resort to pecking each other. Rather than taking off parts of the birds' beaks, providing an environment that allows normal behaviors and social interactions could help prevent the problem in the first place. But providing animals with more natural environments is generally not considered because it is assumed to be cost prohibitive.

Among the most pervasive underlying justifications for subjecting animals to inhumane, industrialized farming conditions is the notion that such production systems are necessary to produce large quantities of cheap food. But while the price paid at the retail counter for mass produced animal foods may appear low, there are numerous externalized costs of production (eg. environmental degradation and pollution; resource depletion; destruction of rural communities; human health risks; ethical issues). Our cheap food can actually be very costly.

Producing animal foods requires vastly more land and water resources than producing plant foods, and industrial animal farming is notorious for polluting the environment. Concerns about greenhouse gasses and global warming have garnered the public's attention in recent years, and according to a 2006 report by the United Nations entitled, "Livestock's Long Shadow", one of the greatest contributors to this problem is livestock production.

Ironically, while farmers often consider themselves to be staunchly independent, they are also the beneficiaries of billions of dollars of government support. In some cases the assistance is in the form of direct subsidies and payments, but it can also be in the form of tax breaks and preferential access to water and other valuable resources. Some agriculturalists even joke about 'farming the government'.

There is now a burgeoning societal interest in food production along with increasing opposition to cruel and irresponsible factory farming practices. I strongly urge members of this subcommittee and all members of Congress to examine these matters carefully in the coming months during consideration of the Farm Bill.

We should provide incentives for sustainable, community based farming systems, and discourage the mass production of cheap, unhealthy food that is produced in an inhumane and irresponsible manner. We should critically examine the assumption that our current farming system efficiently produces cheap food, and we should question the often stated belief that the U.S. has the world's safest food supply. If our food is so safe, why are we so unhealthy?

In our current food and farming system, we have seen the emergence and spread of virulent, sometimes fatal, pathogens, like *E. coli* 0157:H7. And, we are also beginning to discover other new diseases. Crowding animals in stressful, unhealthy conditions exacerbates the development and spread of disease while the routine use of antibiotics has contributed to the development of antibiotic resistant bacteria, which are becoming increasingly difficult to combat.

Sick and diseased animals are commonly slaughtered and used for human food in the U.S., contrary to what most citizens believe. Farm Sanctuary petitioned the USDA to eliminate diseased animals from the human food supply in 1998, but our petition was denied, and the USDA explicitly stated that diseased animals could be used for human food. In their March 25, 1999 letter, the USDA said: "The FMIA [i.e. Federal Meat Inspection Act], FSIS [i.e. Food Safety Inspection Service] regulations, and past practices clearly provide for the slaughter and processing of diseased animals for human food."

The USDA even recommends that diseased animals be slaughtered for human food. Regarding to cattle with Johnes disease, a chronic diarrhea condition in cattle that some people believe may be linked to Crohn's disease in humans, the U.S.D.A. advises, "Culture-positive cattle should be sent to slaughter or rendering". Farm Sanctuary has rescued chickens infected with avian influenza from slaughter. Ironically, they were only tested and found to have the disease because they were removed from the slaughterhouse. Otherwise, they would have been slaughtered and consumed without being tested for avian influenza.

With regard to mad cow disease (bovine spongiform encephalopathy or BSE), Mr. Goodlatte wrongly asserted that no animal with BSE has ever entered the human food supply in the U.S. Nobody has adequate information to honestly make such a claim. In fact, the evidence suggests the contrary.

It has been estimated that approximately one in every one million cattle sporadically becomes infected with BSE. If this is the case, then the odds are that animals with BSE are likely entering the human food supply in the U.S. Slaughterhouse inspection processes are not adequate to test and find the disease.

With regard to Mr. Goodlatte's assertion that meat from the first cow in the U.S. confirmed to have BSE (in 2003) did not enter the human food supply, the FDA's response suggests otherwise. Responding to a question about whether meat from the infected animal reached consumers, the Agency stated, "As soon as the BSE case was identified, both USDA and FDA activated their BSE Emergency Response Plans, and USDA immediately recalled the meat. Meat that did enter the food supply was quickly traced and was removed from the marketplace."

In addition to marketing animals with various pathogens and diseases, our industrialized food production system promotes unhealthy eating habits and contributes to the growing prevalence of obesity, diabetes and other serious health problems in the United States. Officials for the Centers for Disease Control say that Americans do not eat well and advises that improved nutrition can help lower people's risk for heart disease, stroke, some cancers, diabetes, and osteoporosis. And, the Surgeon General has warned that our overweight population and obesity are among our most pressing health challenges, causing hundreds of thousands of human deaths and costing more than \$100 billion dollars per year. We should be eating more whole foods, including fruits, vegetables, legumes, and grains, and we should be eating less meat, milk and eggs.

I also want to respond to the misguided statement that the health and performance of Bill Walton, a collegiate and professional basketball player, were hindered by his vegetarian diet. Counter to that statement, Walton enjoyed a celebrated career. He played on two NBA championship teams (the 1977 Portland Trailblazers and the 1986 Boston Celtics) and he was inducted into the NBA Hall of Fame in 1993. In 1997 he was selected as one of the NBA's 50 greatest players of all time. Walton was also a scholar athlete who graduated with honors from UCLA and he is recognized for his extensive civic and charitable work.

Numerous athletes and fitness experts have excelled on a vegetarian diet, including Jack La Lanne, an American fitness icon who remains active today in his 90s. It is unfair and inaccurate to malign vegetarian and vegan lifestyles as unhealthy. Dr. T. Colin Campbell, a Cornell University professor and author of *The China Study*, has conducted extensive research on health and diet. Campbell has linked diets rich in animal foods to chronic health problems, and found plant based diets to be healthier.

In closing, I want to touch on what I said at the May 8th hearing. Specifically, while Farm Sanctuary encourages people to consider a vegan lifestyle, we recognize that each person must make their own decision on the matter. But, it's also important for people to make informed decisions, and whether individuals decide to eat animals or not, it is apparent that practices currently employed in production agriculture are repugnant to most citizens.

The law currently fails to require basic humane consideration for farm animals. At the very least, laws should be enacted to eliminate the cruelest farming practices (eg. veal crates, battery cages, gestation crates, foie gras production) and to bring agricultural practices more into line with societal values. Thank you.

The Egg Industry and Animal Welfare

A Science – Based Approach



*Produced in Compliance with United Egg
Producers' Animal Husbandry Guidelines*

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The Egg Industry and Animal Welfare: A Science-Based Approach

- United Egg Producers (UEP) is a cooperative whose independent members sell about 90% of all the eggs produced in the United States.
- UEP has been a leader in forward-looking environmental, food safety and animal welfare activities.
- UEP's approach to animal welfare is based on science. An independent, unpaid scientific advisory committee recommended industry-wide guidelines for animal husbandry – science-based standards for the best ways to care for laying hens.
- About 85% of producers have voluntarily adopted these science-based guidelines, which are known as the UEP Certified Program.
- The guidelines have been well accepted by our retail and food service customers, and provide assurance to retail consumers that the eggs they buy were produced under approved animal husbandry standards.
- Today, meat, dairy and egg producers are under fire from activist animal rights groups whose ultimate agenda is to eliminate our industries.
- Congress should resist animal welfare legislation that would harm the egg industry or other livestock, poultry or dairy producers.
- Instead, Congress should support the use of science, not emotion, to develop and implement animal husbandry guidelines in the private sector, through voluntary action by producers in response to their customers.



UEP: An Industry Leader

When you pick up a dozen eggs in the grocery store, the chances are about 9 out of 10 that they come from a farm that is a member of the United Egg Producers. UEP is the nation's egg industry organization, and has taken the lead in working with Congress and federal agencies to assure that Americans can continue to buy eggs that are produced in a safe, environmentally sound manner.

Right now, UEP members are cooperating with the Environmental Protection Agency in a major study to measure emissions of ammonia and other gases, to form a sound basis for environmental policy decisions. Through its management of the Egg Nutrition Center, UEP has joined with other groups in providing up-to-date information on highly pathogenic avian influenza (HPAI) at www.avianinfluenza.info.

Animal Welfare Starts with Science

UEP brings that same spirit of proactive leadership to animal welfare. UEP has members who produce organic, cage-free and free-range eggs as well as conventional cage production.

If there's one word that sums up UEP's approach to animal care, it's "science." Basing animal husbandry standards on emotions and subjective views of what "feels right" would reduce animal welfare to nothing more than opinion and endless argument.

Instead, UEP asked Dr. Jeff Armstrong – then head of the animal science department at Purdue University, now dean of agriculture and natural resources at Michigan State University – to assemble the nation's top experts in animal behavior, physiology, ethics and related disciplines. Dr. Armstrong, not UEP, chose the committee members. Like him, they were not paid for their services. Most of the committee members continue to serve today, nearly eight years later.

After an exhaustive review of all the available science, the committee recommended animal welfare standards: how much space each bird in a cage should have, for example, or how to induce a molt, in order to rest the bird's reproductive system and then regenerate production. In most cases, applying these standards involves some cost to egg producers – if there are fewer birds in each cage, total egg output will be lower and so the producer will have less revenue to cover his fixed costs.

Nevertheless, the UEP board of directors approved a schedule for implementing every one of the committee's recommendations. As the years have gone by, the committee has reviewed additional welfare issues as they arose. UEP has never rejected a recommendation by the committee – a remarkable track record that reflects the industry's determination to follow the best available science.

UEP Certified: Science in Action

The UEP scientific committee's recommendations became what is now the UEP Certified Program. The program features a trademarked seal approved by the Federal Trade Commission and the U.S. Department of Agriculture that producers can place on their egg cartons if they adhere to the UEP Certified guidelines. There are strict auditing requirements for use of the seal.

UEP does not just take a producer's word that he or she is complying with the animal husbandry standards. Instead, every participating producer is subject to an annual third-party audit. Audits are conducted by USDA's Agricultural Marketing Service or Validus Services, LLC. About 85% of the egg industry has voluntarily adopted the UEP Certified Program.

To participate in the program, each producer must apply UEP's animal care standards to all his production. Consumers who see the UEP Certified seal on an egg carton have assurance that the producer who packed those eggs treats all hens under his control with the level of care recommended by scientific experts.

Customers and Consumers

Of course, the UEP Certified Program was not developed in a vacuum. Egg producers are well aware of increasing public interest in how domestic farm animals are treated. Not only individual consumers but major food retailers and restaurant chains have paid more attention in recent years to standards of care.

The UEP Certified Program was developed for the egg industry's customers in the retail, food service and food manufacturing sectors – and ultimately for the individual consumers who shop in grocery stores, eat in restaurants and choose branded foods. The industry's major retail and food-service customers have enthusiastically embraced the UEP Certified Program, even as some have established similar programs of their own. UEP's guidelines have the support of the Food Marketing Institute, which represents retail food stores, and the National Council of Chain

Restaurants, representing franchised restaurants. The guidelines have been adopted by the International Egg Commission for world wide use.

The Extremists

The egg industry has learned through bitter experience that some activists are fundamentally dedicated to the proposition that it is immoral to use animals for food, and they will not be satisfied with anything the animal agriculture industry does to improve the treatment of its animals. Ideology rather than science motivates these groups, and their goal is to put the livestock, poultry and dairy industries out of business.

Sometimes it can seem that no good deed goes unpunished: When a farmers' association like UEP takes a proactive, public leadership role on any issue – especially one as emotional as animal welfare – it risks becoming a target. That has certainly happened, but UEP members are convinced that their decision to develop science-based animal care standards was, and remains, correct. By accepting and implementing what science says about the best ways to care for laying hens, egg producers have not only done what is right, but have also offered their customers a credible, defensible program that they can confidently present to consumers.

A Growing Concern

It is not just the egg industry that takes a dim view of animal-rights extremists, especially those who break the law. Congress overwhelmingly passed the Animal Enterprise Terrorism Act to increase criminal penalties for the property damage, intimidation and other tactics that have increasingly characterized the animal rights movement.

For example, the Animal Liberation Front's website proclaims that one of the organization's central goals is "to inflict economic damage to those who profit from the misery and exploitation of animals." The organization also says that the definition of

terrorism should include the “most excessive violence of all—that which the human species unleashes against all nonhuman species.” To some extremists, the hamburger you ate for lunch makes you the moral equivalent of Osama bin Laden.

There is a reason for ALF and similar groups to be sensitive about the definition of terrorism: The Federal Bureau of Investigation considers them a major domestic security threat. The Animal Enterprise Terrorism Act can help law enforcement deal with these threats.

Many animal rights groups are simply opposed to humans eating meat or animal products like milk, cheese, butter and eggs. It is really as simple as that. The groups, like everyone else, are entitled to their point of view. But a little scrutiny of what they actually say reveals views that the overwhelming majority of Americans probably do not share.

In Their Own Words

Many Americans, for example, are probably puzzled why the co-founder of PETA said of Europe’s hoof-and-mouth disease, which required widespread cattle slaughter, “I openly hope that it comes here.” (Maybe she thought it would cure people of their appetite for beef.) Most folks might also be a little put off by PETA’s campaign director saying, “It would be great if all the fast-food outlets, slaughterhouses, these laboratories and the banks who fund them exploded tomorrow.”

But what about allegedly “mainstream” animal rights groups? The Humane Society of the United States has an annual operating budget of \$100 million a year, and probably benefits from a widespread assumption that it is connected to your local animal shelter. It is not. HSUS does not operate shelters, although with \$100 million it could do so in every state if it wanted to. Instead, HSUS is a world-class advocacy organization with a large and growing Washington presence. The group does conduct some activities that are directly aimed at saving animals, but apparently not without a hiccup

or two along the way: In March, the Louisiana attorney general launched an inquiry after receiving complaints that HSUS misused some of the millions of dollar raised to help animal victims of Hurricane Katrina. And as *Feedstuffs* magazine reported on June 5, 2006, some organic and local-based farmers with whom HSUS worked in the past have become disillusioned because they believe the organization is “not pursuing animal welfare but vegetarianism and veganism.” Indeed, HSUS’s policies explicitly call for “replacing meat and other animal-based foods in the diet with plant-based foods.”

Common Sense on the Rise

There are signs that a science-based approach to animal care is gaining ground, and that the excesses of animal-rights extremists are promoting a backlash. Recently, a federal judge sentenced one activist to jail for a break-in at a New York egg farm. Jail time is rare in these cases, but the judge told the defendant: “[Y]our **inexcusable conduct placed the very birds you claim to be working to protect at risk for various diseases and death on a mammoth scale ... You have demonstrated by word and action your obvious disdain for your victim and the laws of the State of New York.**”

And although a small number of college campuses have switched to all cage-free eggs, one of the nation’s leading schools made a different choice. The University of Notre Dame’s food service professionals actually visited both conventional and cage-free egg farms, weighed the pros and cons of each production system, and concluded that “neither the cage production system nor the cage free system treats chickens inhumanely.” The university ended up deciding in favor of conventional eggs, but advises its colleagues at other institutions to decide for themselves.

Conventional or Cage-Free?

That’s good advice – and, of course, consistent with the scientific method of open and objective inquiry. UEP has members

who produce cage-free, organic and other specialty eggs, as well as conventional caged production. These options provide important choices for consumers. But there is no scientific basis for insisting that all producers adopt a single production system, whether conventional or specialty.

About 98% of all eggs in the United States (and 90% around the world) are laid by hens kept in conventional housing systems – cages. These systems protect birds from predators, and also provide protection against Highly Pathogenic Avian Influenza and other diseases that can be spread by wild birds. Cage systems also may reduce pecking and other aggressive behavior. The way eggs are handled in cage systems also reduces the chances that the outside of the egg will be contaminated with feces, offering a food-safety benefit. Cage-free systems have some advantages, such as allowing greater latitude for birds to engage in behaviors like scratching or dust-bathing.

What Should Congress Do?

As Congress prepares to consider the 2007 farm bill and other important legislation, UEP asks all Representatives and Senators to oppose animal welfare legislation that would harm the egg industry or other livestock, poultry or dairy producers. Instead, UEP asks Congress to support what is working now: the use of the best and most current science to develop and implement animal care standards in the private sector. Government's role should be limited to auditing these programs to validate their integrity, and sponsoring research and education about animal welfare topics.

Conclusion: Back to Science

Accompanying this paper, you'll find reprints of several recent press articles that describe UEP's approach to animal care. You'll also find short descriptions of the UEP Certified Program that will give you some additional information, as well as where to learn more.

The bottom line is that animal husbandry should be based on science, not emotion. The public

should expect farmers to be ethical and humane in their treatment of animals. But the narrow agenda of a small minority should not penalize the overwhelming majority of Americans who want to continue enjoying meat, milk and eggs.

What if the U.S. Went Cage-Free?

In 2006, Americans will buy 3.9 billion dozen eggs in grocery stores – a staggering number, but still only about 60% of U.S. egg production (the rest is used as ingredients in processed food, or for egg dishes in restaurants and other outlets). Retail Grade A large egg prices have averaged \$1.09 a dozen this decade, so consumers spend about \$4.25 billion on eggs at retail each year – likely a little more than that since some production (about 2%) is higher-priced specialty eggs.

But what if all eggs were specialty eggs? What if animal rights activists got their wish and all U.S. production was cage-free? This year, USDA reports that retail cage-free prices have been \$2.29 a dozen – about twice the recent price of conventional eggs. (Organic eggs are more expensive still – \$3.18 a dozen.) Even assuming the lower \$2.29 figure, a nationwide switch to cage-free eggs would increase consumer spending on eggs to \$8.9 billion – effectively a consumer egg tax of \$4.65 billion.

Advocates of universal cage-free production also need to ask themselves where the United States will get all the land required to produce enough eggs to meet current demand. There are no U.S. legal standards for cage-free production, but in the United Kingdom, free-range flocks must be given one acre of land for each 400 birds.

An all cage-free system would require more birds than our current system, because more eggs are lost or destroyed in cage-free environments. On this basis, to hold nearly 300 million laying hens to meet U.S. demand under the UK free-range standards would require 740,000 acres, an area larger than the state of Rhode Island. Add land needed for feed storage, access roads and other areas not available to the hens, and the area required is more like Delaware than Rhode Island.



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United Egg Producers Certified™

BACKGROUND

The United Egg Producers Certified program was launched nationwide in 2002. Since then it has been the United Egg Producers way to assure retailers and consumers that their eggs originate from farmers who are following responsible and modern production methods in the care of their egg-laying flocks.

The effort started in 1999 with the formation of an independent scientific advisory committee charged with reviewing all scientific literature on animal well-being for egg-laying hens, and to recommend further research if necessary. The committee, composed of leading animal welfare scientific experts in the U.S., completed this mission and made recommendations to the United Egg Producers and the industry. After these steps were completed, the United Egg Producers adopted the science-based standards and made them available on a voluntary basis to all of its members in 2002.



Farmers must commit to meet 100 percent of the requirements and agree to periodic independent audits before they are allowed to place the United Egg Producers Certified seal on their egg packaging.

The UEP Certified program for cage production provides assurance that hens receive adequate space, nutritious food, clean water, proper lighting, and fresh air daily as well as improves the flock's livability and egg production rates.

The United Egg Producers Certified program is supported by the U.S. Department of Agriculture, the Food and Drug Administration and the International Egg Commission. In addition, the Food Marketing Institute and the National Council of Chain Restaurants endorsed these guidelines.

For more information on the United Egg Producers Certified egg program, visit www.uepcertified.com.

The United Egg Producers Certified guidelines for responsible, modern-day egg production were established by an independent scientific committee for the United Egg Producers and are supported by the USDA and the FDA. These science-based guidelines ensure that hens have sufficient space, continuous access to fresh air and water, nutritious food, are kept clean, are protected from other hens, are transported in a safe and protected manner, and their overall welfare is promoted to the best of the producer's ability. Adherence to these guidelines is audited by independent inspectors from USDA and other authorities.



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FACTS AND INFORMATION

WHAT

The United Egg Producers Certified program is an industry-wide initiative to help retailers and consumers understand the level of animal care standards practiced by individual egg farmers. Each farmer utilizing the United Egg Producers Certified logo must first commit to 100 percent of the approved animal welfare standards developed for the United Egg Producers, based on extensive scientific studies. This is an industry-leading program in the food industry.

WHY

Egg farmers care about treating hens properly and are committed to providing American consumers with the safest, best quality and most economical eggs in the world. The United Egg Producers Certified program was developed to assure consumers that approved, science-based animal care standards have been adopted and are being met in the egg industry.

WHEN

A scientific advisory committee was established in 1999 to review all scientific literature on animal well being for egg-laying hens and to recommend further research. The committee was charged with making recommendations to the United Egg Producers and the industry for any changes or improvements that might be necessary. After those steps were completed, the certification program was approved and launched in mid-2002.

WHO

United Egg Producers represents 190 egg production companies, most of which have committed to United Egg Producers Certified practices. These farmers represent 85 percent of the U.S. egg supply. The U.S. Department of Agriculture, and the Food and Drug Administration support the program guidelines. Most national grocery chains now require egg suppliers to be certified.

HOW

United Egg Producers Certified is administered as a voluntary program developed by a scientific advisory committee that established guidelines for egg farmers to provide sufficient space, continuous access to fresh air and water, sufficient and nutritious food, cleanliness, safe transportation, protection from injury, and maintenance of general welfare. These standards required investment and commitment by the farmers to earn the United Egg Producers Certified seal of approval. Periodic independent audits are essential to the integrity of the program by ensuring compliance with the United Egg Producers Certified standards and requirements.

For more information about the United Egg Producers Certified program or a complete set of the technical guidelines, please visit our Web site, www.uepcertified.com.

CONTACTS

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United Egg Producers Certified™

QUESTIONS & ANSWERS

Q. Why was the United Egg Producers Certified program created?

A. Surveys and polls reveal that consumers trust farmers to make responsible decisions concerning the welfare of their animals. The United Egg Producers Certified program was created to maintain this confidence. Egg farmers care about treating hens properly and are committed to providing American consumers with the safest and best quality eggs in the world. The United Egg Producers Certified program also was developed to assure consumers that approved, science-based animal care guidelines are being met in the egg industry, supported by independent monitoring and USDA involvement.

Q. How were these standards developed?

A. The United Egg Producers formed an independent advisory committee consisting of leaders from six universities, a veterinarian, the American Humane Association and the U.S. Department of Agriculture (ARS). For almost two years the committee reviewed all aspects involved in the care and treatment of egg-laying hens, including cage size, food and water availability, protection from injury and disease, production practices and general welfare. The Food Marketing Institute and the National Council of Chain Restaurants endorse the guidelines established by the committee.

Q. What does United Egg Producers Certified mean?

A. The United Egg Producers Certified program and logo are a guarantee to consumers that their eggs come from a farm that follows responsible and modern production methods, commits to meet 100 percent of the requirements and agrees to periodic independent audits.

Q. Are hens in cages over-crowded?

A. No. United Egg Producers Certified standards have minimum space requirements for each hen based on the breed. These standards call for increased space for egg-laying hens. The United Egg Producers Certified program also requires that all hens in a cage are able to reach food at the same time, and that they have adequate watering facilities. Housing standards include protection from environmental extremes and predators and must facilitate daily care and inspection of birds. Egg farmers also recognized the need to phase-in the increasing space over a period of six years to avoid severe market disruptions and severe egg shortages. This phase-in period allows farmers time to build housing to replace the number of hens removed from existing houses.

Q. Why are cages necessary? Did the committee consider recommending free-range or cage-free environments?

A. The committee reviewed and considered all egg production systems, including free-range and cage-free. They concluded that all systems have advantages and disadvantages. Because 98 percent of eggs in the United States and most of the world are produced in cages, the committee focused its recommendations on cage production. The standards recommended and adopted for the United Egg Producers Certified program reflect egg farmers' objective to produce safe, high quality, and economical eggs that meet U.S. consumer demand – more than 73 billion whole eggs annually. Free-range and cage-free environments are not without hazards and complications, and the nutrient content of eggs from these sources is no different from production facilities with cages.

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FOR IMMEDIATE RELEASE

CONTACT: Mitch Head
404.367.2744**Modern U.S. egg farm production methods help protect against spread of Avian Influenza**

ATLANTA (Nov. 2, 2005) – The presence of highly pathogenic avian influenza in parts of Asia and Europe has raised public concern with the safety of poultry and eggs in Europe and other countries including the United States. The U.S. does not have the type of AI strain that is in Asia and Europe. Modern U.S. farm production methods—whereby poultry is housed indoors under strict biosecurity procedures and surveillance—help prevent the spread of Avian Influenza in the U.S., experts say.

“One of the biggest myths today is that modern farming techniques promote the spread of avian influenza,” said David Swayne, director of Southeastern Poultry Research Laboratory, the country’s largest research effort into avian influenza. “That is not the case.”

“Modern farming techniques actually prevent the spread of avian influenza,” said Jeff Armstrong, dean of the college of agriculture and natural resources, Michigan State University and chair of the Scientific Advisory Committee of United Egg Producers.

In fact, the spread of H5N1 Avian Influenza is most predominant in small villages in Southeast Asia where much of the poultry is raised in open air fields which allow migratory birds to come in contact with domestic poultry, which are then sold live in village markets, Swayne explained. This promotes maintenance of the virus and recurring infections. In addition, the open air fields are more prone to migratory bird infestations which promote the spread of the low pathogenicity virus and more recently, the high pathogenicity H5N1 which is highly fatal to poultry. The majority of the Asia H5N1 outbreaks have occurred among village poultry, primarily domestic ducks.

Almost all eggs produced in the U.S. originate from farms with modern cage production systems in housing that protect the flock from contact with migratory birds, predators, and other diseases. These indoor housing systems also help ensure all birds receive daily sufficient feed, clean air and water. In addition, these conventional cage systems allow farmers to visually inspect hens daily for any health problems or symptoms for immediate attention and treatment. Most U.S. egg production facilities also enforce stringent biosecurity measures and strictly limit contact with humans. Few visitors are allowed in poultry houses to reduce the risk of spreading diseases.

-MORE-

Modern U.S. egg farm production methods
Page 2

The World Health Organization now is recommending that many Asian and European farmers confine their poultry in houses like most of the poultry is raised in the U.S. The French Ministry of Agriculture has placed a ban on outdoor raising of poultry in 21 regions of the country that are more vulnerable to migratory birds or they have significant areas of lakes and dormant water which attract waterfowl. The American Association of Avian Pathologists and the American College of Poultry Veterinarians say "The U.S. maintains much higher health standards for birds which are raised in flocks housed in modern, climate-controlled poultry houses and fed a nutritional formula. The modern type of animal production in the United States is actually more protective of birds, their health and well being than the more traditional systems such as the free running village chickens in Asia."

"There is a very low potential for migratory bird transmission in the U.S. as birds in Southeast Asia do not directly migrate to the United States," added Swayne. The U.S. Department of Agriculture continuously monitors migratory bird patterns and regularly tests migratory birds for avian influenza.

There have been no cases of the high pathogenic H5N1 avian influenza virus in wild birds or commercial poultry production in the United States. Proper cooking of any poultry or poultry products would destroy any virus in the very unlikely event that it was present.

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FOR IMMEDIATE RELEASE

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Don't Get Your Food Facts From Animal Activists

US Egg Producers challenge Activists' Myth-information with Scientific Facts

ATLANTA (April 10, 2006) – Are consumers being forced to pay higher food prices? Are their food choices in jeopardy? That's exactly what could happen if animal rights groups have their way. Led by a vegan agenda, groups such as the Humane Society of the United States (HSUS) target food groups, universities, foodservice and retailers, spreading misinformation and touting junk science in an effort to eliminate all food derived from animal production including milk, meat, cheese and eggs.

United Egg Producers (UEP), representing most U.S. egg companies, believes in consumer choice and many of the UEP Certified companies produce at least some of their eggs in cage-free or organic systems. UEP does not believe consumers should be misled by animal activist agendas or their choices taken away by these agendas. Price is still an important component in many consumers' decisions on food purchases. USDA publishes a Weekly Retail Shell Egg Feature Report gathered from 17,000 retail stores across the country. Differences in egg prices can be found in this report. For example, the week of December 29, 2006 found cage eggs selling for 93 cents per dozen while cage-free sold for \$2.45 and organic for \$3.72.

Consumers who decide to make their food choices and purchases based solely on myth-information from animal activists should think twice and then check the facts... science-based facts.

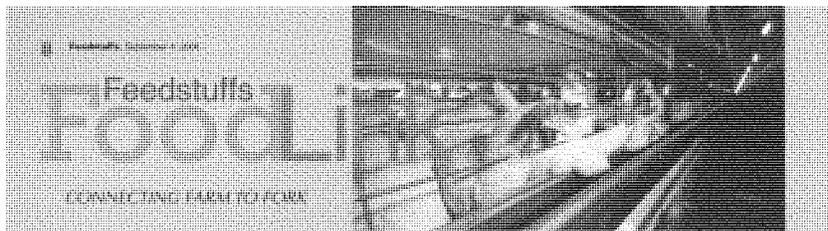
In the egg industry the hens come first. That's why UEP developed the "United Egg Producers Certified" program for cage egg production... the most comprehensive and progressive animal care program in the U.S. This program was developed out of guidelines established by an independent advisory committee of some of the top animal welfare scientific experts in the U.S. and is supported by the U.S. Department of Agriculture, the Food and Drug Administration and the International Egg Commission. In addition, the Food Marketing Institute and the National Council of Chain Restaurants endorsed these guidelines.

Hens raised in modern cage system are protected from predators, severe weather, diseases and soil-borne diseases. The UEP Certified program for cage production provides assurance that hens receive adequate space, nutritious food, clean water, proper lighting, and fresh air daily as well as improves the flock's livability and egg production rates. The cage system allows farm caretakers to visually inspect each hen each day and has virtually eliminated the need to administer medicine or drugs. Modern cage systems provide for better optimum bird health and welfare.

U.S. egg farmers care about treating their hens properly and protecting them from disease and injury. UEP Certified farmers must implement the guidelines on 100% of all their production farms and are audited for 100% compliance by the USDA and the independent firm Validus. The United Egg Producers Certified program standards are the strictest in the industry and are part of our ongoing commitment to providing American consumers the safest, high quality and most economical eggs in the world.

Visit www.uepcertified.com to learn more about the Egg Industry and the UEP Certified program.

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Sorting out cage-free dilemma

With consumers increasingly considering "social responsibility" issues when making food purchasing decisions, egg producers are following scientific guidelines to house their hens in a humane and responsible environment.

By JEFFREY D. ARMSTRONG*

CONSUMER choice has great influence over the food system, and consumers are increasingly including animal welfare, environmental concerns, genetic modification, organic and other issues more broadly defined as "social responsibility" issues in their decision-making process.

Likewise, major companies and organizations are spending more time on corporate responsibility in the food system, and retailers are requiring quality assurance, which, in many cases, must be verified by a third party.

Livestock and poultry producer groups have developed strategies to address consumer desire for social responsibility in the food chain.

The United Egg Producers (UEP) is considered one of the leading groups in applying science to welfare, food safety and environmental issues. In 2004, UEP unanimously adopted and implemented a

science-based set of guidelines for laying hens raised under caged conditions (*Feedsuffs*, March 15, 2004). Concurrently, it established the UEP certified program that is regularly audited by the U.S. Department of Agriculture and Valletta.

The UEP guidelines have been endorsed by the Food Marketing Institute and the National Council of Chain Restaurants.

On the other hand, critics believe the guidelines are not valid as the cage system is inherently inhumane.

Decision-makers
With this background in mind, there are situations within the food system where a few make decisions for many. One example involves university food services, where decisions are made in the interest of the students and their parents.

I recently attended the annual meeting of the National Association of College & University Food Services to determine how university food

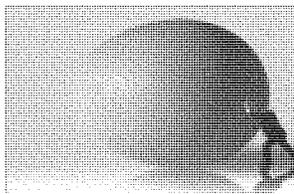
services sort through these issues and make informed purchasing decisions.

During this meeting, the University of Notre Dame provided a behind-the-scenes look at its decision-making process for food procurement. Representing the key decision-makers (Social Responsibility Committee) were Joelle Antonelli, manager of nutrition and safety, and Dan Crimmins, director of purchasing. Antonelli is a registered dietitian and is responsible for the nutrition and safety of food served at Notre Dame.

Notre Dame has 11,200 students, with 80% living on campus. More than 6,000 purchase on-campus meal contracts. The majority (80%) of students are Catholic, and the university has a strong history and commitment to campus life and social causes.

Earlier this year, Antonelli and colleagues were petitioned by a small group of students to serve only cage-free eggs. The group, ND for Animals, provided a video depicting serious problems of a typical cage system.

The scenes on the video were appalling. In my opinion, some of the acts shown in the video are reprehensible, and the perpetrators should be prosecuted. However, the scenes simply do not represent conditions experienced by hens housed and managed under the UEP guidelines.



noted that the birds huddled together at one end of the hen house, so while they had more space, in practical terms, they were not using any more space than the hens in cages.

The hens were walking around in a "deep litter" system, Antonelli said. Deep bedding occurred in both systems. She also noted that there was more dust and ammonia. Equally important, Antonelli and her team recognized that the cage-free system provided an opportunity for the hens to demonstrate behaviors such as scratching and dust bathing.

The Notre Dame food services group spent a great deal of time discussing the moral, ethical and particularly the religious claims the students made (nearby story).

One particular quote attributed to Pope Benedict XVI occurred when he was a Cardinal, so its relevance was relegated to a personal opinion rather than an official church position. Upon further exploration, they found the following excerpt from the Catholic Catechism:

"God entrusted animals to the stewardship of those whom He created in his own image. Hence it is legitimate to use animals for food and clothing... It is contrary to human dignity to cause animals to suffer or die needlessly. It is likewise unworthy to spend money on them that should be a priority go to the relief of human misery. One can love animals; one should not direct to them the affection due only to persons."

According to Antonelli, the religious issue became a neutral point in the review.

The university also had its chef test both varieties (cage and non-cage) of eggs, and he found no difference in their culinary performance. There also was no difference in nu-

tritional quality. Upon examination, Antonelli said it was determined that quality of life might be slightly better in the cage-free system, but there was no real way of asking a chicken that question. More importantly, Antonelli said neither system treats chickens inhumanely.

As determined by the UEP committee, it is difficult to measure the welfare of animals. It requires weighing beneficial or detrimental outcomes under a variety of production conditions relative to the impact on hen well-being.

Finally, Antonelli and Notre Dame expressed concern with food safety issues (including salmonella, egg contact with feces and freshness of the eggs) with the non-cage systems. The university provides food for a children's center on campus, a retirement home for priests and pregnant women.

In addition, logistical issues of egg deliveries were considered, as well as cost factors, since many cage-free eggs cost much more than cage production eggs. Antonelli stressed that cost was not a major or deciding factor.

Notre Dame's final decision was to maintain its current egg supplier.

Antonelli's advice to other universities is: "Do your own homework and investigation, check out your suppliers and understand all aspects of the issue of products in your supply chain. See for yourself; don't just take other people's word for it."

Here's the point

IN the University of Notre Dame situation, there are many points of importance...

First, remember that this is not about promoting one housing system over another.

Second, this is not an argument against consumer choice. For egg producers, the main point is to emphasize the importance of implementing and adhering to science-based guidelines.

For universities, retailers and others being challenged to make changes, make sure science-derived guidelines are the foundation for the care and welfare of hens produced in any housing system. In many respects, Notre Dame conducted its own third-party review of the science-based guidelines prepared for UEP.

Consumer choice is important and, whenever possible, should be provided. In the case of Notre Dame, the university was forced to make a choice. Its dedication and rigor involved in making that decision should be applauded.

As a student, a parent of a student or a consumer, the freedom to choose is important. It is a constitutional hallmark that cuts across our culture.

Students, activists, professors, producers and food service personnel certainly have the right to make choices based on their personal values, but when acting on behalf of others whose choices will often differ, the best approach is to use science-based guidelines, especially when choice is forced or required.

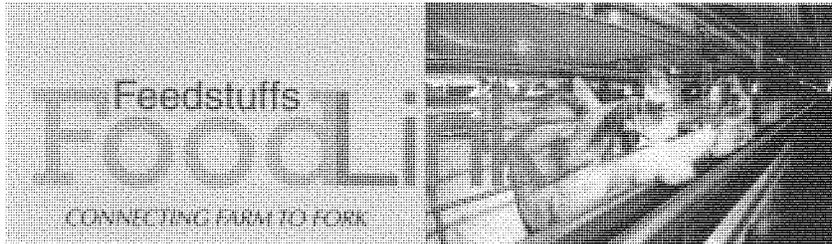
Investigating

To investigate the concerns, Antonelli and other committee members, along with two students, visited the current egg provider and two cage-free suppliers. The university's egg supplier has been on the UEP certified program (www.uepcertified.com) since its inception.

Antonelli noted that they saw four to six hens per cage, with each hen provided 67-72 sq. in. of space, 24-hour access to food and water, protection from predators and access to bright light that mimicked normal day and night patterns.

She went on to note that the cages were built such that the birds and manure were separated. She described how USDA conducts audits on a regular basis and showed several images from inside the facility.

Antonelli and others found the cage-free environment not much different than the cage environment. While there were no cages and more space, she



Egg industry lets science 'speak'

UEP's collaborative welfare process relies on science rather than emotion and is working for birds and producers alike.

By **ROD SMITH**

US. commercial egg producers are "letting science speak" as to the care and welfare of birds in numerous production systems, which is the right way to achieve what's best for hens and producers, according to animal behavior and other scientists who sit on the animal welfare scientific advisory committee for the United Egg Producers (UEP).

Doing so represents egg producers' extraordinary commitment to animal welfare, they said during interviews with *Feedstuffs* *FoodLink*.

UEP, which represents 90% of commercial egg production, adopted guidelines for hen welfare six years ago that the scientific advisory committee recommended (*Feedstuffs*, Oct. 18, 2000) and has modified them several times since then on the advice of the committee, which acts independently of producers.

First of two parts

The guidelines set standards for cage space, access to feed and water, beak trimming, housing environments, molting and other management practices, as well as handling, transportation and slaughter of spent hens.

The standards are founded on extensive research and scientific soundness, and UEP members who subscribe to them undergo independent audits every year to verify compliance. About 85% of production is enrolled in the guidelines.

Although about 95% of egg production in the U.S. is in cage production systems, UEP has asked the committee to develop guidelines for cage-free and other production systems.

Complex interaction

In interviews, members of the committee discussed the concept of the committee itself, commending producers for not

only their vision but willingness to put their husbandry practices in the hands of science.

Paul Thompson, a philosopher who holds the W.K. Kellogg Chair in Agriculture, Food & Community Ethics at Michigan State University, said he has "a lot of admiration" for the collaborative process in which the committee and producers have addressed both the economics surrounding the business side of their operations and the ethical issues surrounding the welfare of their birds.

"It would be unreasonable" to expect the latter to be forced on producers without considering the economics in an industry in

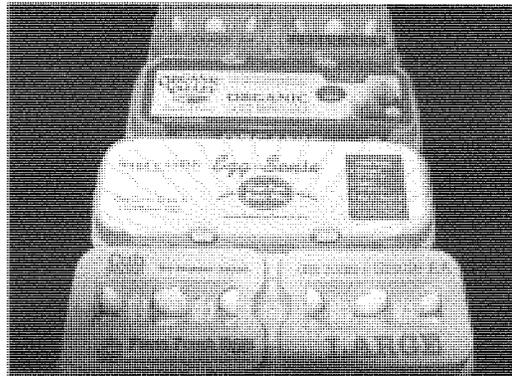
which producers compete with each other and with other protein suppliers, he said.

The UEP process has been "a positive way to come to terms with how to be ethical ... and focused on improving the quality of the lives of animals and still focused on markets," he said.

"The collaborative process may well be a new way to think about ethics," Thompson said.

The committee has been free to bring every issue to the table to create "an overlay" of factors to understand hen welfare from the industry's perspective, "and we saw that it's not 'this or that' but a complex interaction," said Janice Swanson, who specializes in animal behavior issues at Kansas State University.

The right thing to do is the right thing for an animal's welfare, she said, but it's necessary "to start where the industry is (to improve animal well-being) with as



CHOICES Consumers should have choices in the kinds of eggs they eat, but they also should understand that the welfare of the fowls is dependent on how the systems are managed and run, the systems, according to poultry scientists.

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little disruption as possible to the bottom line."

Pointing to countries that have mandated poultry management and production schemes through bans and laws, she said the committee-UEP process has increased cage space "in half the time of the regulatory context."

The process is phasing in better husbandry "without tipping the apple cart," agreed Gail Golab, a veterinarian with the American Veterinary Medical Assn. in Schaumburg, Ill. "Adoption has to be practical."

The process relies on "real data," on science rather than emotion and is working for birds and producers, added Scott Hester, a poultry production specialist at Purdue University.

For instance, science demonstrated that increasing cage space is in the best interests of hens and productivity, and producers are responding not only with more space but new caging and housing systems that are "night and day" in comparison, she said.

For example, UEP said it gathered and summarized 60-week performance data from 319 flocks of White Leghorn hens kept in cages under the UEP Certified guidelines. The comparison was based on performance results of flocks placed at 53 sq. in. or less and those placed at 59-61 sq. in. Increasing space per layer provided the following results: 2.3 less mortality, 7.8 more eggs per hen housed and 0.06 lb. less feed per dozen.

UEP said it expects even greater performance improvements as it phases in placing hens at 67 sq. in.

Science demonstrated that there are advantages and disadvantages to beak trimming — with more advantages than disadvantages — but the solution is to genetically select for less aggressive birds,

a goal toward which the industry is now working, she said.

Science demonstrated that feed withdrawal to force molts is simply unethical, and producers, using UEP-funded research, are moving to non-fasting regimens, she said. Feeding space studies also are underway, she noted.

All of this and more are being done on timelines "that are not disruptive to" industry economics, Hester said. "Producers are buying in."

The "highlight" of the process is that UEP "is seeking out science and letting science speak," Hester said.

Choice and questions

UEP's approach is unique to commodity groups, most of which have animal welfare platforms constructed internally by and for their memberships, members of the UEP scientific advisory committee said. (The pork sector's Swine Welfare Assurance Program reflects practices recommended by a committee of scientists named by the National Pork Promotion & Research Board [Feedstuffs, Sept. 22, 2003].)

It's "an excellent model," and UEP should be commended for being forward looking and sticking with it despite continued criticism by activist groups and even some internal dissent, said Joy Mench, an animal behavior and production specialist at the University of California at Davis.

It may, indeed, be too excellent of a model, added Thompson, who said sometimes having a producer speak up about the real world would be helpful. However, he said the committee's independence should afford foodservice managers and supermarket dairy case managers — and, ultimately, consumers — confidence that the guide-

lines are credible and science based.

Consumers buying eggs — or other animal-derived protein — at a restaurant or supermarket want to be confident that animals are treated with high levels of husbandry, and this "demand and pressure from the public will increase," Thompson said.

People are often suspicious of the industry's message because it's considered to be slanted but are more receptive to a message of high welfare from independent interests, he said.

Accordingly, producers "need to work with a broad group of constituencies to make sure they understand that the industry is doing the right thing," he said.

Foodservice and supermarket managers need to ask questions, and consumers need to ask questions, especially if presented with arguments that one production system is more welfare oriented than another, Swanson said. Consumers are entitled to choices but also to the information on which to make those choices, she said.

For instance, Golab added, restaurant and store managers need to know the differences between production systems and labels promoting those systems so they can explain the differences to consumers.

With few exceptions — such as when foodservice managers at Notre Dame asked for information about cage-free production systems and decided against buying cage-free eggs (Feedstuffs, Sept. 4) — they aren't asking those questions.

The problem is that "we scientists talk from three stories up," and the industry's message tends to be mistrusted, she said. Somehow, producers, scientists, merchandisers and consumers need to begin talking with each other, she said.

Producers also are entitled to choices, Swanson said, and while one choice could go in the cage-free direction, another could go to cages. The goal is to provide a high level of welfare for the birds, she said, which can mean that hens running free in a barn or on a range may not be as well cared for as more confined hens.

Animal care is not about production systems but how birds are managed in production systems, Golab said.

Mench added that there is "disagreement over the ethical values of housing systems, but the hard thing" is to look at the trade-offs — the variables — that contribute to animal welfare and recognize that it's management that balances these variables.

Here's the point

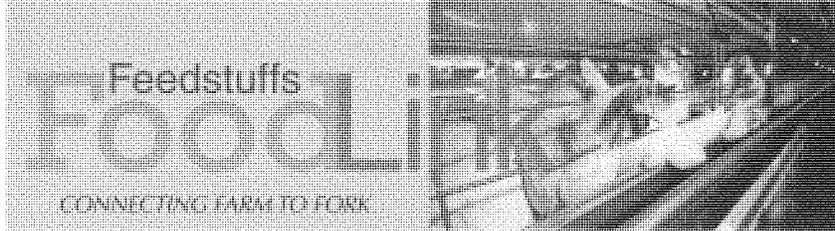
THE egg industry has developed a credible process for establishing scientific standards for the care and well-being of hens, and producers are making important progress toward improving the housing and management of their birds.

The process works because it provides for the interaction of economics and ethics.

Foodservice and supermarket managers should understand that hen welfare is dependent on management of layers and not on specific kinds of production systems and should ask questions of their egg suppliers about how eggs are produced and the science behind welfare standards when confronted with conflicting emotion-charged information.

They should emphasize this message and science in consumer engagements and refer their customers to www.feedstuffsfoodlink.com.

FeedstuffsFoodLink.com



Egg industry lets science 'speak'

Egg producers are constantly working to improve the management and welfare of their birds in both cage and non-cage systems.

By ROD SMITH

An observer recently reported that he toured a non-cage egg production system and was abhorred by the ammonia and dust levels, explaining how there was so much dust in the house that he could barely see the chickens.

Another observer recalled watching a free-range flock attack and devour a snake trying to crawl across the pasture. He wondered how consumers would feel about what the free-range chickens they were paying premiums to buy for their dinner were eating for their dinner.

On the other hand, *Feedstuffs* has visited cage-free and range systems that are exceptionally well maintained, that are industry showcases.

That's the point: Animal welfare is management dependent, not system dependent, according to poultry behaviorists and other scientists who are members of the animal welfare scientific advisory committee of the United Egg Producers (UEP). In interviews with *FeedstuffsFoodLink*, they said animal welfare, including the humane treatment of hens in egg production systems — cage or otherwise — is a complex matter of many variables.

Second of two parts

The committee members meet and recommend animal care practices to UEP independently of the association, which folds the practices, as guidelines or standards, into its UEP Certified hen welfare program. The program covers about 85% of production, and producers subscribing to it are audited for compliance every year.

The committee has developed guidelines for cage production systems and

is developing guidelines for non-cage production systems. Many UEP members operate both kinds of systems in response to market demand for conventional low-priced eggs and higher-priced specialty eggs.

Tough message

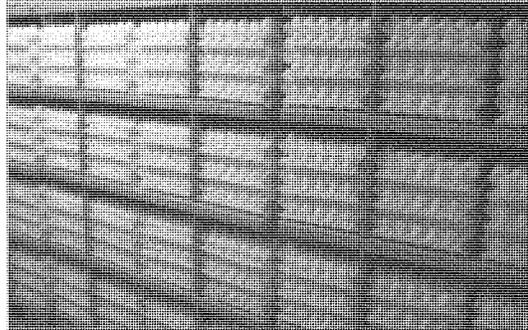
The controversy is that while egg producers are focusing on the right way to care for hens in all systems, some activist groups are focusing on perceived superiority of one system over another, and this has "polemitized" the issue, said Janice Swanson, an animal behavior specialist at Kansas State University. "It's very frustrating for (us) scientists,"

she said.

Regardless of one's approach, animal welfare is an emotionally driven issue, and "it often becomes the cause of the person (that's important), not the welfare of the animal," added Gail Golab, a veterinarian with the American Veterinary Medical Assn. in Schaumburg, Ill.

The committee does not endorse one production system over another but does endorse humane management practices, and those kinds of practices must be learned, emphasized Paul Thompson, a philosopher who holds the W.K. Kellogg Chair in Agriculture, Food & Community Ethics at Michigan State University.

Learning — having management committed to and workers educated in humane practices — may well be the central "constraint" to animal welfare across agriculture, he said, noting that there are humane ways to manage birds in cages and in non-cage production systems and saying learning constraint



EGGS FROM ANY SYSTEM: Eggs from any kind of production system — cage or non-cage — can come from hens housed at the highest levels of animal welfare or the worst, depending on how the system is managed and the skill of its workers, according to poultry scientists.

is especially important in adopting the latter.

"Moving away from cages requires a tremendous level of expertise," and moving to cage-free and other non-conventional systems without a skilled workforce to manage those systems is not good advice, Thompson said. Cage-free and free-range production "may sound good," but without a trained workforce, "they would be adverse to the birds. There would be a deficit of care."

This is why there are non-cage environments that are both horror shows and showcases, and moving production to that type of housing without the skills to manage them would be unethical, Thompson said.

At the same time, there are cage pro-

duction systems that are showplaces for animal welfare, he said, and "we don't want to send the message that the only hens that are being humanely treated are in those (non-conventional systems)."

However, "it's tough to explain that to people who are not patient and willing to listen," he said. "It's a tough message to sell."

Visionary tinkering

Referring to how animal welfare is an emotional issue, Joy Mench, an animal behaviorist and poultry scientist at the University of California at Davis, Cal., said there will always be disagreements over the ethics of production systems, and "the hard thing" to explain about

animal welfare is that there are a number of factors that contribute to the welfare of animals.

Even in well-managed egg production systems, for instance, there are trade-offs, she and Swanson said. In cages, hens can't flap their wings, but they are protected from the dust, poor air quality, cannibalism and cannibalism-related mortality and parasites often associated with cage-free and free-range systems, and there is not a feces problem in cages.

Also, there are differences like those in outdoor production in California versus Michigan.

Both conventional and non-conventional systems have advantages and disadvantages, with "really difficult challenges," and how management "balances them out" makes the difference, Mench said.

The committee looked at all possible production systems, Mench said, "and we are not yet at a stage where we would recommend one over the other — 10 years from now, maybe."

In the meantime, she said the egg industry, through the committee's interaction with UEP, is constantly improving animal welfare for hens in cages and will be improving welfare in other systems in the future. The industry is working on this every day, and while it may be "tinker, tinker, tinker," producers are improving the welfare of their birds, she said.

Mench, who noted that she has spent her career involved in improving poultry welfare, said the egg industry, through UEP, has been "very visionary" in its process. "I'm proud of the work we've done, and I'm 1,000% behind the guidelines."

Here's the point

CAGE and non-cage egg production systems can be horror shows or showcases depending on the management of those systems because animal welfare is management dependent. There is not one kind of production system that, by itself, provides superior welfare.

There are, in fact, advantages and disadvantages to all kinds of systems — or trade-offs. Animal behaviorists and poultry scientists do not recommend one system over another but said it's how those trade-offs are managed that makes a difference in the quality of a bird's life. They also noted that egg producers are working every day to improve their bird husbandry skills.

Foodservice and supermarket managers should make sure their suppliers are managing high-welfare environments, regardless of the type of environment, and should emphasize these messages in their consumer engagements and refer their customers to www.feedstuffsfoodlink.com.

FeedstuffsFoodLink.com

High welfare standards will be demanded

Key Points

- Nutritionist recounts disappointing experience working with HSUS.
- Rosman said welfare groups won't help producers adopt standards.

By ROD SMITH

AT first, there were "little things" — a business lunch with a meat sandwich was not permitted — hinting that the Humane Society of the U.S. (HSUS) was changing direction, and then there were greater issues such as closing projects that encouraged more traditional agriculture, according to Jerry Rosman.

In making this change, HSUS abandoned a number of dedicated staff, farmers and others committed to alternative production and the health and well-being of farm animals, he said. HSUS "threw away several years of good will-building in the Midwest" to pursue a more activist, if not radical, vegetarian agenda, he said during an interview at his farm in Harlan, Iowa.

Rosman, a consulting animal nutritionist, coordinated a farmer's market in Sioux City, Iowa, at which food was produced locally and naturally, and if it was of animal origin, animals were raised according



FIG HELP: Animal nutritionist Jerry Rosman tried to work with HSUS to show farmers the value of alternative production systems, including those with high animal welfare standards, but said HSUS abandoned the concept and will be of no help to producers in developing and adopting those standards.

to humane standards. The market was connected to the HSUS "Care4Iowa" program that promoted small-scale "sustainable" farming.

Rosman recounted that he was working with a number of swine producers in southwestern Iowa and northern Missouri who were hit so hard in the hog market collapse in 1998 that many quit their involvement in pork production.

At that time, he said he met Chris Bedford, then coordinator of the Farm Animals & Sustainable Agriculture division of HSUS, which included Care4Iowa, which led to a proposal that he help HSUS in its relationship with local farmers.

Rosman said he was intrigued by the proposal because of the natural alienation between farmers, who believe they are good stewards of their animals and the environment, and activists, "who mean well" but don't understand farming and livestock production.

Group hijacked

He said he was told HSUS wanted to create models that would keep "less-intensive livestock units viable" by

promoting free-range, loose-house, natural, organic and other alternative practices. He recalled that Bedford said HSUS had just come off a less-than-successful campaign fighting large-scale hog production and wanted "a less adversarial approach."

Rosman said the farmers market, the Floyd Boulevard Local Foods Market, was his "key focus."

The market was established as a joint venture between farmers seeking a local market for the food they produced and consumers wanting that kind of food, he said, noting that the farmers signed a pledge to meet specific standards.

The market opened in May 2004. However, HSUS was already changing, Rosman said, as longtime director Michael Fox had left and Wayne Pacelle had taken over as chief executive officer and president with a vegetarian agenda.

He said conflicts arose between what Bedford and he were doing in Care4Iowa and HSUS, which had started new attacks not only on large-scale livestock production but on livestock production practices that had been promoted to farmers as humane and sustainable.

He said HSUS adopted an expense

HSUS policy

LAST year, the Humane Society of the U.S. (HSUS) adopted policy for "eating with a conscience" that advocates three "Rs," including:

- "Reducing the consumption of meat and other animal-based foods";
- "Refining the diet by eating products only from animals ... raised, transported and slaughtered in a system of humane, sustainable agriculture that does not abuse animals," and
- "Replacing meat and other animal-based foods in the diet with plant-based foods," HSUS said.

account policy requiring "meatless meals" — although one could buy a farmer a meal with meat if permission was obtained ahead of time.

Then came more significant moves, he said, as HSUS began hiring lawyers with an adversarial approach to livestock production and started to withdraw funding from Care4Iowa, eventually killing the program. The farmers market closed last year.

Finally, HSUS adopted policy promoting "eating with a conscience" (nearby story) that called for the end of consumption of food from animals, he said.

Alienation resurfaced between farmers and HSUS, he said.

Rosman said this all started happening just when he was making progress with farmers and groups representing them. Bedford and his short-term successor, Amy Freiburger, were "wonderful and articulate" and got along with everyone, he said, noting that he and Freiburger were organizing a conference in Iowa on

alternative agriculture when funding was withdrawn.

HSUS was correctly focused on achieving good things in livestock husbandry, he said, but "it got hijacked, ... and now everyone is squared off in the corner again."

Strange partners

HSUS and other groups like it are not pursuing animal welfare but vegetarianism and veganism, Rosman said, adding that supermarkets and university foodservice divisions that respond to campaigns promoting certain kinds of egg, meat and poultry production systems "don't realize who they are partnering with" and the ultimate agenda to eliminate animal-derived food from menus, dairy cases and meat counters.

He also said this has left promoting animal welfare to producers, their trade associations and their restaurant and retail customers —

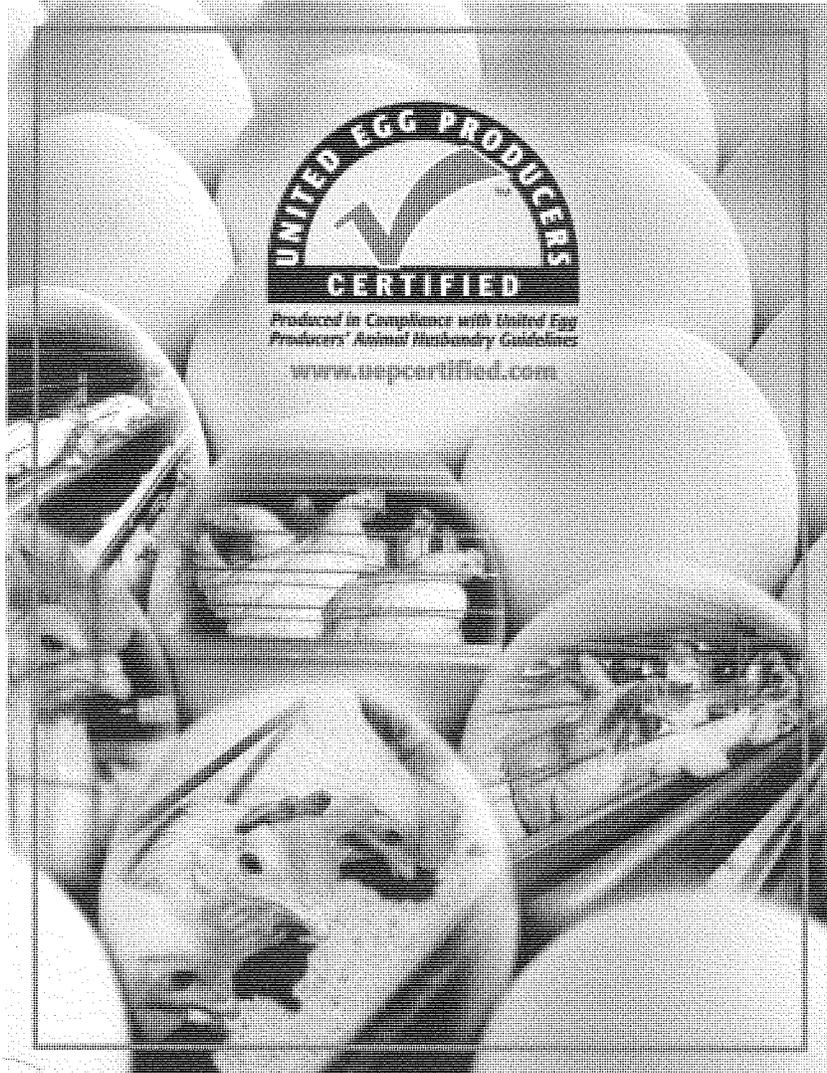
many of whom are dedicated to high welfare standards — without support from an animal welfare organization.

Rosman, who co-chairs an effort to form the trade organization Iowa Organic Assn., said consumer demand for organic food is increasing rapidly because consumers perceive health and other benefits and are prepared to pay a higher price for the additional value. Producers are responding, he said.

The same will happen with animal welfare, he said, as consumers start to recognize the additional value of food products from animals raised in production systems with high husbandry standards. Producers will respond, he said.

"Like it is now for organic food," he said, "when consumers say they want this product with animal welfare standards and will pay for it, producers will adopt the standards."

However, it will be producers that earn the credit, not the animal welfare organizations, he said.





Statement of the American Farm Bureau Federation

**TO THE
HOUSE COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON LIVESTOCK, DAIRY AND POULTRY
REGARDING: ANIMAL WELFARE**

MAY 8, 2007

STATEMENT OF
THE AMERICAN FARM BUREAU FEDERATION
TO THE
HOUSE COMMITTEE ON AGRICULTURE
SUBCOMMITTEE ON LIVESTOCK, DAIRY AND POULTRY
REGARDING: ANIMAL WELFARE

May 8, 2007

The American Farm Bureau Federation (AFBF) respectfully submits our views to the subcommittee as it reviews the welfare of animals in agriculture. As the nation's largest general farm organization and the representative of millions of farmers and ranchers in every state in the nation, AFBF has a vital interest in how animal care issues affecting our members are perceived, examined and decided.

Animal agriculture is not what it was a generation ago and it will continue to change in the years and decades ahead. Farmers and ranchers are better educated about the science behind animal welfare than ever before, and they are adopting those practices and techniques as never before while maintaining an increasingly productive industry that works hard to ensure a food supply that is the most affordable and abundant, and among the world's safest. This is a record of which we are proud.

Yet, farmers and ranchers face tremendous pressure to live up to expanding expectations – not just the economic imperatives of the marketplace, but social, legal and regulatory requirements that are sometimes based on misinformation and misunderstanding. As a beef producer I have tremendous pride in what our industry is doing to feed not just Americans, but the world. Like most stockmen, I have always believed that my role is to care for my animals in the best way possible so that they, in turn, will be as productive as possible for my family and the hundreds of others for which I supply safe, affordable protein. However, it's becoming increasingly clear beyond operating our farms and ranchers, livestock producers must assume another role as well – to be a proactive voice for the stewardship that characterizes our way of life.

Modern Animal Agriculture

Farming has changed over the years. Many of today's farm animals live in carefully supervised environments where they do not struggle for survival or search for food in harsh surroundings. Instead, they have heat in the winter, cool ventilation in the summer, and clean, dry living areas with food and water year-round. The majority of food-producing animals are raised in climate-controlled barns where they are protected from the elements. Extensive scientific research is the basis for today's sophisticated heating, cooling, ventilation and sanitation systems that keep farm animals comfortable and reduce their stress levels.

Today's farmers employ modern, thoroughly researched production practices as they care for their livestock and work hard to deliver a food supply that is the most affordable and abundant, and among the world's safest. The latest proven advances in animal handling, husbandry, health

and care are adopted. Livestock groups have developed, and many producers are voluntarily implementing, workable animal care and handling guidelines as part of quality assurance programs. The welfare benefits and justification for these practices are scientifically documented.

While advances in animal care have changed some livestock production methods, certain characteristics of the livestock producer remain the same. Farmers are still on call 24 hours a day, often in the middle of a long night, to milk dairy cows, help sows deliver piglets or tend to newborn calves. Just as meat, eggs, milk and other dairy products are part of most Americans' mealtime routine, caring for the animals that provide these staples are part of the farmer's daily activities.

The Attack on Animal Agriculture

A campaign is spreading across the country to change the manner in which the livestock industry has legally and humanely operated for years. This so-called "animal welfare" movement uses emotion to trump science-based facts and to challenge the practical experience of producers and the academic expertise of scientists and veterinarians. Nationwide, ballot initiatives, legal action and lobbying threaten to shut down animal agriculture. "Humane" groups campaign state-by-state on emotion, leaving many producers concerned about who will be the next target. None of these campaigns propose solutions to the perceived problems they claim to expose. So producers are left wondering where to turn when the science-based welfare standards - thoroughly researched and proven to be in the animal's best interest - upon which their stewardship is based, are no longer an option.

Because of these misguided campaigns, it is now illegal in Arizona for livestock producers to use veal and gestation stalls – scientifically proven, humane animal-care methods. In Arizona's Proposition 204, millions of dollars were spent by activist groups to basically shut down one hog operation. There are no veal producers in the state. Producers in Florida previously lost a similar battle to maintain stalls that conform to animal welfare guidelines.

Federal Legislation

Part of the animal rights campaign is being waged here on Capitol Hill. For example, legislation (H.R. 661/S. 394) has been introduced to prohibit the processing of non-ambulatory livestock. It is essentially a ban on processing fatigued hogs since it is already illegal for non-ambulatory cattle to be used for human consumption. During transport, swine can become fatigued and lie down. There is nothing medically wrong with the animals, a fact supported by veterinary science and enforced by the veterinarians and food safety inspectors required by law at processing facilities, but when they are barred from the food chain it is a costly matter for producers who already operate on thin economic margins.

Horses are another target in the animal rights campaign. Approximately 100,000 unwanted, abandoned, and unmanageable horses were processed in the U.S. last year. However, legislation (H.R. 503/S. 311) is being promoted in Congress to ban equine processing. If enacted, this legislation could result in neglect and starvation for the affected horses – a fate far less humane

than euthanasia under veterinary inspection, as is ensured in processing facilities. This is a perfect example of an irresponsible effort to ban a legal practice, while offering no alternative for what to do with thousands of animals. Shelter or rescue facilities are not currently a viable option. At the current average capacity of 30 horses, an additional 2,700 shelters would be needed to absorb the animals impacted by the horse slaughter bill. Existing rescue facilities are full and there is no funding for new ones, nor are welfare standards in place for the operation of such shelters. Even the Human Society of the United States (HSUS) acknowledges that the standards of horse care at existing "adoption" facilities "are less established than cat and dog shelters."

Economic Impact

Proper care of animals is a time-honored ethic that also makes economic sense. In order for animals to increase efficiencies in meat, milk and egg production, farmers must take all possible steps to ensure their animals are stress-free and well-cared for with proper water, nutrients and shelter.

Animal rights initiatives have economic consequences for the consumer as well as the producer. Rigid regulations specifying how farm animals are raised would make farmers less efficient, lead to a greater loss of farmland and increase consumer food costs.

For specific legislation, the direct and indirect economic effects of adoption are substantial. For example, proponents of legislation to ban equine processing have not addressed the inevitable costs of such a restriction, but researchers from six U.S. universities calculated the economic effect would be tremendous. Horse owners will suffer a direct effect from lower horse sale prices. Eliminating the possibility of selling a horse for processing, and instead incurring a liability for disposal, would decrease the value of all U.S. horses by \$304 per horse. If a processing ban is imposed, the annual decrease in value for horses that would have been processed in the U.S. would be between \$19.7 million and \$28.8 million.

The researchers also determined that a conservative estimate of the total cost of caring for unwanted horses, based upon 2005 statistics, is \$220 million. Cumulative annual maintenance costs of otherwise processed horses, since the year 2000, would have exceeded more than \$513 million through 2005. Local and state governments will be adversely impacted by increased costs of regulation and care of unwanted horses. Public animal rescue facilities are currently saturated with unwanted horses, and no funding has been allocated to manage a large increase in horses that will likely become the responsibility of these facilities.

Legislation to ban the processing of nonambulatory livestock likewise has a major economic impact. For example, for fatigued hogs, the revenue lost from not allowing otherwise healthy, wholesome animals to recover from this temporary condition ranges from \$35 million to \$110 million annually, depending on market prices. This total does not account for any costs incurred raising the hogs that were fatigued on arrival at the processing facility each year or disposing of their carcasses if they were automatically condemned. Because this legislation does nothing to enhance food safety, there are no direct or indirect benefits for consumers, but the impact on the economy as a whole is literally in the hundreds of million of dollars.

Conclusion

Farm Bureau supports the proper treatment of animals and the rights of farmers to raise livestock in accordance with commonly accepted agricultural practices. Farm Bureau members practice and encourage the humane treatment and handling of animals and livestock for both ethical and economic reasons. We encourage research of animal care techniques and the adoption of those which are scientifically proven to improve the animal's welfare.

Farm Bureau strongly opposes legislation to prohibit scientifically sound animal welfare practices or to mandate practices which would make it difficult – if not impossible – for farmers to do what is in the animal's best interest. We encourage Congress to reject legislation that would create arbitrary standards and mandate management techniques not based on sound veterinary science or practical experience. At a minimum, we ask that legislation not be enacted that creates animal welfare challenges producers cannot comply with from either an economic or moral standpoint.

We appreciate the opportunity to provide the committee with input, and your consideration of our members' commitment to animal care.

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BY REGULAR MAIL

Mr. Wayne Pacelle
 President and Chief Executive Officer
 The Humane Society of the United States
 2100 L Street, N.W.
 Washington, D.C. 20037

Dear Mr. Pacelle:

Thank you for your letter of March 27 of this year. I stated during our live debate on WPKN Radio, Bridgeport, Connecticut, that I was willing to correct any misstatements I may have made. I did misspeak when I said "Fund for Animals" instead of the "Animal Liberation Front." I must be honest at the same time and say with respect to the Fund for Animals, the larger Humane Society of the United States (HSUS) with which it has merged, and the Animal Liberation Front (ALF), that these groups have become so intertwined with regard to personnel, policies, and activities that confusion is understandable. Let me be candid about those ties.

The Fund For Animals, now a part of HSUS, and current high-ranking HSUS employees are on record as making financial contributions to the ALF movement by funding *No Compromise*, ALF's self-described "Militant, Direct Action News Source for Animal Liberationists and Their Supporters." This publication is the chief means of communication for extreme animal rights activists who engage in illegal activities. It has published motives, recommended illegal actions, and listed human "targets" against which activists are encouraged to carry out "direct action," or damaging criminal activities. The Federal Bureau of Investigation's (FBI) Deputy Assistant Director of the Counterterrorism Division has testified before the United States Congress on several occasions that ALF engages in "direct action" in the form of criminal activity for purposes of harassment, intimidation, and coercion. The FBI has consistently characterized ALF as "a serious domestic terrorist threat." According to these

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FBI statements, this ALF criminal activity has included arsons, the use of explosive devices, threats, and harassment. In 2002 Congressional testimony regarding terrorist threats, the FBI stated that ALF and its counterpart, ELF (Earth Liberation Front), have claimed responsibility for 600 criminal acts in the U.S. since 1996, totaling more than \$42 million in damages.

Beginning in 1998, HSUS has consistently reported to the IRS that it contributed toward the operation of WASTE.org, an Internet Web site that was then the main distribution point for the "communiqués" of the terrorist Animal Liberation Front (ALF). It also acts as a Web server, and now conceals the identity of its donors and members. In addition to hosting the ALF's "Frontline" mailing list, WASTE.org hosted a list for the HSUS-coordinated "Inter Campus Animal Advocacy Network" (I-CAAN), the official mailing lists of a Minnesota group called Compassionate Action for Animals (CAA), and mailing lists for approximately a dozen other organizations. CAA, originally known as the Animal Liberation League, was started by activist Freeman Wicklund – an outspoken ALF supporter and one of the founders of *No Compromise*. It is our understanding that WASTE.org still listed HSUS as a financial donor as of June 2005, as it had every year since 1998.

In addition to supporting the communications organs of ALF, HSUS has ties to ALF and others that have supported domestic terrorism through HSUS staff. Despite your claim that HSUS denounces any illegal activity to achieve its goals, you hired and named as Grassroots Outreach Coordinator, John P. Goodwin, a former spokesman for the ALF, a self-proclaimed member of ALF, and a financial contributor to *No Compromise*. Goodwin has been arrested multiple times in several states for various charges related to "liberating" animals. In February 1997 he remarked that the ALF was "ecstatic" about a mink farm arson incident that caused nearly \$1 million in damages and resulted in the death of thousands of animals. In 1993, he pled guilty to vandalizing several fur stores and was sentenced to three years in prison.

Another tie to domestic terrorism and anti-animal agriculture activities can be found in Mike Markarian, HSUS Executive Vice President of External Affairs. By concurrently serving as a member of the Board of Directors of the Animals & Society Institute (ASI), he is linking that group with HSUS. In addition, HSUS is on record as funding the ASI's October 2005 "Power of One" conference. ASI was formerly known as the Animal Rights Network (ARN). HSUS is also on record as funding the ARN's activist magazine *Animals' Agenda* at the rate of more than \$10,000 per year. This publication featured stories of "direct action" and other illegal activities designed to thwart animal research. Miyun Park, another senior HSUS official, has admitted to financially supporting *No Compromise* and ALF's agenda. -

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To summarize, denunciations of obviously violent and illegal activities and other salutary expressions of reasonable standards of animal care are all well and good, but they appear disingenuous when compared to financial support for the communications organs of domestic terrorists.

I also would like to mention that your alliances with other groups tie you to an anti-animal agriculture agenda. You were quoted in the news this morning saying that the beef industry should not be concerned that you were going to target them next. However, HSUS's funding of ASI and its programs allies HSUS with ASI's public policy goals, which clearly target animal agriculture programs by advocating:

- a "cruelty-free" vegan lifestyle (which includes no meat consumption of any kind),
- the progressive elimination of federal and state tax-funded corporate subsidies to animal-based agriculture interests, and
- the redirection of funds from *all* government-supported animal agriculture research to plant-based agriculture practices that produce food for direct human consumption.

Many of the programs your senior official is proposing be eliminated would absolutely harm the beef industry. In fact, the programs that would be eliminated are *essential* to providing a safe food supply for the 96 percent of Americans whose diet includes meat. As I have told you on many occasions, a vegetarian or vegan diet is perfectly fine as an individual choice. However, a diet that includes meat is also a matter of personal choice, and this agenda frankly smacks of depriving Americans of that choice.

I do not believe I have mischaracterized your association in terms of HSUS providing support for the communications organs of domestic terrorism or failing to provide assistance for horses that would otherwise go to slaughter. HSUS inherited Black Beauty Ranch when the Fund for Animals merged with HSUS just last year -- long after HSUS began advocating for the end of horse slaughter plants, and it only keeps 240 horses. Furthermore, openings for horses are few and far between, according to its operators. Right now, it is officially "full" when it comes to horses, and the operators say Black Beauty is the only rescue operation run by either the Fund or HSUS in the United States that accepts horses.

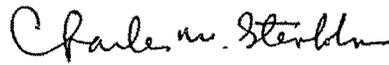
I was pleased to see in a Kentucky newspaper this morning that you agree that humane euthanasia, followed by processing at a rendering plant, is an acceptable option for horse owners. Let me assure you that humane euthanasia, using a method that is immediately effective, is exactly what is offered at all equine processing facilities in the U.S. In fact, the euthanasia

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method used in U.S. plants is supervised by a veterinarian and recommended by the American Veterinary Medical Association. By advocating that horses be used by the rendering industry, you are demonstrating that you understand the importance of having options that preserve the value of the animal so that it does not create an economic burden on society.

Sincerely,

A handwritten signature in cursive script that reads "Charles W. Stenholm".

Charles W. Stenholm

CWS:mhh
cc: Mr. Jim Motavalli
Editor
E/The Environmental Magazine

USA TODAY.com

Britain battles animal rights radicals ; Police: Extremists harass researchers, drug executives

Jeffrey Stinson
3 May 2007
USA Today

LONDON -- Animal-loving Britain, a hotbed of animal rights extremists, is saying "enough."

On Tuesday, British police launched the nation's biggest operation against animal rights militants. Thirty-two people were arrested in a coordinated morning sweep carried out by more than 700 officers across Britain and in Belgium and the Netherlands.

Those arrested are suspected of burglary, blackmail and acts of criminal intimidation against people working at or associated with university and bio-tech labs in Britain, police said.

The sweep came amid signs of a growing backlash against animal rights extremists, blamed for arson, beatings and vandalism at labs and businesses.

"Animal rights extremists have conducted sustained campaigns of harassment and intimidation against the animal research industry, seeking to achieve their objectives by creating a climate of fear," says Adrian Leppard, assistant chief constable of the Kent Police, which helped coordinate the raids Tuesday.

The raids follow a shift in public opinion on this side of the Atlantic, where animal welfare has roots in the early 19th century and where animal rights activism and violence are more common than in the USA.

There's growing acceptance of the need for animal testing for medical research, says John Leaman, a research director in London for the Ipsos MORI polling firm. "People have become weary of these extremist activities and tactics," he says.

Britain enacted the world's first animal-cruelty law in 1822. In 1824, the Royal Society for the Prevention of Cruelty to Animals was founded.

Today, European nations such as France and Switzerland mandate minimum grazing, pasture and roaming areas for livestock. The European Union restricts use of animals for the testing of cosmetics, drugs and pesticides. The European Union also restricts the use of hormones and genetically modified feed for farm animals.

Poorva Joshipura, European director of People for the Ethical Treatment of Animals (PETA), says attitudes within Europe vary.

The French love foie gras -- goose and duck liver from birds that are force-fed to fatten them -- producing and consuming 90% of the world's supply. Several European nations, including Denmark, Germany, Italy and Britain, ban its production as inhumane.

Britain banned fox hunting in 2004, and Queen Elizabeth faced public criticism in 2000 after she was photographed wringing the neck of a pheasant shot during a hunt. Britain has been home to large demonstrations against the use of animals in research.

Militants in Britain have targeted drug-company executives and others for attacks and intimidation:

*In 2001, the director of Europe's largest animal-testing lab, Huntingdon Life Sciences near Cambridge, was assaulted by men with ax handles.

*In 2005, the home of an executive at pharmaceutical firm GlaxoSmithKline was firebombed.

*Last year, activists threatened to publish the names of GlaxoSmithKline shareholders unless they sold their stock in the company.

Frankie Trull of the Washington-based National Association for Biomedical Research, which advocates the use of animals in research, says British activists share their tactics. "A lot of activists here (in the USA) go over there for training," she says.

Last year, President Bush signed legislation -- the Animal Enterprise Terrorism Act -- making it a crime to use force, violence or threats against companies engaged in animal research.

In Britain, the debate about extremists' tactics intensified in January when 16-year-old Laurie Pycroft encountered animal rights activists trying to block construction of a \$35 million biomedical research lab. He and a friend marched in favor of the lab and drew support from Oxford University students, who formed the group Pro- Test in favor of animal testing.

In May, British Prime Minister Tony Blair signed a petition supporting animal testing that was inspired by Pycroft's efforts.

Joshiyura says PETA doesn't advocate violence on behalf of animal rights. But she says Blair effectively gave a blanket endorsement to animal testing and fed anger against the animal rights movement.

Public opinion toward the use of animals in research was shifting here before last year.

In an Ipsos MORI Poll in December 2005, 75% of Britons said they condoned animal experiments for medical purposes. Fifty-two percent said they trusted scientists not to cause unnecessary suffering to lab animals, compared with 39% in 2002.

Activists "really do feel backed into a corner by a government" that allows vivisection of animals for research and wants to criminalize peaceful animal rights activities, Joshiyura says. "There's a serious attempt ... to silence the protesters."

Leppard, the Kent police official whose two-year investigation resulted in Tuesday's arrests, says police target only lawbreakers.

"The operation is not targeting lawful animal-welfare campaigners who have every right to express their personal views on such issues," he says.



Police arrest 30 in Europe-wide animal rights raids

1 May 2007
Reuters News

LONDON, May 1 (Reuters) - Police arrested 30 people in a series of coordinated raids across Britain, Belgium and the Netherlands on Tuesday as part of a major investigation into militant animal rights activists.

Police in Hampshire, southern England, who led the operation said around 700 police officers and support staff from British, Dutch and Belgian forces were involved in the raids.

Fifteen men and 15 women were arrested, police said, and are being questioned about suspected criminal activity including alleged conspiracy to commit acts of extremism.

"Police and forensic teams are in the process of undertaking searches of a number of residential premises. We expect these searches to last many hours," assistant chief constable Adrian Leppard of Kent police told a news conference.

Leppard described the two-year investigation as "one of the largest, if not the largest police operation that has been focused on animal rights extremism in the UK".

Leppard said it was "appropriate" to take action now, but "inappropriate" to discuss whether any planned attacks had been thwarted by the operation.

He declined to give details of those arrested or the locations raided because the operation was still "live".

But he said Huntingdon Life Sciences, based in Cambridgeshire, southeast England, which carries out tests on animals, was a focus.

"Clearly with Huntingdon Life Sciences they are a major victim of this type of criminality and they are involved in this investigation," he said.

"But there are a wide number of individuals and indeed commercial organisations that are victims and indeed witnesses of criminality that we are investigating at this stage."

The pharmaceutical and biotechnology industry, whose operations have been targeted by activists in the past, welcomed the crackdown.

"News of today's operation will act as a great fillip to the medical research community across Europe," Aisling Burnand, chief executive of Britain's BioIndustry Association, said in a statement.

The drugs industry argues that using animals remains a vital part of researching and developing new medicines and vaccines.



30 arrested as raids target animal rights extremists

Police say operation, which involved around 700 officers, was probably largest ever against animal rights extremists.

1 May 2007

Guardian Unlimited (UK)

Thirty people were arrested today on suspicion of involvement in animal rights extremism in a series of raids that targeted 29 UK addresses and three in Europe.

The operation - the culmination of two years of investigations - involved around 700 officers in early morning raids, and is thought to be the largest ever conducted against animal rights extremists.

A source from the National Extremist Crime Unit said the people detained were suspected of crimes including firebombing, arson and vandalism, the Guardian's crime correspondent, Sandra Laville, reported.

Hampshire police said 15 men and 15 women were held during the operation, which was conducted by five British police forces and related to investigations into past offences. Twenty-seven people remain in custody, and three have been released.

The raids, which began at around 5.30am, took place in Berkshire, Hampshire, Surrey, Sussex, Kent, London, South Wales, Lancashire and Yorkshire. One address in Belgium was raided, as were two in the Netherlands. Police said they had taken action against an alleged extremist conspiracy targeting individuals and organisations including Huntingdon Life Sciences in Cambridgeshire.

Staff at HLS, Europe's largest contract medical testing centre, have faced a long-running campaign of attacks from animal rights activists.

In recent years, police have enjoyed success in curbing the actions of extremists, often using the Serious and Organised Crime and Police Act 2005, which expanded powers for targeting animal rights militants.

Those arrested today were held under the Act, but no charges have yet been brought.

The crackdown followed comments by the prime minister, Tony Blair, who has ordered police to do more to tackle animal rights militants.

Speaking last year, he pledged more "robust" action against extremists who targeted medical research facilities, and defended the use of animal testing for research.

Speaking at a news conference in Southampton today, Adrian Leppard, the assistant chief constable of Kent police, said the "substantial" operation could be the largest of its kind ever conducted.

He said police were looking for extremists who had created a "climate of fear" in sustained "campaigns of harassment and intimidation against the animal research industry", but would not comment on whether future attacks had been stopped by the raids.

Police had cooperated to investigate offences including burglary, conspiracy to blackmail and the targeting of animal research organisations, he added.

"The victims of animal rights extremism are not only companies or universities," he said. "It is employees, along with their families, friends and neighbours, who often are often targeted in their own homes," he said.

"The impact of these personalised campaigns on individuals is deeply distressing and often involves criminal activity."

He said HLS were a "major victim, as you would expect" along with a "number of other individuals and commercial organisations". He would not elaborate on other victims.

Mr Leppard stressed that the operation had not targeted the "lawful animal welfare campaigners, who have every right to express their personal views on such issues".

He said searches were ongoing and the operation would last for several days, apologising for any disruption to the areas in which the raids were carried out.

The Freshfields Animal Rescue Centre, in Ince Blundell, Merseyside, was among the addresses targeted. It has been taking in unwanted animals from across the region for more than 25 years.

Merseyside police confirmed that the centre, near Formby, a coastal town 15 miles north of Liverpool, had been raided as part of today's operation.

The FBI has previously described the UK as the global centre of animal rights extremism, and the National Extremist Crime Unit has been coordinating police investigations into criminal activity by some members of the Animal Liberation Front (ALF).

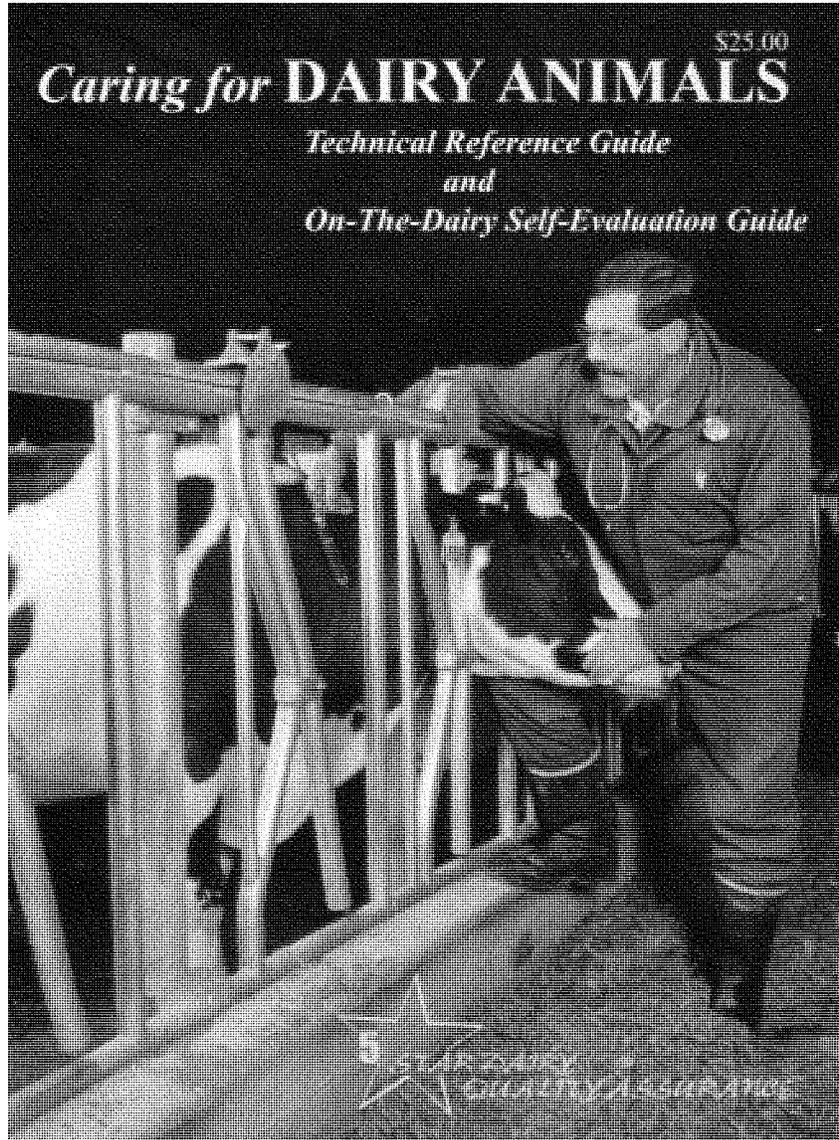
In February this year, the Guardian revealed that the operation included targeting animal rights street stalls in city centres.

Police said some stalls had been used to raise funds for criminal actions by extremists, including campaigns such as that against HLS.

Last month, the Daily Telegraph reported that animal rights extremists had been targeting farmers at a rate of one incident every nine days. The farmers attacked were predominantly involved in processed poultry farming.

In one incident, for which the ALF claimed responsibility, around £250,000 of damage was caused to lorries in a firebomb attack on a farming business in Oxfordshire.

The police raids today were carried out by Hampshire, Kent, Surrey, Sussex, and Thames Valley forces, with support from the Metropolitan police and forces from South Wales, Strathclyde, Lancashire, North Yorkshire, West Mercia and West Yorkshire.



Caring for Dairy Animals— *On-The-Dairy Self-Evaluation Guide*



Introduction

Welcome! This is a self-audit and a dairy management team discussion guide and is the first step in becoming a verified on-site or quality-assured dairy. A decision to use the DQA FIVE-STAR Dairy Quality AssuranceSM Program to its full potential demonstrates your commitment to finding the benefits of providing excellent cow comfort. Register your efforts at www.dqacenter.org or call 800-553-2479. This quality assurance process will increase performance and will at the same time reduce your costs. Finally, it is meeting consumers' demands for quality dairy animal care.

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How To Use This Self-Audit

Milk producers and heifer growers commonly use Best Management Practices (BMPs) with their management teams. This self-audit is designed to help you ask the right questions of yourself and your herd health veterinarian, nutritionist, or other dairy consultants (management team).

The list of BMPs does not imply you should do all of them but is provided to spark consultation and discussion. The result is more profit from implementing a verifiable cow comfort program as part of a total management plan. Upon completion, you are asked to register your efforts with the DQA Center. Call 800-553-2479 for registration information. There is no fee for registration of the self-audit.

The next step in the DQA FIVE-STAR Dairy Quality AssuranceSM Program is to ask for verification by a third party. This assures buyers, processors, retailers, and consumers that the animals are receiving science-based animal care.

About the cover: Caring for dairy animals involves use of modern health techniques including subcutaneous injection as shown in the photo on the front cover. Administering pharmaceuticals in a subcutaneous manner enhances the value of fine dairy beef.

Authors: Keith R. Carlson, Colette Johnston, and Daniela Bals

DQA Cow Comfort Standards Committee members are listed on page eight.

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Caring for Dairy Animals—

On-The-Dairy Self-Evaluation Guide—First step toward DQA FIVE-STAR Dairy Quality Assurance™ rating

Quality Control Point #1 - PRODUCER AND EMPLOYEE ATTITUDES

Top milk producers and employees are well aware that cow comfort is essential for dairy profitability and the long-term viability of their business. Milk producers know consumers do not want dairy animals abused. Milk producers are also aware that all cow comfort is directly connected to the attitude and knowledge of the people who work daily with the dairy animals.

Management Team
Remarks

Best Management Practices Checklist

Yes/No/NA*

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Written mission statements relate to cow comfort. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Long- and short-term goals are established for the dairy. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Scoring of cleanliness or hygiene ratings of animals is done regularly (at least monthly). |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Facilities, fences, gates, staff, and other dairy components encourage proper animal care. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Time is allocated to observe animals daily for comfort, locomotion, and behavioral changes. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | I/we belong to dairy professional organizations such as the Professional Dairy Heifer Growers Association (PDHGA), Dairy Business Association (DBA), Professional Dairy Producers of Wisconsin (PDPW), Northeast Dairy Producers Association (NEDPA), etc. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | I/we have completed the <i>Milk and Dairy Beef Residue Prevention Protocol</i> manual this year. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | When handling animals, neither pain nor fear is used as a motivator to encourage movement or other animal behavior. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Written emergency/weekend/holiday animal care plans are readily available (emergency phone numbers, etc.) to all employees. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Family members/employees are trained annually as to an awareness of animal flight zones, animal behavior, OSHA safety standards, etc. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | An annual cow comfort checkup is held to remind employees, management, etc., of the importance of cow comfort and animal well-being. |

Quality Control Point #2 - EVALUATING ANIMAL HEALTH CARE

The health care provided is fundamental to quality dairy cow comfort. Throughout this evaluation animal health will be addressed.

<i>Management Team Remarks</i>	Yes/No/NA*	Best Management Practices Checklist
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dairy operation has a valid veterinarian-client-patient relationship (post DVM name and phone number in a prominent location).
		Animals are monitored for the following items daily:
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hair coat <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Milk production
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Behavior changes (includes vocalization) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Breathing
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Feed and water consumption <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Nasal or ocular discharges
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A routine herd health program is established and implemented.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A series of written protocols are followed for elective surgeries and procedures that minimize animal discomfort.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Elective surgeries and procedures are completed at an appropriate age and by an appropriate method (castration < 4 months, dehorning < 10 weeks, supernumerary teat removal < 90 days).
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Cauterization is used to dehorn young calves.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A local or general anesthetic and veterinarian consultation are used if elective surgery is delayed (be sure anesthetic has taken effect).
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fly repellent is used during the fly season whenever elective surgery is practiced.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Individual records are kept on all animals.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Drugs are administered subcutaneously in the neck (when appropriate) to avoid damage to primal cuts.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Needles are never reused on more than one animal.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All animals have animal identification used for health records, production, and reproduction (chips, tags, combination, etc.).
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A written pest and parasite program is followed.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Ninety percent or more of my herd score 2 or better on the locomotion scorecard (1-normal gait, 5-refuses to bear weight on one leg).
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Body condition scores for 90% of the dairy animals are between 2.0 and 4.0 (1.0 is thin and 5.0 is fat).
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Switch trimming is preferred over tail docking by elastrators.

Quality Control Point #3 - ENVIRONMENT FOR DAIRY ANIMALS

Many times members of livestock producers' families feel their animals have better housing (environment) than the family members themselves. While this is generally said tongue in cheek, it does indicate the effort of dairy producers to provide an ideal animal environment. Research has shown that cattle have the ability to alter their comfort zone (officially called thermoneutral zone) to a wide range of temperatures.

<i>Management Team Remarks</i>	Yes/No/NA*	Best Management Practices Checklist
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Animals in this operation are typically maintained at temperatures in their thermoneutral or comfort zone.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Sunshades, sprinklers, misting, fans, and dietary alterations are used to reduce heat stress and prevent a decrease in milk production or food intake in hot weather.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Airborne dust is controlled as a way to reduce exposure to microbes.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Adequate lighting is in place to allow inspection of animals and to provide safe working conditions.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Quick movements and alarming sounds are avoided while working around animals.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stray voltage has been checked and is not a problem on this dairy.
		Monthly observation of facilities includes monitoring and taking action for:
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Moisture collecting on roof or walls
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Frequent condensation on metal surfaces
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Certain parts of building where animals refuse to rest or sleep
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Nonslip walkways or alleys
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Animal activity counts are monitored monthly to determine percentage of cows resting (60%), eating, drinking, etc.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	All fans are cleaned at least annually.
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Facility sanitation and waste management programs result in clean animals (90% score 3 or above). See page 14 for the DQA Hygiene Scorecard SM .

Quality Control Point #4 - FACILITIES PROVIDED FOR DAIRY ANIMALS

Dairy producers are utilizing free stalls. Stalls should be long enough and wide enough that cows can lie down comfortably without having their tails or hind legs protrude into the common traffic areas. Bedding should be clean and may come from many sources. Adequate lunge, waterer, and feeder space should be provided.

<i>Management Team</i>	Best Management Practices Checklist		
<i>Remarks</i>	Yes/No/NA*		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Acceptable guidelines are followed for the appropriate housing system:
			Stanchions/Tie Stalls
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals are turned out daily for exercise (weather permitting).
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals have room to stand and lie down (see specific guidelines for breed, size).
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals have room to stretch, eat, drink, and eliminate comfortably.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Manure is removed at each milking.
			Free Stalls
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Bedding is raked at each milking (remove soiled sawdust, sand or other bedding material), and fresh bedding is added on a regular routine basis.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Stalls provide appropriate space to match size/breed of animal.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Water space, feed space and shelter are provided for each animal housed.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Stocking rates are normally less than one animal to one stall (1.2 animals/stall max.).
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Lunge space is provided to aid animal movement.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Air movement and sprinkling or misting are provided for animal comfort.
			Hospital Pen
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> An isolation area is provided for sick animals (separate from calving area).
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animal treatments are rarely performed in the milking parlor.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> The hospital pen has a locking stall to facilitate treatment.
			Locking Stanchion
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Treatment and routine handling procedures are done in familiar surroundings (tail chalking, hoof spraying, rBST injections).
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cows have access to feed and water while waiting to be treated.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cows are restrained in their own pen for no more than two hours.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Self-locking stalls provide an emergency release for a downer situation.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> One person can isolate and restrain an animal safely and easily.
			Open Lots and Pastures
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals can always avoid standing in mud after rains.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals cannot access streams, open water, or muddy areas around them.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Animals have access to shade in summer or windbreaks in cold weather.

Quality Control Point #5 - DAIRY NUTRITIONAL CARE: WATERING AND FEEDING

Control Point #5 emphasizes access to feed and water on the dairy. All animals should have access to feed and water throughout the day and night; however, an annual evaluation must go beyond this simple fact. Professional producers, seeking to maximize their income and reassure the consumer, go the extra mile and evaluate water and feed quality.

<i>Management Team</i>	Best Management Practices Checklist		
<i>Remarks</i>	Yes/No/NA*		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Cows have continuous access to abundant water immediately after leaving the milking parlor.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Water is tested annually for nitrates, pathogens, and minerals.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Water is protected from freezing.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> All animals without continuous access to water are provided water at least twice per day.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Waterers are positioned at a convenient height.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Watering arrangements prevent a boss animal from limiting water to other animals.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feed ingredients are sampled and tested at least annually.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Total Mixed Ration is tested annually, and the results are reviewed by herd nutritionist.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feeder space exceeds 24 inches in a 4-row barn and 16 inches in a 6-row barn.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feed is pushed up at least twice per day.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feed equipment is never used to haul manure.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feed for other species is never mixed with dairy animal feed.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Feed (cotton seed/home grown) is checked for nitrates, mycotoxins, or other soil- or climate-induced problems after abnormal growing weather.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Particle length is checked regularly.
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> The percentage of the day that cows are eating is computed at least monthly.

Quality Control Point #6 - EVALUATING MILKING PROCEDURES AND EQUIPMENT

Milking centers vary greatly depending upon herd size, climate, producers' dairies, and finances. Employee safety, cow comfort, and milk quality are the desired outcomes regardless of the specific milking procedure or equipment used.

Management Team
Remarks

Best Management Practices Checklist**Yes/No/NA***

- Written and specific training procedures are discussed with all new employees.
- Milking procedures are designed to prevent undermilking or overmilking and to facilitate correct use of equipment.
- Proper hand washing is practiced, and milkers are required to wear rubber gloves.
- A specific milking routine, procedures, and actions are followed to reduce stress.
- Wait times between udder preparation and unit attachment are consistent and short.
- Employees are trained to recognize signs of clinical mastitis.
- Care is used when milking the cows to prevent mastitis and maintain udder health.
- Milk is checked for abnormalities as part of a pleasant routine of cleaning and drying the udder in preparation for milk letdown, or an automatic monitoring system is used.
- Teat ends are inspected and scored at least seasonally by management.
- Appropriate teat dips (foams, sprays, etc.) are used prior to and after milking.
- Milking equipment has been tested in the last six (6) months.
- Milking equipment field personnel meet regularly with the dairy management team.

Quality Control Point #7 - TRANSPORTING AND HANDLING ANIMALS

During the transporting and handling of cattle, the safety and comfort of the animals is almost as important as employee safety. Cattle producers should keep in mind that their responsibility extends beyond the producer gate to the trucking system, to the sales system, to the packing facilities, and ultimately to the retail markets and consumers.

Management Team
Remarks

Best Management Practices Checklist**Yes/No/NA***

- Family members and employees are trained on the principles of flight zones and flight distances.
- Employees know the importance of controlling the herd movement in lanes, alleyways, and other parts of the complex.
- Animal-friendly, employee-safe loading facilities are used at all sites.
- Animals are marketed (transported) before they become infirm.
- Cull market cows are not penalized for carcass defects when sold.
- The transportation system is checked every year (route, floor conditions, ventilation, driver).
- Antimicrobial withdrawal times are checked and followed before animals are culled/sold.
- Downers are slaughtered or euthanized on the farm.

For more information about Best Management Practices access Dairy Quality University at <http://www.DQACenter.org/university>.

Quality Control Point #8 - BIRTH AND MANAGEMENT OF CALVES

Herd health and milk production are founded upon healthy replacement heifers. Healthy replacement heifers are only available from healthy cows.

*Management Team
Remarks*

Best Management Practices Checklist

Yes/No/NA*

- To minimize calving difficulty, heifers are body scored and sized prior to breeding.
- All calves (heifer and bull calves) receive the same care at birth and weaning.
- A clean, dry, well-lit, well-ventilated calving area is provided.
- Calves are removed from the cow immediately after birth.
- Calving area is cleaned and freshly bedded after each calving.
- Navels are dipped in a 7% solution of iodine or chlorhexidine daily until cord is dry.
- Calves receive at least four (4) quarts of high-quality colostrum from one cow within 30 to 60 minutes of birth (use esophageal tube if necessary).
- Colostrum is tested prior to use.
- Colostrum management includes the following:**
- All cows are tested, and colostrum from Johne's positive cows is rejected.
- Excess colostrum is stored in a refrigerator (no more than a week).
- Only colostrum for emergency use is frozen.
- IgG levels of all calves are tested within three (3) days.
- Temperature of calves is taken frequently for the first two weeks to guide care.
- Calves are eating a starter ration for three (3) or more days prior to the weaning process.
- Calves are housed separately (no contact with other calves).
- Calves have access to water after being fed milk replacer.
- Calves are not fed unpasteurized hospital milk.
- Calves are provided dry, clean bedding and housing.

Quality Control Point #9 - SICK, HOSPITALIZED, NONAMBULATORY, AND DEAD ANIMALS

Even with the best of care, animals sometimes become ill, require medical treatment, or even die. Management on professional livestock operations prepares for these eventualities by facility construction and employee training. The American Association of Bovine Practitioners has an excellent four-page brochure on on-farm euthanasia.

*Management Team
Remarks*

Best Management Practices Checklist

Yes/No/NA*

- Facilities are provided to segregate sick or injured animals.
- Slippery floors, poorly designed loading ramps, and excessive truck loading densities are avoided.
- Specific staff members have been trained, and proper equipment is available to move downer animals.
- Timely and prompt marketing is part of the marketing plan (at least weekly review).
- Staff asked to euthanize a downed or injured animal have proper training or supervision in this procedure.
- Captive bolt equipment (or other accepted practices) and trained employees are available for euthanasia if needed.
- Dead animals are disposed of properly by rendering services, composting, or burial.
- Sick or dead animals are located away from public viewing.
- Sufficient personnel are available when sick, injured, nonambulatory, or dead animals must be moved.
- Special equipment for injured or nonambulatory animals is available. (Never use exposed forks on a forklift.)

**Quality Control Point #10 - ANNUAL EVALUATION AND DQA FIVE-STAR DAIRY
QUALITY ASSURANCESM**

Consumers, through a variety of market signals as well as local, state, and federal laws and regulations, demonstrate that they want the dairy industry to prove it is producing veal, replacement heifers, milk, and dairy beef in a responsible manner. The following Best Management Practices are an important part of the DQA FIVE-STAR Dairy Quality AssuranceSM Recognition Program which is an easy way to demonstrate to consumers that producers provide appropriate care for animals and fair treatment of employees and are good stewards of the environment.

Management Team
Remarks

Best Management Practices Checklist

Yes/No/NA*

- The management team and the producer/manager have developed a plan to implement many of the Best Management Practices suggested in this manual.
- These Best Management Practices are reviewed at least once each year with the management team.
- Pathogen Management**
- The following enteric pathogens are reviewed at least annually with the veterinarian, and action plans are developed where needed.
 - E. coli* *Clostridia* *Salmonella*
 - Chronic E. coli* *Cryptosporidia* *Coccidia*
 - Coronavirus* *Rotavirus* *Campylobacter*
- Biosecurity/Biosafety**
- Areas are posted and visitors are asked to check in before entering the facility.
- New animals are quarantined for a minimum of 14 days (21-30 days recommended) before allowing them contact with other animals.
- Family and staff are aware that some organisms (e.g., *Salmonella*, *E. coli*, *Campylobacter*) cause disease in humans.
- Environmental Stewardship**
- The manure management system provides zero discharge of effluent into groundwater or surface water.
- The dairy is in compliance with local, state, and federal regulations (obtaining proper permits).
- Milking center wastewater is directed to a liquid manure storage or septic system.
- A nitrogen and phosphorus-based nutrient management program is in place.
- Records are maintained of all manure and fertilizer applications for each field.
- Proper buffer zones of trees, grasses, and/or wetland habitats by streams and other water courseways are used.

After completion of the Caring for Dairy Animals—On-The-Dairy Self-Evaluation Guide, milk producers are urged to register with the DQA Center at www.dqacenter.org or by calling 800-553-2479.



Caring for Dairy Animals Technical Reference Guide

This Technical Reference Guide and the companion Self-Evaluation Guide have been compiled by and for a wide audience including researchers, students, media, veterinarians, and of course, producers. In addition, new employees, family members, students, consumers, and others that are learning about the dairy industry will find them useful. This Technical Reference Guide is designed to provide a focus for animal care and to provide the dairy industry with a common voice across the nation. It is an ongoing effort, and thus we encourage you to provide the DQA Center additional suggestions and ideas for future editions which are normally published every other year.



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Caring for Dairy Animals *Technical Reference Guide*

Producers, milk handlers, veterinarians, nutritionists, and other members of the dairy industry support the development and adoption of sound and humane animal care practices. As new animal care methods and technologies are shown to be effective, they should be put into practice where appropriate.

This Technical Reference Guide describes husbandry practices that foster the well-being of dairy animals. It explains why the animals' comfort, safety, and good health may be the reason for designing the animals' living environment in a particular way or for using certain animal handling and management practices. Ten separate chapters cover the various aspects of proper dairy animal care. As noted in each chapter's summary and management tips page, producers can foster good animal care by:

- (1) **Observing each animal for evidence of adequate care.** Signs of sickness, unthriftiness, uncleanliness, and unusual behavior should call attention to necessary improvements in animal care-giving. Employee knowledge is a must.
- (2) **Observing the animals' environment.** Slick flooring, rough fencing, and dirty bedding are examples of unsafe or unhealthy conditions in animal facilities. These conditions should be corrected.
- (3) **Implementing basic management practices that enhance animal well-being.** Having in place a herd health plan including sound nutrition, inspecting for stray voltage and water contaminants, and keeping adequate records exemplify ways to improve animal care.
- (4) **Incorporating practices that have scientifically documented benefits to animal well-being.** For example, research shows that giving calves adequate amounts of high-quality colostrum within four hours of birth is necessary for development of the immune system, for protection against infectious diseases early in life, and for an increase in tolerance of cold temperatures.

Understanding and fostering animal well-being and its relationship to economic considerations of food production is a fertile, emerging area of agricultural research. Health, reproduction, and production traits are readily measurable and may indicate the fit between agricultural animals and their environments.

It is generally accepted that more than one kind of evidence is required to determine whether an animal is experiencing long-term distress. The well-being of farm animals may be assessed best by systematically evaluating in an objective manner: (1) reproductive and productive performance, (2) disease incidence and immunologic status, (3) physiologic and biochemical characteristics, (4) lameness, (5) behavioral patterns, (6) body condition, and (7) body hygiene.

Providing proper calf and cow care will improve consumer perceptions, enhance animal performance and well-being, improve the quality of dairy and meat products, and result in other benefits for producers.

Producers should seek to only patronize livestock marketing systems where proper animal handling methods are used. In addition, if they see improper animal handling, producers should report the situation to industry or government representatives for follow-up action.

This reference is written to inform the public about proper dairy practices advocated by the dairy industry, to educate students about dairy practices that promote animal care, and to provide producers and veterinarians with training material and management practices that improve animal care.

Incorporated in this Technical Reference Guide is the **Caring for Dairy Animals On-The-Dairy Self-Evaluation Guide (Pages 2-7)**. It provides a self-evaluation and educational tools for use by producers, veterinarians and others on the dairy management team. In addition, a consumer verification process is available as part of the DQA FIVE-STAR Dairy Quality AssuranceSM Program. This systematic review of cow comfort by a science-trained, licensed health official is highly recommended for all heifer raisers, milk producers, and others in the dairy industry. This process of self- and independent-audits is part of the dairy and veterinary industry response to consumer requests for science-based animal care developed by the dairy industry.



Producer and Employee Attitudes

It is the responsibility of the person who is in charge of the dairy, either the owner or manager, to establish and implement standards for dairy animal care. That person then needs to follow through, making sure these standards are maintained. He or she must communicate expectations for animal care to employees and family members and monitor the care provided. All animal caretakers should be aware of their responsibilities during normal work hours and in case of emergencies. A caring attitude combined with sound husbandry practices produce healthy animals efficiently. This will enhance/maintain the producer's profitability (Albright, 1994; Seabrook, 1994). Employee knowledge is critical (University of Minnesota, Janni, 2001).

Training employees and family members about animal care shapes their attitudes which, in turn, influence the kind of treatment they provide. An improperly trained caretaker may not be aware that some seemingly innocent practices may cause stress to the animal. Training should encompass care expectations for particular circumstances, such as how to move uncooperative cattle or what to do in cases of emergencies, as well as general expectations, such as how to humanely handle animals. By adequately training and motivating staff, a producer can achieve high-quality animal care under all conditions. Proper animal care and handling will also help protect the caretaker's health and safety (University of Minnesota, Janni, 2001). Training provided should compare favorably with OSHA standards for safety training (Occupational Safety and Health Administration, 1995. Farm Safety).

Emergency, weekend, and holiday care requires specific management and planning steps. The producer should arrange for personnel or temporary help to cover emergencies, weekends, holidays and unexpected absences of assigned caretakers. The owner and/or manager should ensure that personnel are informed of animal care expectations and qualified to perform assigned duties. Posting the names and telephone numbers of emergency contacts (e.g., herd manager, owner, veterinarian) in a prominent place in the animal facility will speed up communications. It is also important to establish a written emergency plan and assure that facilities are adequate to address animal needs arising from weather conditions common to the area.

Employees and family members must clearly understand the importance of supplying water to animals even if bad weather makes feeding temporarily impossible. The absence of feed and water for lactating cows can trigger a signal to stop milk production, bringing lactation to an end; however, in emergencies the lack of feed for up to 48 hours will not endanger the health or well-being of nonlactating cattle. Calves should not be deprived of feed for more than 24 hours (The Humane Society of the United States, 1997; *Animal Management in Disasters*, S. Heath, 1999).

Monitoring the care provided to animals by employees and family members is the follow-up step in animal husbandry once animal care expectations are communicated. All of the senses—sight, sound, smell, taste, touch—are useful for observing animal behavior, environmental conditions, and the care staff provides (University of California, Davis [UC, Davis], 1998; University of Georgia, Ely and Guthrie, 2000).

Monitoring alerts producers to potential problems so that they can be prevented or corrected. The saying, "actions speak louder than words" is true for animals' actions as well as for caretakers' actions. The animal husbandry program will be strengthened if the producer points out problems and responds with examples of proper animal care when other workers fail to give the level of animal care expected. Encouragement and/or rewards should be offered when they properly care for the animals.

ONE

Training employees and family members

Emergency, weekend and holiday care

Monitoring the care provided to animals

11

Visitors coming to the dairy	<p>Visitors coming to the dairy are generally welcomed by most dairy farmers as long as biosafety practices are followed. Plastic boots, facilities to wash hands, etc., should be provided to all visitors. The industry has benefited for years from the goodwill created when the public visits the dairy and sees how well animal care is provided (Biosecurity—Profit for the Taking, 2001; New England Journal of Medicine, Crump, 2002).</p>										
Summary	<p>Signs to watch for in producer/employee attitudes:</p> <table border="0"> <tr> <td>Fear of people by animals</td> <td>Inappropriate use of sticks, prods, and whips</td> </tr> <tr> <td>Confidence of individual employees</td> <td>Animal injuries</td> </tr> <tr> <td>Tone and volume of voice</td> <td>Facility cleanliness and maintenance</td> </tr> <tr> <td>Availability of feed and water</td> <td>Pace of individual (i.e., slow, calm movement)</td> </tr> <tr> <td>Ease of animal movement</td> <td>Fear of animals by employees</td> </tr> </table> <p>Times to observe animals:</p> <ul style="list-style-type: none"> While milking When feeding Immediately before and after calving When moving animals When handling newborn calves When restraining and treating sick animals When loading animals for market <p>Places to observe:</p> <ul style="list-style-type: none"> Handling and holding areas (milking parlor, cow lot, barns, hospital pen, maternity pen) Housing areas including free stalls Feeding areas Watering areas Pasture In lock ups Heifer and dry cow pens/lots 	Fear of people by animals	Inappropriate use of sticks, prods, and whips	Confidence of individual employees	Animal injuries	Tone and volume of voice	Facility cleanliness and maintenance	Availability of feed and water	Pace of individual (i.e., slow, calm movement)	Ease of animal movement	Fear of animals by employees
Fear of people by animals	Inappropriate use of sticks, prods, and whips										
Confidence of individual employees	Animal injuries										
Tone and volume of voice	Facility cleanliness and maintenance										
Availability of feed and water	Pace of individual (i.e., slow, calm movement)										
Ease of animal movement	Fear of animals by employees										
Management Tips	<p><i>Train and educate animal caretakers about animal care expectations and animal well-being policies. Ensure that the following items are available in order to create or maintain a proper attitude:</i></p> <ul style="list-style-type: none"> • Training and periodic retraining time • Suitable fences • A quiet crowd gate • Gates that open in appropriate direction(s) • A well-designed loading area • A restraining chute and/or palpation rail • Enough competent, trained people to help direct the cattle • Calm voices • Avoidance of loud noises and fast movement • Adequate time for activity • Prevention of physical abuse or hostility • Written protocols, in appropriate language • Safety training which follows OSHA compliance standards 										
Resources	<p>Understanding Dairy Cattle Behavior to Improve Handling and Production, a video (National Institute of Animal Agriculture, 1992)</p> <p>Dairy Care Practices, UC Davis, 1998</p> <p>The Humane Society of the United States, 1997</p> <p>Animal Management in Disasters, 1999</p> <p>University of Georgia, Ely and Guthrie, 2000</p> <p>Biosecurity—Profit for the Taking, 2001</p> <p>Milk & Dairy Beef Quality Assurance Center, Inc.</p> <p>University of Minnesota, Janni, 2001</p> <p>New England Journal of Medicine, Crump, 2002</p> <p>Occupational Safety and Health Administration, 1995. Farm Safety.</p>										

Evaluating Animal Health Care

Quality dairy animal care includes a written herd health program that is comprehensive and emphasizes disease prevention. Investments in disease prevention are more cost-effective than disease treatment. Diseases in animals (and humans) can be caused by bacteria, viruses, and other microorganisms found in the animals' environment.

To correctly diagnose, treat, and prevent disease, producers should establish a valid veterinarian/client/patient relationship. The American Veterinary Medical Association defines this relationship as follows:

An appropriate veterinarian/client/patient relationship will exist when:

- (1) the veterinarian has assumed the responsibility for making medical judgments regarding the health of the animal(s) and the need for medical treatment, and the client (owner or caretaker) has agreed to follow the instructions of the veterinarian; and when
- (2) there is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s). This means the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s) and/or by medically appropriate and timely visits to the premises where the animal(s) are kept; and when
- (3) the practicing veterinarian is readily available, or has arranged for emergency coverage, for follow-up in case of adverse reactions or failure of the regimen of therapy." (American Veterinary Medical Association, 2002)

A licensed veterinarian, or other appropriately trained consultant, can help producers develop and implement a routine herd health program. The program should include:

- A valid veterinarian/client/patient relationship
- Regular observation of cattle
- Proper facility sanitation and waste management
- Pest control
- Hoof care
- Animal identification and health records
- Husbandry practices including elective surgery protocols (i.e., castration, dehorning, extra-teat removal)
- Proper administration of medication and identification of all treated animals

In addition, most herd health programs will also include:

- A vaccination schedule (which also can benefit calves through maternal transfer of immunity)
- Mastitis prevention/control program (see Chapter 6)
- Policies for storing, handling, and using animal health products (see *Milk and Dairy Beef Residue Prevention Protocol*, 2002)
- Information about specific infectious diseases endemic in the region, including information on testing, prevention, and treatment
- Proper nutrition (see Chapter 5)

In short, monitoring animal health contributes to animal well-being and cow comfort.

Procedures for Improving Udder Health:

Complete elimination of mastitis from a herd is impossible; however, the incidence of new infection can be reduced. This publication describes a practical approach that should keep infections in a herd at an acceptable level. Achievable goals for a herd include; bulk tank somatic cell count of less than 200,000 cells/ml; at least 85% of cows with DHI somatic cell scores of less than 5; and less than 20% of all cows having an episode of clinical mastitis during lactation (*Procedures for Improving Udder Health*, National Mastitis Council).

Desired Size for Breeding Heifers:

Heifers should be in good health and condition when they are bred. Although the typical age to breed heifers is between 13 and 15 months of age, heifers may grow at different rates. The desired size for breeding heifers:

Breed	Bodyweight (lbs.)	Height at withers (inches)	Heart Girth (inches)
Jersey	500 to 600	43 to 44	58 to 60
Ayrshire and Guernsey	650 to 700	45 to 46	61 to 63
Holstein and Brown Swiss	750 to 800	48 to 50	64 to 66

Deown, J.F., University of Nebraska 1991
 Management of Dairy Heifers, Penn State University
 Pankaskie, D., Agway Cooperator

TWO

*Establishing a
herd health
program*

Breeding

13

Foot care is important to the well-being of all cows. Lameness will interfere with movement to the milking, feeding and watering area; limit the exhibition of estrus; and influence general health. Routine examination and trimming of hooves can help prevent foot problems and infections. Where possible, avoid exposing animals to sharp rocks, muddy ground, broken concrete, or concrete with exposed rocks. Improper feeding, improper hoof trimming, and inadequate wearing of the hooves can lead to foot rot and should be corrected. Antiseptic footbaths, properly maintained and located, may prevent potential outbreaks of foot infections.

Whenever lameness (measured by locomotion scoring of 4 or 5) exceeds 3% of a herd, measures should be implemented. These may include footbaths, more frequent inspection, and foot trimming as recommended by the herd health veterinarian.

Locomotion scoring on a regular basis is recommended. A popular system developed by the University of California puts special emphasis upon the cow's back posture (UC Davis, Berry and Robinson, 2001).

Visually observe the cows standing and walking on a flat surface, and those cows that walk or stand with a level back are given a score of one (1). A five (5) is assigned to a cow with a reluctance or inability to bear weight on one or more limbs or feet (UC Davis, Berry and Robinson, 2001).

Locomotion Scoring of Dairy Cattle*



Locomotion scoring is based on the observation of cows standing and walking (gait), with special emphasis on their back posture. This system is intuitive and, therefore, easy to learn and implement. Use of locomotion scoring is effective for early detection of claw (hoof) disorders, monitoring prevalence of lameness, comparing the incidence and severity of lameness between herds and identifying individual cows for functional claw (hoof) trimming. Animal observations should be made on a flat surface that provides good footing for cows. Cows scoring 2 or 3 should be examined and trimmed to prevent more serious problems. Trimming should be done by a competent trimmer with the goal of returning the claws to functional weight bearing and conformation. *Adapted from Sprecher, D.J.; Hostetler, D.E.; Kaneene, J.B. 1997. *Theriogenology* 47:1179-1187.

<p>Locomotion Score Clinical Description Normal</p> <p>1</p> <p>Description: Stands and walks normally. All feet placed with purpose.</p>	<p>Back Posture Standing: Flat Back Posture Walking: Flat</p>
<p>Locomotion Score Clinical Description Mildly Lamé</p> <p>2</p> <p>Description: Stands with flat back, but arches when walks. Gait is slightly abnormal.</p>	<p>Back Posture Standing: Flat Back Posture Walking: Arched</p>
<p>Locomotion Score Clinical Description Moderately Lamé</p> <p>3</p> <p>Description: Stands and walks with an arched back. Short strides with one or more legs.</p>	<p>Back Posture Standing: Arched Back Posture Walking: Arched</p>
<p>Locomotion Score Clinical Description Lamé</p> <p>4</p> <p>Description: Arched back standing and walking. One or more limbs favored but at least partially weight bearing.</p>	<p>Back Posture Standing: Arched Back Posture Walking: Arched</p>
<p>Locomotion Score Clinical Description Severely Lamé</p> <p>5</p> <p>Description: Arched back, refuses to bear weight on one limb. May refuse or have difficulty moving from lying position.</p>	<p>Back Posture Standing: Arched Back Posture Walking: Arched</p>

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Rear feet posture offers clues.

University of Florida research indicates that 92% of lameness involves the rear feet, of which 68% affects the outside claw. Often viewed as weak conformation, the "cow hock" posture pictured is the result of overburdening of the outside rear claw because the heel has been allowed to grow too long. Because of the way cows walk, the outside claw is vulnerable to irritation which stimulates increased hoof formation and throws the foot out of balance. She stands this way to get comfortable. This can be corrected with good claw trimming. If allowed to persist, lameness will result. Other rear feet postures to look for include feet that are "camped back" or held well back. Often confused with "past leg" conformation, this posture indicates the animal has pain in the heels. Conversely, when rear feet are "camped under" or held well forward, often confused with "sickle hock" conformation, the posture indicates pain in the tip of the toe. Knowledge and awareness are the first lines of defense. Hoof trimming is as essential as teat dipping to herd health. It rebalances the unbalanced growth created by walking on irritating, unyielding surfaces. (Reprinted with permission from Midwest Dairy Business Quality Assurance Center).

Parasites	<p>Parasites: Some parasitic infections, such as coccidiosis and cryptosporidiosis, can cause serious health problems. It is recommended that a regular parasite control program be developed with a veterinarian's assistance. A clean environment is the best tool for combating parasite infections. As with vaccinations, products to control parasites should be used according to the manufacturer's specifications and, if necessary, under supervision of a veterinarian. All guidelines for use and withdrawal times should be carefully followed.</p>
Pest control	<p>Pest control is part of a herd health program because vermin transmit diseases and interfere with the animals' comfort. Producers should adopt procedures to control flies, mosquitoes, lice, mites, ticks, grubs, fleas, rodents, skunks, and pest birds (e.g., starlings, pigeons, and sparrows).</p> <p>One method of controlling rodents and pest birds is to restrict their entry into the animal facility even though they quickly adapt to opening of doors. Use screens with one-half-inch mesh on building openings and three-quarters-inch mesh on ridge vents. Apply sealer to cracks and eliminate breeding, nesting, roosting and refuge sites for birds.</p> <p>Fly and insect populations should be monitored and controlled. Use pesticides in or around animal facilities only as approved and only when necessary. Exercise particular caution to avoid contaminating feedstuffs, as contaminants may pass into the animals' bodies and milk. A certified pesticide applicator or a pesticide service may be used.</p> <p>In some regions, rabies and other diseases are spread to dairy animals by skunks, raccoons, foxes, bats, and other wildlife. Veterinarians should teach animal caretakers about the signs of these diseases in both wildlife and cattle and how to handle and report potentially diseased animals. If cats and dogs are kept on the facility, be certain that their rabies immunization status is current (Parasites and Pests—Management for Profit, 2000).</p>
Animal ID and health records	<p>Animal identification and health records are critical for making important management decisions about feeding, selecting, medicating, breeding, and culling an animal from the herd. In addition, food safety concerns are making premise and individual animal identification a must. Every animal should be identified in two locations by a method that is permanent and easily read by caretakers. Electronic transponders require special sensor stations for decoding or reading the identification number but can be interfaced with computers. Ear and neck-chain tags are readable at some distance, but can become lost. Neck chains and straps should not be used in situations where the animal could become inadvertently entangled in a fence, rock outcropping, or other environmental feature. Branding is not recommended.</p>
Two identical ear tags are the most common	<p>Health records are generally kept for individual animals as well as for daily herd management. On a daily basis, it is necessary to identify animals treated with medications or health care products. Records are required for registering animals with purebred cattle organizations and for official production testing systems. They may include such items as birth date, sex, pedigree, origin, owner, and location. Production and reproduction records help monitor an animal's performance and well-being. Important management information includes average daily weight gain for heifers and yearlings, milk production and composition, nutritional information and history where known, breeding dates, sire identification and calving dates, identification of the calf, and ultimate disposition of the animal. Equally important, health data cover health problems, vaccination dates, parasite control measures, blood tests, and veterinary treatments, including dates, names of medications, amounts and routes of administration, surgical procedures performed, and veterinary clinical information.</p>
Husbandry practices/elective surgery	<p>Specific husbandry practices have developed over generations to sustain the long-term welfare of dairy animals even though the practices may cause animals temporary stress. These practices include castration and supernumerary teat removal as well as dehorning, hoof trimming, vaccination, and certain animal identification methods.</p> <p>Where possible, surgical practices should be carried out shortly after birth for ease of animal handling and to minimize pain. The decision to perform elective surgery should be made under the review of a veterinarian. Only qualified individuals should perform the procedures. They should take all precautions to avoid causing unnecessary pain during the operation and during the recovery period.</p>
Switch trimming	<p>Switch trimming or clipping rather than tail docking is practical for animal cleanliness, improved employee comfort and health, excellent udder hygiene, and milk quality. To date, blood tests, cleanliness scoring, and review of milk quality have not shown any difference in animals with their tail docked or left intact. If switch trimming or clipping is practiced, clipping the brush and flaming at regular intervals will eliminate the need for tail docking (elastrators). Tail docking at the distal end of the tail is not recommended nor is the use of an epidural anesthetic (UC Davis, Stull, 1998; Univ. of Wisconsin, Ruegg, 2002; Canadian Veterinary Medical Association 2000). If tail docking is practiced, wait until the heifer is confirmed pregnant before docking.</p>

Castration of young male calves reduces the chance of unplanned mating, venereal disease, and aggression against other animals and animal caretakers. Although various techniques are available, surgical castration prior to weaning is recommended (Morrow-Tesch, 2001). Castration should generally be done at the earliest age practicable, and certainly at less than four months of age. After four months of age a licensed veterinarian should use a local anesthetic when performing operations. An emasculator or banding may be used before two weeks of age in order to reduce pain and minimize stress.

Extra (supernumerary) teats are removed from young heifer calves because they may interfere with milking and may leak, increasing the possibility of disease such as mastitis. This procedure should be conducted by a qualified person. Extra teats should be removed in the first three months of life with an emasculator or a scalpel or sharp scissors in a hygienic manner. Precautions should be taken to avoid unnecessary pain or distress during the procedure and recovery. If calves go off feed, review processes and timing with a veterinarian. Consult a veterinarian before removing teats from adult animals to facilitate milking.

Dehorning or disbudding is performed to avoid injury to herdsmates and personnel, reduce feeder space requirements, and increase handling ease. Calves should be dehorned between two to ten weeks of age using cauterization (scooping or use of caustic material is not recommended). Older calves are more difficult to restrain and handle; and the risk of blood loss, infection, and fly larvae infestation increases. A local or general anesthetic is recommended for older animals (over four months) during the dehorning procedure. Be sure to check that the anesthetic has taken effect by pricking with a pin. The dehorned area should be protected immediately by isolating the animals to prevent licking by other calves, and spraying the dehorned area with fly repellent during fly season (Dairy Care Practices, University of California, 1998). Use of polled genetics is recommended when available.

Administer all medications properly and identify all treated animals. The drug label and package insert state the acceptable route or method of administration and the amount and interval at which to give it. *Note that label directions must be followed exactly.* Any deviations are not advised. The only variation allowed is through extra-label use done in the context of a valid veterinarian/client/patient relationship. Routes of administration may affect the potential for drug residue. Oral and intravenous routes are considered less likely to create drug residue than are subcutaneous and intramuscular routes; however, the type of drug and carrying agent for the active ingredient may create exceptions. Drugs administered in an intramuscular fashion should be given in the neck area if possible. Varying the sites of administration on a cow is important because tissue blemishes can form at the injection sites and become observable quality defects in the meat for several months after injection (*Your dairy has a "steak" in the beef business*.... Midwest Dairy Beef Quality Assurance Center, 2000). Needles should be clean and sharp and used only once to prevent accidental transmission of diseases between animals. Sharps must be properly discarded after use.

The use of disposable, single sheaths and gloves for artificial insemination reduces the transmission of disease. All artificial insemination equipment must be clean.

If feed is medicated, it is critical to observe withdrawal times and ensure that it is consumed only by those animals for which it is intended. Caretakers should be made aware of medicated feeds being used and their withdrawal times.

Treated animals should be clearly identified by using leg bands, paint sticks, neck straps, cords and chains, or numbered ear tags. Whichever identification method is used, it should enable the animal to be identified during the drug withdrawal period and should be easily removed when the withdrawal is complete (Milk and Dairy Beef Residue Prevention Protocol, 2002).



Castration

Supernumerary teats

Dehorning

Administering medication

Environment for Dairy Animals

Proper management of the environment enhances animal production performance and minimizes animal disease, death loss, and behavioral problems. Dairy cattle are bred for growth, production, and reproduction in a variety of environments to which they can readily adapt. They can be raised outdoors on pasture, dry lot, and hutches, or indoors in stalls, pens and free stalls.

Environmental temperature affects an animal's comfort which, in turn, affects an animal's behavior, metabolism, and performance. The temperature that the animal experiences and the effect on the animal is the net result of air temperature, insulating effects of the surroundings, and the animal's age, sex, weight, adaptation status, activity level, posture, stage of lactation, body condition, and diet. The range of environmental temperatures over which an animal uses the minimum amount of metabolic energy to control body temperature is called the thermoneutral zone and is referred to as its comfort zone. Research has shown that an adult dairy animal can adjust the upper and lower limits of its comfort zone by as much as 36 degrees Fahrenheit in response to cold and heat stress (Webster et al., 1970). Environmental temperatures may be temporarily cooler or warmer than the comfort zone without compromising either the animal's overall well-being or its productive efficiency over the long term, but will lower productive efficiency in the immediate term.

Even though cattle are adaptable and can thrive in almost any region of the world, they must be protected from heat and cold stress caused by extreme weather events. They must have access to shelter even in moderate climatic regions. Heat stress adversely affects animal comfort more than does cold stress. Windbreaks, sunshades, or solid-roofed shelters are needed if trees or other landscape features do not provide adequate protection from winter storms and extremely cold or hot temperatures. The animal is the best sensor and respiration rate is a way to measure heat stress. Cattle do little sweating and they lose heat mainly through respiration and eventually, panting. On hot days one should count the breaths per minute of a few cattle to see if they exceed the healthy rate of 60-80 (Elstein, 2002). Sunshades, sprinklers, misting, fans, and other methods of cooling, as well as dietary alterations, will reduce heat stress and prevent a decrease in milk production during hot weather (Roman-Ponce et al., 1977; Hahn, 1981; Shultz, 1984; Bray et al., 1994; Armstrong and Welchert, 1994, UC Davis, 1998).

Air temperature, humidity, quality, and movement should be monitored carefully, especially during seasonal changes, to ensure animal comfort and prevent diseases. Humidity (the water vapor pressure in the air) influences the animal's ability to maintain its thermal balance. Relative humidity is ordinarily used to manage the air's moisture content and is easily determined. The relative air flow between animal and service areas in animal housing is an important consideration for reducing airborne transmission of disease agents or air pollutants. Air quality affects the health and well-being of the animal and its caretakers. Quality is typically defined in terms of the air's content of certain gases, particulate matter, and liquid aerosols. Five primary pollutants are found in animal facilities—ammonia, hydrogen sulfide, carbon monoxide, methane, and airborne dust. Government standards for these pollutants have not been established for many agricultural animals, but they have been established for human worker exposure. Allowable levels for eight hours of exposure daily for humans are as follows (Occupational Safety and Health Administration, 1997):

<i>Ammonia:</i>	<i>no more than 25 ppm and ideally less than 10 ppm</i>
<i>Hydrogen sulfide:</i>	<i>no more than 15 ppm and ideally less than 10 ppm</i>
<i>Carbon monoxide (from heaters):</i>	<i>no more than 150 ppm</i>
<i>Methane:</i>	<i>no more than 50,000 ppm</i>
<i>Airborne dust:</i>	<i>5 mg/m³ for respirable dust (particle size of 5 μm or less) and 15 mg/m³ for total dust</i>



THREE

Environmental temperature

Air temperature, humidity, quality, and movement

<p>Heat stress</p>	<p>Heat stress can negatively affect the cows and be very costly to a producer. To cool off in hot temperatures, cows have to use energy to cool off through heat loss by means of surface skin and the respiratory tract. The effects of heat stress are increased water intake, respiration rate, and sweating; decreased dry matter intake, blood flow to internal organs, and milk production; slower rate of feed passage; and poor reproductive performance (Jones and Stallings, Virginia Cooperative Extension, 1999). Various cooling methods, such as providing sunshades may be employed. Either natural or artificial shade can help alleviate heat stress. Other cooling methods, such as evaporative cooling pads, misters, foggers, sprinkling systems and fans, are also suggested. Adjusting the diet and ensuring there is plenty of cool, fresh, clean water can also help animals cope with heat stress. Cows may increase their water intake by five to six gallons per day on hot days. To help reduce heat stress around milking time, cows should only be in the holding pen for up to one hour prior to milking. The holding pens should be covered to protect the cows from direct sunlight. Sprayer systems and fans may also be used in the holding pens.</p> <p>Compared with humans, animals can tolerate higher levels of inert, airborne dust without discernible detriment to health or well-being (Curtis and Drummond, 1982). However, airborne dust is important to control because microbes and pollutant gases attach to the dust.</p> <p>Ways to lower airborne dust concentrations are to:</p> <ol style="list-style-type: none"> (1) increase the relative humidity; (2) add fat or oil to concentrate feeds; and, (3) control animal activity and air velocity which, at high levels, stir up more dust particles and keep them suspended longer. <p>Further control of microbes in the air can be achieved by segregating or isolating animals with highly contagious diseases. Care should be taken to ensure that the ventilation system does not move air from infected animals to an area occupied by healthy animals. Other ways to improve air quality are with waste management, husbandry practices, and good air movement (i.e., ventilation).</p> <p>Adequate ventilation, be it natural or mechanical, helps to prevent respiratory and other diseases by removing heat, water vapor, air pollutants, and odors from an enclosed animal facility at the same time that it introduces fresh air. Ventilation also modifies the indoor air temperature, but supplemental heating and cooling may be needed when temperature control is critical. The increase in temperature in a building can be controlled by the rate of air movement (i.e., the ventilation rate). The rate should be ten times higher in summer than in winter. Other factors that influence the desired ventilation rate are water vapor, heat, and (indirectly) odorous matter released from animals, equipment, and certain husbandry practices. A ventilation rate calculated on the basis of animal weight is more accurate than a rate based on air-exchange rate guidelines. Dairy barns with open sides (curtains) and open ridges help expedite air movement, and eliminate moisture, heat, and gases (UC Davis, Snull, 1998). Ventilation system design and operation are now well understood. Technical guides can help determine how often to adjust ventilation and the type of ventilation to use in a free-stall barn, stanchion or tie-stall barn, maternity area, feeding area, and calf barn (Curtis, 1983; Hinkle and Stombaugh, 1983; Midwest Plan Service, 1985; Holmes and Graves, 1994; Tillotson and Bickert, 1994).</p>
<p>Lighting</p>	<p>Lighting must allow inspection of animals and provide safe working conditions. In facilities where animals are routinely observed or handled, such as for milking or estrus observation, lighting should be diffused evenly. An outdoor light attached to a corral or building where animals congregate provides sufficient illumination for safety purposes. A time-controlled lighting system can provide a diurnal lighting cycle and may be desirable in indoor facilities. Variable-intensity lighting can be used to make light intensities consistent with energy conservation, the needs of the animals (as they are understood), and the illumination needs of personnel working in animal rooms. Sufficient lighting helps workers see the animals and detect any problems (UC Davis, Snull, 1998). Precise lighting requirements are better known for reproduction and productive performance in some animal species but are not known for the maintenance of good health and physiologic stability for most animals (Peters, 1994).</p>
<p>Noise</p>	<p>Noise ordinarily experienced in agricultural facilities has little permanent effect on the production performance of dairy animals. Scientific research suggests that stress from fright may be more pronounced when an object is seen rather than heard. For example, disturbances by visitors can reduce milk yield. In contrast, music in the cows' environment may produce a calming effect and stimulate milk let-down. Loud or alarming sounds can startle cows, causing erratic behavior (UC Davis, Snull, 1998). Acceptable noise intensities are not well established, but noise perception varies between cows of the same or different breeds (Albright, 1992).</p>

Animal activity. Under ideal conditions, cows normally lie down for approximately 14 hours in a day. Other hours (40%) are spent eating, drinking, grooming, etc.

Stray voltage in the animals' environment may be indicated by unusual animal postures or behaviors, such as reluctance to enter an area, or by a sudden drop in milk yield (Agricultural Research Service, 1991). Other signs include lapping at water, uneven milk-out, and an increase of unresponsive clinical mastitis cases.

When stray voltage problems are suspected, help is available to identify the problem. In order to solve the problem, contact a veterinarian, a local licensed farm electrician, the engineer for the local power supplier, an agricultural engineer or extension dairy specialist, milking equipment dealer, or milk plant field personnel.

Symptoms associated with problems of stray voltage or electrical current are not unique. Many factors other than stray voltage or electrical current can cause similar problems in behavior, health, or milk production (Gorewit, et al, 1992).

Signs to watch for in dairy animals:

- Hair coat changes (e.g., unusually dirty, wet, rough, or long—especially compared with neighboring herds with similar housing)
- Behavioral changes (e.g., restlessness, nervousness, skittishness, vocalization)
- Decreases in feed or water consumption
- Decreases in milk production
- Breathing changes (e.g., coughing, increased respiratory rate)
- Nasal or ocular discharges
- Injuries or lameness

Signs to watch for in the animals' environment:

- Moisture collecting on the roof and walls
- Frequent condensation on metal surfaces (indicates excess humidity)
- A haze or fog in the building
- Certain parts of the building where cows refuse to rest or sleep
- Cleanliness of ventilation fans
- Changes in air circulation and temperature
- Odors
- Maintenance of gates and fences

Air quality

- Relative humidity in an enclosed animal house should be below 80 percent in hot weather and above 40 percent in cold weather.

Lighting

- Periodically check time-controlled lighting system to ensure that it is working properly.
- Check for exposed wires, damaged outlets, cables, and electrical fixtures.

Signs of stray voltage

- Unusual animal behavior or posture
- Sudden drop in milk production
- Uneven milk-out
- Increase in unresponsive clinical mastitis
- Lapping at water

In general

- Seek ventilation equipment design and operating recommendations from a qualified agricultural engineer or other specialist.
- Seek electrical advice from a qualified electrician.

Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching. (Federation of Animal Science Societies, 1999)

Agricultural Research Service, 1991

Occupational Safety and Health Administration, 1997. Regulations.

Jones and Stallings, Virginia Cooperative Extension. 1999

Animal activity

Stray voltage

Summary

Management Tips

Resource

—Notes—

Facilities Provided for Dairy Animals

Dairy animals use a variety of resting, feeding, exercise, handling, and transportation facilities throughout their lives. To make all facilities safe and comfortable for the animals, there must be adequate space or floor area per cow, proper maintenance to remove any sharp or broken objects that could cause injuries, clean and dry bedding (if used), and non-slip flooring with minimal, if any, mud. Additional requirements for feed bunks, waterers, pre-milking holding areas, walkways between holding areas, loading areas, and transport vehicles will be discussed in other sections of this guide.

Housing facilities range from fenced pastures, corrals, and exercise yards with shelters to insulated and ventilated barns with special equipment to restrain, isolate, and treat animals. Generally, corrals, and sunshades are used in warm, semi-arid regions; pastures and shelters are common in warm, humid areas; naturally ventilated barns with free stalls are used widely in cool, humid regions; and insulated and ventilated barns with tie stalls are common in colder climates (American Society of Agricultural Engineers, 1983; Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching, Federation of Animal Science Societies, 1999).

The floor space available to a dairy cow affects her comfort. An adequate amount of space helps prevent injury, unhygienic conditions, and behavioral problems. Overcrowded animals may experience weight loss, lower milk production, and increased aggression. Many physical elements affect the amount of space sensed, perceived, and used by animals in enclosed housing systems. Producers need to assure that the animals each have enough room to stand, lie down, stretch their legs, eat, drink, and eliminate comfortably. When animals lie down, their hind legs should not extend into common traffic areas, curbs, or gutters.

When tie stalls or stanchion barns are used, cows should be turned out on a daily basis, except when prevented by severe weather. Providing daily exercise and freedom of movement for dairy cows will help improve estrus detection and thus improve reproductive efficiency. Allowed out of doors, cows are more likely to groom themselves and each other, sun themselves, and exhibit overall health and well-being (Albright, 1994).

A general rule for stanchion and tie-stall floor space is that the area should be at least as wide as twice the hip width of the animal and as long as approximately 1.25 times stall width.

Freestall Dimensions

Animal weight (lb)	Freestall width (in)	Freestall length		Neck rail height ^a	Curb to neck rail and brisket board (in)
		Side lunge	Forward lunge ^b		
800-1,200	42 to 44	6'-6"	7'-6" to 8'-0"	41 to 43	62
1,200-1,500	45-48	7'-0"	8'-0" to 8'-6"	44 to 46	66
over 1,500	48 to 52	7'-6"	8'-6" to 9'-0"	46 to 48	71

^aAn additional 12" to 18" in stall length (compared to side lunge stalls) is required to allow the cow to thrust her head forward during the lunge process. ^bAbove top of curb or top of mattress. (Midwest Plan Service, 2000). Determination of area requirements for dairy cows should be based on breed, body size, stage of life, behavior, health, weather conditions, and the planned frequency of cleaning and bedding practices. Increased frequency of cleaning and bedding can make smaller facilities quite comfortable for the animal.

Not all animals in free stall environment want to be in a free stall at one time. Ample feed and water space is very important. For example, if 100 stalls are provided, not more than 120 animals should be in the free stall complex. Many producers provide one stall per animal, especially in hot weather conditions, or if the building has more than four rows of stalls, or if cows are milked twice a day. Generally, stalls are hand cleaned each time the cow is milked. Features inside an enclosure (enclosure shape, floor type, ceiling height, locations and dimensions of feeders and waterers) should also be considered when determining an animal's space requirement (McFarland and Gamroth, 1994).

Nonlactating cows are housed in groups. Corral space, resting area size, and protection from weather varies, depending on cow numbers, climate, and waste management considerations. Consult with an agricultural engineer or your veterinarian for specific recommendations for your operation. Animals should always have the opportunity to rest in the shade.

Dry, clean bedding keeps animals dry and insulates the udder against cold temperatures and pathogens. Appropriate bedding materials and manure removal help prevent mastitis. Bedding should be of sufficient quantity and changed often enough to prevent animal waste from creating wet unsanitary conditions. Bedding material that is absorbent or well-drained, free of toxic chemicals or residues, and of a type not readily eaten by the animals minimizes injuries to the animal and to the caretaker. Any permanent stall surfaces, including rubber-filled mats, should be cushioned with dry bedding.

FOUR

Floor space

Bedding

Flooring	<p>Roughened, nonabrasive flooring prevents animals from slipping, which can result in broken legs or crippling injuries. Skid-resistant working surfaces reduce injuries and increase mobility to water and feed, are easily cleaned and maintained, and must keep their non-slip characteristic after cleaning, scraping, or wear (UC Davis, Stull, 1998).</p> <p>When concrete flooring is used, it can be roughened by making grooves. The dairy industry standard is to score concrete with grooves 3/8 inch deep, 1/2 inch wide, and approximately three to four inches apart. The grooves should be designed in a pattern to prevent slipping; a diamond pattern is recommended for high-traffic areas. Using a proper mix of concrete and setting of the surface texture will do much to prevent cows slipping and the wearing of animals' feet (Albright, 1994).</p> <p>Regarding animal well-being, there are limited data on long-term effects of keeping dairy cattle continuously on concrete floors. It is common practice to move cows from concrete to dirt lots or pasture at least during their nonlactating period (Albright, 1994). The rates of detection and duration of estrus are higher for cows on dirt lots than for those on concrete (Britt et al., 1986).</p>
Mud	<p>Mud represents a significant physical obstacle with animal health consequences. Producers who make an effort to keep cows out of mud will increase the animals' productivity and reduce the risk of infection to feet and udders. Mud decreases the animals' ability to obtain feed and water. It also increases the animals' nutritional needs, because when animals move through mud, they use energy and protein. Animals should not stand in mud over their dew claw. All animals should have the opportunity to lie down on dry areas.</p>
Social environment	<p>The social environment of dairy animals is important because the cows operate within a herd structure and follow a leader. Lactating cows are moved and handled daily. Cows are gregarious and usually do not like to be isolated. They are creatures of habit and do not like new situations (UC Davis, 1998). Where possible, producers should manage the animals' physical environment to allow animals in stanchions or stalls to view one another and animal care personnel. Handling several cows or calves together rather than individually will ease movement, lessen stress and anxiety, and require less restraint for medical treatment or artificial insemination (Albright, 1994).</p> <p>Producers can reduce aggression in an established herd by minimizing changes to its composition and by controlling the manner in which new animals are introduced to the herd (Albright, 1994).</p>
Hospital facilities	<p>A hospital pen is recommended for isolation and treatment of sick animals. Locking stanchions make observation and treatment easier. Animals should not be restrained for more than two hours in a locking stall (goal, no more than one hour). All animals should be observed daily (at a minimum), and any that are sick or injured should be treated promptly (UC Davis, Stull, 1998; Veenhuizen and Graves, 1994).</p>
Breeding facilities	<p>Breeding facilities should enable a caretaker to restrain with minimal effort a cow that is in heat. Heat detection is important. Poor identification can cause extended days to first service and result in economic loss (Nebel, 1996). As an aid in heat detection, heifers and cows in a dry lot operation may be placed in self-locking fence line stanchions daily to check tail chalk or heat mount detectors. Cattle found to be in heat are usually bred at this time, using artificial insemination. Animals on pasture or in pens without stanchions are observed and then bred in a restraining chute.</p> <p>When natural service is used, the facility must have dry and secure flooring to prevent the cow and bull from slipping. Bulls are potentially dangerous animals. Individuals working on dairies using natural service must exercise caution anytime they are working around a bull. Breeding bulls may be housed in open corrals or free-stall barns with lactating cows. When pasture breeding is practiced, bulls remain on open pasture. Corral fences and gates used for the milking herd are usually adequate for bulls. Likewise, shade, free stalls, water access, and feed bunk space requirements that are adequate for lactating cows are usually satisfactory for bulls.</p> <p>Before acceptance into an artificial insemination program, bulls are often housed individually in pens. The pens should provide adequate space for the bull to move freely (rise, stand, walk, and lie down) and provide protection from mud and rain. The interior should be safe for the animal and attendants, with no protruding pipes or sharp edges. As a safety factor, the facility design should allow attendants to feed and water the animal without entering the bull pen. AI semen may provide the opportunity for producers to improve their herd and be more competitive and economical than natural services (Virginia Cooperative Extension, 1999, UC Davis, Stull, 1998).</p>

<p>Properly designed and maintained facilities operated by trained personnel greatly facilitate efficient movement of animals. Fences and gates should be made of strong, smooth material and be devoid of sharp objects that can cut, puncture, or bruise an animal. Their height and ground clearance should prevent animals from trying to go over or under them. Fences should hold animals in designated areas. Corrals, holding pens, and feeding areas are generally permanently fenced, whereas temporary electric fences are often used around pastures.</p> <p>Gates should let an animal easily pass through. It is beneficial to locate gates in the corners of pens. Install them to swing inward and outward so that the animals can easily enter or leave the pen. The latching mechanism on gates should be foolproof so that animals cannot open the gate. The latching mechanism on a stationary post must not create a sharp point when the gate is open, because this could injure passing animals.</p> <p>Signs to watch for in dairy animals:</p> <ul style="list-style-type: none"> • Behavior when leaving or entering the barn (i.e., rush to leave, reluctant to return). • Injuries, abrasions, or lacerations. • Cows' use of free stalls, shade, feeders, waterers. • Cows' ease or difficulty in changing posture. • Cows' ease of walking in facility; good footing. • Cleanliness of cows. • Ability of cows to mount or stand to be mounted. <p>Signs to watch for in the animals' environment:</p> <ul style="list-style-type: none"> • Bedding condition (should be dry and clean to prevent the transmission of bacteria or other disease agents to animals and to improve animal comfort). • Flooring condition (traction remaining; absence of holes in flooring; absence of standing water). • Materials that can impair the animals' health and safety (e.g., nails and other loose hardware that can be swallowed, toxic substances, wood treated with preservatives, sharp objects in pens). • Standing water and muddy areas, excessive manure • Unnecessary items in facilities. • Absence of feed or presence of stale feed in the bunks or mangers. • Water cleanliness. <p>Free stalls</p> <ul style="list-style-type: none"> • Animals should always be able to find a free stall (i.e., do not have more than 120 animals for every 100 stalls). • Clean the bedding regularly and effectively clean alleys daily. • Remove and replace sand or sawdust that is contaminated with pathogens or noxious substances and disinfect the area. Clean mats or mattresses as needed. <p>Stanchions or tie stalls</p> <ul style="list-style-type: none"> • Remove manure regularly and disinfect effectively. Cow trainers and gutter grates help keep stalls and cows clean. • Frequently turn cows out (daily) of the stanchions or tie stalls to aid in heat detection, provide feed and exercise, and facilitate other management activities. <p>Corrals</p> <ul style="list-style-type: none"> • Design shades and corrals to prevent wet, muddy conditions. Groom corrals as needed. • To keep corrals, alleyways, and other high traffic areas clean, scrape and/or flush at regular intervals, and scrape or flush concrete alleys on a regular basis. • Design with proper slope and drainage. <p>Pasture</p> <ul style="list-style-type: none"> • Manage stocking rates through rotational grazing or other means to reduce the challenge of potential pathogens and parasites. Some pathogenic microbes survive in manure and other organic material for years. Overgrazing increases the likelihood of plants being ingested that are contaminated with manure and parasites. <p>Breeding facilities</p> <ul style="list-style-type: none"> • Design facilities to contain the cow during breeding, protect her from injury, and enable a caretaker to restrain a cow in heat with minimal effort. • If natural service is used, the flooring must be dry and secure to prevent the cow and bull from slipping. • Never trust a dairy bull and always have an escape route. <p><small>Dairy Freestall Housing and Equipment (Midwest Plan Service, 2000) Dairy Systems for the 21st Century (American Society of Agricultural Engineers, 1994) Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching (Federation of Animal Science Societies, 1999)</small></p>	<p>Restraint facilities: gates and fences</p> <p>Summary</p> <p>Management Tips</p> <p>Resources</p> <p style="text-align: center;">25</p>
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FIVE

Dairy Nutritional Care: Watering and Feeding

Animals should have access to feed and water on a daily basis, in a consistent manner, on a regular schedule, and according to their specific requirements. The National Research Council (NRC) has established requirements for growing, lactating, and pregnant dairy cattle (National Research Council, *Nutrient Requirements of Dairy Cattle*, 2001).

Water and waterers

Fresh, clean water is even more important to animals than nutritious forages and concentrates. Nonlactating cows consume 3 to 15 pounds of water per pound of dry matter consumed, depending on environmental temperature. Lactating cows consume 2 to 3 pounds of water per pound of milk produced plus that required for maintenance. High-producing lactating cows need continuous access to clean, fresh water immediately after milking. For other classes of animals, when continuous access is impossible, make water available for thirty minutes at least twice daily. More frequent watering may be necessary, depending on the cow's feed intake and milk production and the weather. Water must be prevented from freezing in cold weather (Murphy et al., 1983). Typically weaned heifers (Holsteins) consume 2 to 3.5 gallons of water per day; five-month-old heifers 3.8 to 4.6 gallons per day; 15 to 18-month-old heifers 7.3 to 9.6 gallons per day; and 18 to 24-month-old heifers 7.3 to 9.6 gallons. (*Dairy Reference Manual*, Penn State University, 1995).

Access to waterers—large tanks, troughs, buckets, or fountains—is essential for cattle to satisfy their needs for water. Waterers should be convenient for the animals to reach on demand, and there should be enough waterers to accommodate the number of animals in the herd or lot (Hoehne et al., 1994). Locating split pipe waterers along the alley leading away from milking parlor is popular.

Feed nutritional quality

Feed considerations include nutritional quality and quantity, feed bunk design, and proper feed storage. Advances in ruminant nutrition science (NRC requirements) have greatly improved animal production. To benefit from such research, producers must monitor feed quality and nutrient content of feed components. They should evaluate their methods to assure that their feeding program meets the basic nutritional requirements for the animals' maintenance, growth, production, and reproduction. Managers should (1) check that feed and feed ingredients are carefully mixed and formulated according to the animals' dietary needs; (2) periodically weigh the amount of feed being offered to the animals; (3) adjust rations to assure the correct content of protein, energy, and micronutrients in feed whenever forages are changed; and (4) adjust diets to provide for production level. In addition, feed quality should be checked to see if it matches the manufacturer's statement. Qualified nutritional consultants normally assist in formulating rations that economically meet nutritional requirements of animals.

Feeders or feed bunks

Fence line feeding or feed bunks should give animals easy access to the feed. The animals' comfort in eating is more important in the design of feeders than the method in which they are fed. The daily removal of feeds not consumed will ensure freshness of feed, prevent mold and spoilage, and aid in insect control. This is a particularly important practice when high-moisture feeds such as silage are used. A smooth feeding surface will facilitate cleaning and should enhance dry matter intake. Feeding at floor level reduces feed tossing behavior and feed wastage. Feeding with the cow's head down increases saliva output (Albright 1993).

Feeders should be far enough from waterers to minimize contamination of water. They should provide 24 to 30 inches of bunk space per cow to allow every animal uninterrupted feeding. Feed should be pushed up several times daily.

Heifer nutrition is very critical, and adequate bunk space should be available so all heifers can eat simultaneously. The recommended bunk space for calves 4 to 11 months of age is 6 inches, calves 12 to 17 months is 12 inches, and heifers over 18 months of age is 18 inches each at the feed bunk. (*Dairy Heifer Production*, Penn State University, 2000).



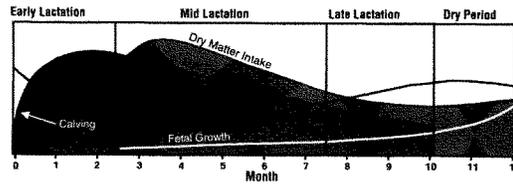
Safely store bulk supplies of feed in appropriately designed areas to avoid moisture, vermin, bacterial, or fungal contamination. Proper labeling of storage containers or areas, controlling moisture, and using an effective program of vermin control will help assure maintenance of feed quality and safety. Make sure medicated feeds are stored separately and labeled properly. Store toxic compounds outside of the feed storage area and outside of the animals' sleeping area. Feed should be covered, and access to birds and animals should be restricted.

Feed storage

Sanitation of eating areas will improve if caretakers check them several times each day and remove any feed not eaten. Footing should be firm and dry in watering areas. Animals should not be able to wade in drinking water. Water should be fresh and free of harmful contaminants, especially human and animal waste, which could introduce pathogens into the human food chain. Feed rejected by lactating cows should not be fed to replacement heifers.

Sanitation of eating areas

Body Condition Scoring in Dairy Cattle



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Achieving growth targets for heifers and monitoring change in body condition during gestation and lactation is very important. Body condition can change rapidly at and after calving and should be used to guide ration changes (Roche Animal Nutrition and Health, 1993).

Evaluating Milking Procedures and Equipment

The safety, comfort, and hygiene of the cows and the people working with them are critical during milking. Reference to the National Mastitis Council's (NMC) comprehensive mastitis prevention and milking management program can help achieve good milking results. (See NMC milking procedure recommendations under summary and management tips.)

Training of personnel should include disinfection and sanitation requirements, how to avoid undermilking or overmilking cows, and the correct use of milking equipment. Incorrect removal of milking units, for example, may threaten udder health. Individuals milking the cows should keep themselves clean and avoid changing their routine.

Hands should be thoroughly washed with soap and water before and during milking. Clean, dry hands minimize the spread of pathogens from cow to cow. When checking for mastitis, strip foremilk into a strip cup. Never strip foremilk into the hands or onto the floor because this could spread mastitis to other cows. Rubber gloves are recommended, but hands should still be washed periodically.

Reducing stress to the cow, particularly at milking time, helps to maximize milk yield. An effective preparation routine will help overcome any negative effects of stress experienced by the cow before or during milking. When a dairy cow is frightened or excited or experiences pain, she releases hormones into the bloodstream that interfere with her milk let-down and reduce resistance to mastitis and other diseases. Therefore, a consistent routine for bringing cows and milking machines together is essential. Gates and restraining equipment should operate smoothly, quietly, and safely. Waiting time should be consistent for each milking and kept as short as possible. The preparation routine that signals the beginning of milking should be pleasant to the cow and consistent. The routine should include checking for abnormal milk and thorough cleaning and drying of the teats. Avoid medical examinations or unpleasant experiences from being associated with the place of milking. Teat ends should be inspected and scored frequently.

The milking facility—whether it be in stanchions or in a milking parlor—must have clean floors with good traction and proper illumination if it is to be hygienic and safe. Grooved floors will prevent the cow from slipping. The facility should be designed and operated to meet or exceed Grade A dairy standards (Pasteurized Milk Ordinance, 1999).

The pre-milking holding area on farms with milking parlors is the place of highest animal density on the farm and of the greatest opportunity for injury. Consequently, it is important that prevention of injury be considered in the design of the holding area's flooring, space, sidewalls, and entrance to the milking parlor.

Milking equipment should be regularly maintained and checked for vacuum level, pulsation rate, and pulsation ratio. Equipment should also be checked for stray voltage if unusual behavior is exhibited or milk production drops. Portable equipment should be maintained to Grade A dairy standards of efficiency and sanitation. Equipment must be cleaned between milkings, and deposits of mineral, milk fat, and protein must be removed. Cleaning by hot water, disinfectant, or other chemical agents is effective. Neglecting to wash equipment even once can cause the next shipment of milk to fail the quality tests performed on every milk shipment. Carefully review milk test results for any signs of improper equipment function.

Udder sanitation is essential to prevent mastitis and maintain udder health. All teats and surrounding parts of the udder should be clean and dry before milking. Many high-producing herds use a pre-dip when preparing cows for milking. Milking wet teats may cause mastitis and lower milk quality. If water alone is used for cleaning (not recommended), it should be of high quality because the presence of microbes in wash water has been implicated in mastitis outbreaks. To eliminate transmission of mastitis-causing organisms, dry teats with individual cloth or paper towels rather than community cloths or sponges. Cloth towels are soft and absorbent and do not create a waste disposal problem, but they must be washed and sanitized between use. Never use a towel on more than one cow.

After the milking unit is removed, dip or spray at least the lower one-third of each teat with an approved teat dip. Many commercially available teat dips are known to reduce new infections by more than 50 percent. Check with your veterinarian or the dealer for research results that verify the effectiveness of the product you use. Teat dip cups must be maintained in a clean and sanitary manner as well. Never pour the remaining dip back into the original

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*Milking facility**Milking equipment**Udder sanitation*

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<p>Summary</p> <p>Management Tips</p> <p>Resources</p> <p>30</p>	<p>container. Discard dip when it becomes cloudy or contaminated with bedding or manure. Thoroughly clean cups before refilling with fresh dip. Teat spraying or foaming is an acceptable alternative to teat dipping (Recommended Milking Procedures, NMC, 1993).</p> <p>Another way to reduce the spread of mastitis from cow to cow is by milking cows in this order: (1) first-lactation cows, (2) second- and later-lactation cows with low somatic cell counts, (3) cows with high somatic cell counts, and (4) cows with clinical mastitis. It is recognized that other economic factors or facility constraints may make this difficult and necessitate a different milking sequence.</p> <p>Extra precaution should be taken when milking sick cows. Only skilled, properly trained milkers should milk the cows to insure proper milking procedures are applied. To prevent the spread of infection to other cows, it is strongly recommended that only disposable towels be used to clean the udder. After milking, the teats should be dipped with disinfectant rather than sprayed. This will ensure the entire teats are covered (Kirk and Jardon, UC Davis Veterinary Medicine Extension).</p> <p style="text-align: center;">*****</p> <p>Signs to watch for in dairy animals:</p> <ul style="list-style-type: none"> • Behavior (contented vs. aggressive or vocal) while in the holding area or during milking preparation • Swelling, inflammation, or hardening of the udder • Abnormal milk (high somatic cell count) • Somatic cell count over 200,000 (National Mastitis Council) <p>Signs to watch for in the animals' environment:</p> <ul style="list-style-type: none"> • Unsafe conditions (e.g., sharp edges and other protrusions, slippery floors, inadequate lighting) • Indications that liners and inflations of milking equipment need to be changed (e.g., liners slipping or squawking) • Deposits of minerals, milk fat, or protein on milking units <p>Milking procedures recommended by the National Mastitis Council:</p> <ul style="list-style-type: none"> • Provide a clean, stress-free environment for cows. • Check foremilk and udder for mastitis. • Wash teats with an udder sanitizing solution. • Dry teats completely with a sanitary towel. • Attach milking unit within one minute after the start of stimulation (i.e., as soon as the teats are full of milk). • Adjust milking units as necessary for proper alignment. • Shut off vacuum before removing unit. • After unit removal, dip or spray teats with a product that destroys organisms on teats and eliminates existing teat canal infections. <p>Mastitis prevention practices (additional techniques that can reduce infections):</p> <ul style="list-style-type: none"> • Train animal caretakers in proper milking procedures (consider videotaping milking). • Regularly change milking machine liners and inflations. • Establish a consistent milking routine. • Prevent frostbite after postmilking disinfection when needed. • Clean milking equipment. • Isolate cows with mastitis; use separate equipment or milk last. • Ensure that persons servicing milking equipment are qualified. • Use tested and proven premilking sanitation, as well as pre- and postmilking teat dip practices. • Routinely treat nonlactating cows with an approved product. • Observe proper techniques and sanitary practices when making intramammary infusions. <p>Resources</p> <p><u>A Practical Look at Environmental Mastitis</u>, (National Mastitis Council Recommended Milking Procedures Factsheet, NMC, 1993, Revised 10/97) Kirk and Jardon, UC Davis Veterinary Medicine Extension</p>
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Transporting and Handling Animals

The animals' comfort and safety, as well as the caretaker's safety, are the primary concerns associated with animal well-being when handling and transporting dairy animals. Producers must ensure that animal caretakers are trained and qualified in proper handling techniques and in the appropriate use of restraint equipment. Abuse when using any handling device must not be tolerated. In addition, producers should ensure that an adequate number of caretakers are available to perform assigned tasks. Injuries can be prevented if facilities are properly designed and maintained.

Animals should be handled quietly but firmly at all times. Routine contact with humans from birth on, including regular gentle handling, will reduce fear and flight distance, make observation and treatment easier, and enhance animal well-being and productivity. Cattle should be moved at a slow walk, particularly if the weather is hot or humid and if the flooring is slippery. It is particularly important to control the herd's speed in lanes and alleyways to prevent crowding or crushing at corners, gates, and other narrow places in a facility (Grandin, 2000).

To prevent startling of cattle when approaching from the back, a gentle voice is calming. Cattle have panoramic vision, except directly behind them.

Moving animals needs to be done calmly. Do not force animals to move faster than a walk. Excited animals have increased levels of hormones which can reduce the quality of milk and meat and increase susceptibility to disease (UC Davis, Stull, 1998).

Animals should be restrained by equipment appropriate for the procedure. Use of flags, plastic paddles, and a stick with ribbon attached to it are appropriate for handling animals that refuse to move through facilities, but only if minimal force is applied. Any force used must be applied calmly. Dairy animals are creatures of habit and can sense when something different is happening or about to happen. Excessive or routine slapping or prodding indicates an underlying problem that requires management attention and correction. The problem could be (1) the caretaker may be too anxious or inadequately trained in proper animal handling techniques, (2) the facility may be designed improperly, or (3) the animal may be sick or injured. The first problem may be corrected by additional training so the caretaker understands animal behavior and uses acceptable handling techniques. Addressing the facility design problem may be as simple as completing mechanical improvements on fences and gates or making general repairs (Grandin, 2000).

In all cases, use the least amount of force necessary to control the animal and still ensure the safety of herdmates and caretakers. Aggressive behaviors in dairy cattle can be modified and their impact reduced by using acceptable practices and restraint devices (e.g., palpation rails, head chutes, squeeze chutes, and stanchions). Self-locking manger stalls are less traumatic for cows, because they are treated in familiar surroundings. Preferably use versions equipped with emergency releases. (Palmer, University of Wisconsin-Madison, 2002).

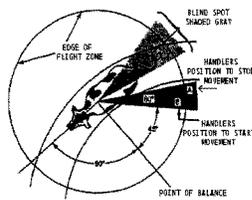
SEVEN

*Animal handling**Animal restraint equipment*

<p>Loading and unloading animals</p>	<p>Animals should be loaded and unloaded for transit in a manner that minimizes stress and anxiety. The process of being moved, especially if it involves a loading chute, is frightening to most animals. Three measures should be taken: (1) train caretakers in proper loading and unloading practices, (2) properly locate and design loading areas, and, (3) minimize the number of directional changes an animal must take (Grandin, 2000).</p> <p>Caretakers should observe proper loading densities and plan to load or unload animals at the time of day that is best for moving the animals. Animals grouped together for the first time should not be crowded or otherwise stressed. Sufficient labor and appropriate equipment should be available for loading or unloading animals. Sick or injured animals require special handling. Animals should be transported before they become infirm. See Chapter 9 for more details.</p> <p>Loading areas should be located near hospital pens and roads and be accessible in all kinds of weather. Loading ramps should not exceed a twenty-five degree angle. Ramps should provide nonslip flooring for good footing. They should be equipped with wing gates and a self-aligning bumper to prevent animals from stepping down between the ramp and the truck or from getting stuck between the side of a chute and the truck. If at all possible, eliminate the use of inclined loading chutes.</p> <p>Loading and unloading facilities should be designed to minimize the number of directional changes an animal must take. Animals should not be forced to walk toward apparent dangers that are likely to cause fear, such as a change in light intensity. Because of poor depth perception, cattle have difficulty discriminating between a shadow or a hole in the ground and hence cattle will balk at shadows. Because cattle have wide-angle panoramic vision and poor depth perception, facilities should have curved paths, be uniformly illuminated, and be a uniform color and texture to avoid sharp contrasts and shadows that may impede cattle flow. Single-file chutes, crowding pens, and other areas where cattle are crowded should have high, solid fences to prevent the animals from observing people, vehicles, and other distracting moving objects outside the facility (Grandin, 1988).</p> <p>Use of general anesthesia. Only a licensed veterinarian should administer a general anesthetic. The anesthetic is normally injected in the tail head area. Dairy staff should be prepared to assist the animal as the anesthetic takes effect. Staff should be present when the animal recovers. Be sure that the animal has sufficient traction to prevent slipping and falling during the recovery period.</p>
<p>Transportation factors</p>	<p>Transportation factors related to animal well-being include facilities that are safe and comfortable to the animal, in-transit care provided by knowledgeable crews and drivers, uniformity of the animals loaded, and duration of the trip.</p> <p>Moving young stock. Calves should be handled gently. Young calves may be moved in wheel barrels, by carrying, or by assisting their own walking. Proper training of employees and/or family members is important. Never pull or force the animals to move by grabbing ears, tail, or one leg. Electric prods, whips, or loud noises should be avoided.</p>
<p>Vehicles</p>	<p>Trucks and trailers have an impact on animal care. Even though transport vehicles are not stationary, they are facilities that require the same type of safety and comfort features of other facilities. These include (1) sides high enough to prevent animals from jumping over them, (2) nonslip flooring that provides secure footing (avoid abrasive floor and wall surfaces), (3) ventilation adequate for the weather conditions, (4) proper bedding (to protect animals from weather extremes), and (5) adequate (vehicle) covering to protect animals from adverse weather.</p> <p>Providing shade, wetting animals, and bedding trucks with damp sand will protect animals in transit from heat stress. Truck flooring should be clean and covered with sand to prevent slipping, and it then may be covered with clean, dry bedding. To protect animals from cold stress, provide wind protection from the front of the truck and use bedding material with high thermal insulative properties, such as chopped straw, to prevent body heat loss to the truck floor. Trucks with tight sides should have exhaust stacks that prevent the animals from being exposed to fumes.</p>

In-transit care will prevent animal injuries, bruises, and carcass damage, which ultimately discount the animals' market value as well as impair their well-being. Transport crews should be knowledgeable about animal care expectations and skilled in handling animals properly. Chances for injuries are reduced when animals on a truck are confined in several smaller groups. Animals should be shipped in groups of uniform weight and species when possible. Weak or unhealthy animals should be segregated from healthy ones during loading and during transit; care should be provided for their special needs (see Chapter 9). To avoid the possibility of calves being born in market channels, animals showing signs of calving should not be shipped.

An adequate amount of time for the trip should be allotted to include periodic checking of the condition of the animals. Drivers should start and stop the vehicle smoothly and slow down for curves and corners. If an animal falls in transit, it should be helped to its feet and possibly segregated from the other animals for the rest of the trip. Provisions for water must be made, and provisions for feed should be made if the trip takes more than 24 hours.



Grandin, T., *Behavioral Principles of Livestock Handling*, 1999

All workers and handlers should be properly trained in handling dairy animals and should have a basic understanding of typical dairy cattle behavior. Having a concept of the animal's flight zone, or the animal's "personal space", can be a valuable tool when moving them. Flighty or high-tempered animals will move away when a person enters the animal's flight zone or radius around the circle as shown in the diagram. Calmer animals will have smaller flight zones.

Signs to watch for in dairy animals:

- Aggressive or nervous behavior
- Health condition prior to, during, and after transport
- Animals that are, or are likely to become, nonambulatory should not go through the normal marketing process (See Chapter 9 for details).

Signs to watch for in the handling facilities:

- Fencing material (around permanent enclosure, around pasture or other temporary grazing area)
- Condition and strength of fences
- Smoothness of material
- Height
- Ground clearance
- Overall design that is animal friendly

Signs to watch for in transit:

- Smooth starting, stopping, driving
- Adequate time and number of caretakers for the job at hand
- Checking animals during transit
- Route taken
- Bedding
- Condition and ventilation of vehicle
- Provision for sudden changes in the weather

In-transit care

Flight zone

Summary

Management Tips

Use transportation crews that are knowledgeable about animal well-being concerns.

- Find out if the crews are trained about animal well-being concerns.
- Provide instructions as to the care expected during transit.

Recommended Area Allowance in Transportation Accommodations:

Note: Greater or lesser density increases the possibility of injury (Grandin, 1992).

Body Weight (lb)	No. of animals per linear foot of truck floor (7.7 ft wide)
200	2.2
300	1.6
400	1.2
600	0.9
800	0.7
1,000	0.6
1,200	0.5
1,400	0.4

For example, (12' length) X (1.2) = 14 four-hundred-pound animals

Resources

Understanding Dairy Cattle Behavior to Improve Handling and Production, a video (National Institute for Animal Agriculture, 1992)
 Grandin, Livestock Handling and Transport (CAB International, 1993)
 Grandin, Livestock Handling and Transport (CABI Publishing, 2000)
 Grandin, Livestock Handling Guide (National Institute for Animal Agriculture, 1988)
 Grandin, Livestock Trucking Guide (National Institute for Animal Agriculture, 1992)
 University of Wisconsin-Madison, Palmer, 2002.
 Grandin, Behavioral Principles of Livestock Handling, 1999

Birth and Management of Calves

Management for quality is important. An appropriate environment and facilities, proper nutrition, and careful handling maximizes each calf's economic contribution to the herd through the improved health and well-being of the calf.

Bulls are evaluated for calving ease by the National Association of Animal Breeders. Bulls known to sire small calves should be considered for use when breeding heifers. To minimize the possibility of calving difficulty, ensure that heifers are of adequate size prior to breeding (calve at 22-24 months of age). Bulls known to sire calves that will cause difficult calving should be avoided.

A clean, dry, well-lit, well-ventilated calving area has many health benefits for birth of calves. Wet, dirty calving areas foster the growth of bacteria that can invade the newborn calf's navel or mouth and create a disease load that overwhelms the calf's immune system. A separate calving area (maternity pen or paddock) that is designed to be comfortable, functional, and hygienic allows for close observation of the cow and easier, more effective assistance at calving. Patience and gentle firmness in handling calves and cows generates a better response than does force. Calves should be removed from the cow immediately to prevent transmission of diseases such as Johne's. (Do not allow calf to suckle.) Pens, corrals, or paddocks should be cleaned between calvings.

Calves should be protected from extreme temperatures, wind, drafts, and precipitation during periods of inclement weather. During cold weather, ventilation in houses for newborn calves should maintain acceptable air quality in terms of water vapor and other pollutants without chilling the animals. Avoid drafts or direct breezes on young animals. A dry calf protected from wind can endure lower temperatures. Blankets are often used to keep a small calf warm, which will limit the amount of energy the calf uses to stay warm. Air temperature in the housing area should be above the point at which manure freezes and should be high enough to prevent water, waterers, and water pipes from freezing.

Calves are moved from maternity pens to individual pens or hutches (at least 4' by 6') for separate confinement until approximately 5 weeks of age. Calves are then moved to larger pens holding small groups or to superhutches (which are portable pens normally located in a pasture area, which provide feed, water, and shelter). Calves are grouped by age and weight. Calves 90 to 150 days of age are generally housed in larger groups (Bickert et al., 1994) (Raising Quality Replacement Heifer—A Guide to Best Management Practices, 2001). The typical weaning age is 45 to 55 days.

Dip navels in disinfectant as soon as possible after birth. If the umbilical cord is not severed immediately after birth, it may be tied two to three inches from the calf's body. Wet cords are entry points for pathogens into the calf's body. The most effective preventive treatment is to dip the navel repeatedly into a solution of chlorhexidine or 2% iodine (use 7% tincture of iodine if you want to cauterize the navel). Repeat the process daily until the umbilical cord is dry (Walter-Toews, et al. 1986). Temperature of calf is taken frequently the first two weeks to guide care.

Providing an adequate volume of high-quality colostrum is critical to calf health because calves depend on colostrum for immune protection. Colostrum is the milk produced by the cow prior to and during the first few days after calving. Colostrum collected within the first six hours after calving contains antibodies to protect the calf from certain diseases. Adequate passive transfer of immunity is the single most important factor to preclude illness of young calves. Failure to receive colostrum within 30 to 60 minutes often results in fatal illness or lower health status.

Another benefit of colostrum is that it increases a calf's tolerance to cold temperatures. A calf housed in dry, individual shelter with protection from wind and drafts (e.g., pens or hutches) and fed colostrum can tolerate temperatures as low as -27 degrees Fahrenheit (as opposed to about 50 degrees Fahrenheit in the absence of colostrum) (Jorgenson et al., 1970; Webster, et al., 1970; Arave, 1993). During extremely cold weather, calves should be provided additional colostrum.

To achieve these benefits, calves must be fed four quarts or more of high-quality colostrum. The first feeding should occur as soon as possible after birth, preferably within one hour. Use an esophageal tube feeder if necessary (Wisconsin Herd Health Working Group, 2001).

Colostrum quality should be determined prior to feeding it to calves. High-quality colostrum contains high levels of specific proteins, including antibodies. The source of colostrum used in hand feeding calves is from tested older cows (Raising Quality Replacement Heifer—A Guide to Best Management Practices, 2001). The amount of immunoglobulin in colostrum tends to increase with the lactation number of the cow. The amount of protein can be estimated with

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*Calving area**Navel care**Nutritional care:
colostrum and
feed*

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Marketing and transportation

a hydrometer, an instrument that measures the amount of solids (e.g., protein) in a liquid (Mechor, et al., 1992; Pritchett, et al., 1991; Pritchett, et al., 1994; Quigley, et al., 1993).

If the colostrum from the dam of a calf is tested and found to have insufficient quality for a newborn, it can be used for calves two days of age or older. Also, colostrum from the calf's own dam should not be used if the cow has a contagious disease, because the colostrum may transfer certain diseases from cow to calf. Avoid using milk that is mastitic or bloody or contains antibiotic residue. Substitute the discard milk with other milk or a high-quality milk replacer (e.g., one that has the protein source primarily from milk or milk by-products).

Calves may be fed with a nipple bottle or nipple pail. A calf's suckling reflex assists in closure of its esophageal groove. Special attention to cleaning nipples will be necessary. Clean bottles, buckets, and equipment with soap and water after each feeding. Use of an esophageal tube-feeder may not have the same desirable result, but is the next best alternative to natural or nipple feeding. When an esophageal tube-feeder is used, only persons adequately trained in its use should feed the calves.

Within a week after birth, the young calves to be retained on the dairy should be offered a palatable, high-quality starter ration (no forage). At six to eight weeks of age, the calves should be able to handle a concentrate mix and should be given small offerings of high-quality alfalfa or grass hay. A sound nutritional program will ensure that calves reach their genetic potential and that any problems later in the mature animals will be avoided (National Research Council, 2001). Calves will undergo changes as they switch from a milk/liquid diet to become fully developed ruminant animals utilizing dry feed (Raising Quality Replacement Heifer—A Guide to Best Management Practices, 2001). Calves must have continuous access to fresh water that is free of contaminants or pollutants. The heifer rations should meet 2001 National Research Council net energy and net protein requirements for maintenance and gain by mature body weight (National Research Council, 2001).

Bull calves destined for AI service may require special care. Owners should check with the AI organization interested in their animal for specific health requirements or calf management instructions. This may include items such as a specific vaccination program and suggestions on how to reduce exposure to disease-producing organisms.

Once the calves have a dry navel and can walk without assistance, they can be marketed and transported off the dairy. Bull calves that are sold/removed from the dairy at one day old for veal or beef animals need to be well cared for, be dry, have iodine applied to their navels, and have received colostrum at birth (UC Davis, Stull, 1998). Some bull calves are slaughtered for food at less than two weeks of age and less than 150 pounds. These calves are known as bob veal. In some regions of the country, as high as 95 percent of the bull calves are transported from the dairy farm to dairy-beef or veal (special-fed) farms where they are fed until ready for slaughter. Veal producers feed calves a milk formula until they reach a finished weight of more than 400 pounds (18 weeks). These calves are called special-fed calves (also fancy veal calves, formula-fed veal calves, or milk-fed veal calves). Dairy-beef producers feed calves grain, hay, and processed feeds; these calves are called grain-fed calves.

Calves sell best if they weigh at least 95 pounds, have no signs of sickness or structural defects, walk normally and without assistance, are reasonably well muscled, and have dry navels. Calves that have diarrhea or are light-weight, stressed, or mishandled hurt the industry and cause financial losses for producers. Calves are more likely to become nonambulatory during marketing and transportation if they are not given adequate amounts of high-quality colostrum (and if they are less than two days old). Nonambulatory calves are difficult to handle properly, have little economic value, and create potential public image problems for the industry.

Ideally, calves being transported directly to market from the dairy of origin, should have no intermediate market stops. The animal in transit and the entire industry benefit from all appropriate early-care measures—clean, dry housing; protection from temperature extremes; a dry navel and treatment to prevent navel infection; and feeding of high-quality colostrum. In order to ensure that the value of these measures is not lost, producers should ensure that calves receiving proper care are not mixed in transit with those that did not.

The transit of calves should be safe, humane, and comfortable in order to ensure their health, quality, and market value. Workers should be trained to handle and restrain a calf with a minimum of stress to the animal. Calves should be moved on the dairy, on the truck, or in the auction market by walking or lifting them. Calves can be injured if they are dragged, pulled, or caught by the neck, ears, limbs, tail, or any other extremities, or if they are thrown. (See transportation and handling practices under Chapter 7.)

A written vaccination program is established to follow with all replacement heifers, recording the date of each vaccination (Raising Quality Replacement Heifer—A Guide to Best Management Practices, 2001). Common vaccinations for heifers 4 to 10 months of age are IBR-PI, BVD-BRSV, Brucellosis, Haemophilus, Clostridial group, Leptospirosis, Rota and Corona virus (pre-calving for calf scours), and *E. coli* (Oklahoma State Program, 2002).

Antibiotics or vaccines must not be used on any calves that will soon be sold through livestock auction markets, because they are often slaughtered within 12 hours after sale. These calves have one of the highest incidences of violative antibiotic residues of any meat animal class. Residue levels in violation of government regulations will result in carcass condemnations and pose potential risks to human health. If a calf's condition indicates a need for antibiotic therapy, it should be provided. Care must be taken to ensure that it is properly administered and that recommended withdrawal times are observed.

Producers may vaccinate calves at birth if there is an agreement for such with the buyer (e.g., replacement heifer raiser, dairy-beef, or veal producer). If antibiotics are used on calves destined to be marketed as bob veal or for veal feeding, antibiotics with short or no withdrawal periods should be administered, and attention should be given to routes of administration. Consult a veterinarian to confirm the proper choice of antibiotics.

Heifer growers or milk producers need to focus on replacement heifer growth including nutrition, health, parasite control, comfort, and social factors. It is important to quarantine new animals for 21-30 days before allowing them contact with other animals to maintain a biosecure facility.

Body condition scoring for heifers varies at the different ages of life.

Body Condition Scoring



A newborn heifer will typically have a body score of 2.0.



A heifer that is six months of age should score at 3.0.



A heifer that is 12 months of age should score at 3.25.



A heifer that is 15 months of age should score at 3.5.



A heifer that is 24 months of age should score at 3.75.

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<p>Summary</p> <p>Management Tips</p>	<p style="text-align: center;">*****</p> <p>Signs to watch for in healthy calves:</p> <ul style="list-style-type: none"> • Dry navel • Ability to walk unassisted • Alert ears and clear eyes • Good body condition • No signs of diarrhea • Resuming a normal standing posture after standing and stretching <p>Signs to watch for in the calves' environment:</p> <ul style="list-style-type: none"> • Cleanliness of calving area (e.g., frequency with which bedding is changed). • Clean, sanitized, dry, and well-ventilated housing facilities and pens. • Availability of fresh, clean water and feed. • If pastured, appropriate fencing, access to water, supplemental feed, and shade/shelter. <p>Calf care protocol for the dairy producer:</p> <ul style="list-style-type: none"> • Have a comprehensive herd health program in place. • At the time of calving, provide dry, sanitary maternity pens or paddocks. • Provide 4 quarts of high-quality colostrum within 60 minutes after birth. • Feed a high-quality milk replacer or milk to calves; don't use milk from cows that have been treated with antibiotics if calves are to be sold. • If antibiotics are used on calves to be marketed, administer antibiotics with short or no withdrawal periods. • Dip navels in disinfectant as soon as possible after birth. • Avoid stressful procedures during weaning. • Market calves only if they are able to walk unassisted, are not wobbly, and have a dry navel. • Transport calves safely and comfortably in appropriate vehicles with adequate ventilation, bedding, and protection; don't pull calves by limbs, ears, tails, or necks; don't throw calves onto trucks. • Calves should spend as short a time as possible in the market channel. Ideally, they should move directly from the dairy of origin to market and then to their final destination. <p>Management should be prepared (and calf caretakers trained) for:</p> <ul style="list-style-type: none"> • Handling cows having difficulties calving. • Postcalving problems. • Observing time elapsed after calving (e.g., important for colostrum management) and time elapsed between calvings in any calving pen. • Treating uterine and vaginal infections according to recommendations of a veterinarian. • Guaranteeing that calves have continual access to a source of fresh water. • Guaranteeing that calves receive high-quality colostrum in a timely manner (identify the person responsible for checking colostrum quality, feeding colostrum, and saving excess colostrum). • Guaranteeing that calves are given at least some dry grain before four weeks of age. • Monitoring calves at least twice daily and recording their health status. • Maintaining daily records of the calves' health and any medication used (dosage, duration of treatment, compatibility of medications, and withdrawal times). • Handling calves gently and firmly. • Weaning calves at 45-55 days of age. <p>Colostrum management</p> <p>Goal: to provide a sufficient quantity of antibodies that are passed from the colostrum to the calf's bloodstream in a hygienic manner.</p> <p>Acceptable methods to achieve this goal:</p> <ol style="list-style-type: none"> 1. Use colostrum from cows with known production of high-quality colostrum. 2. Use a hydrometer or other instrument to gauge colostrum quality. 3. Never co-mingle colostrum from several cows.
<p>Resources</p> <p>38</p>	<p>Better Cows From Better Heifers 2001 (A supplement to <i>Hoard's Dairyman</i>)</p> <p>Raising Quality Replacement Heifers 2001 (DQA Center)</p> <p>Raising Dairy Heifers 1990 (A supplement to <i>Hoard's Dairyman</i>)</p> <p>Raising Dairy Herd Replacements (University of Georgia, Ely and Guthrie 2000)</p> <p>Waldner, Recommended Vaccination Schedules, Oklahoma State Program, 2002</p> <p>Body Condition Scoring Guide for Dairy Replacement Heifers. 1993. Roche Vitamins, Inc.</p>

Sick, Hospitalized, Nonambulatory, and Dead Animals

If an animal becomes sick, nonambulatory, or dies, it is critical to protect the other animals from potential diseases and to provide special care for the sick or recovering animal.

Sick and injured animals should be segregated from the herd and observed carefully at least twice daily. In cases of isolation or quarantine, appropriate biosecurity measures should be employed rigorously. Reference may be made to the Pennsylvania Dairy Health and Biosecurity Manual (Hutchinson et al., 1989).

A hospital or sick pen isolates the animal(s) from the herd and makes treatment easier. Because sick or injured animals are more susceptible to discomfort than are healthy animals, it is important that the pen be equipped to maximize animal comfort. It should provide adequate shade, bedding, air movement, and accessibility to feed and water. Be sure to observe sick animals after providing feed, etc., to healthy animals. Avoid going from sick animals to healthy animals (biocontainment).

Nonambulatory animals (animals that are unable to stand and/or walk unassisted) are often in extreme discomfort, are an economic liability, and should not be moved to market. Prevention, preparation, and prompt action are keys to their proper handling.

Most situations wherein animals become nonambulatory are preventable. Weak and emaciated animals often become nonambulatory. Conditions that increase an animal's susceptibility to injury—slippery floors, improperly designed loading ramps, excessive loading densities on trucks—are all preventable. A commitment to prevent animal injuries can be realized if animals are shipped before they become weak, clearly defined policies requiring appropriate handling practices are set and followed, caretakers are trained and supervised in proper animal handling, and mishandling of animals is not tolerated.

If moving a nonambulatory animal becomes necessary, such movement requires the proper equipment and trained personnel. An animal may become injured on the dairy, during transportation, in the market, or in the processing plant. Use an adequate number of people and equipment and handling devices that are appropriate to the animal's size. Recommended procedures for moving a nonambulatory animal are presented under Management Tips. If these techniques are not practical, euthanasia is recommended. Euthanasia is strongly recommended if an animal goes down in the belly compartment of a semi-trailer that does not have side doors, because humane removal is nearly impossible.

Prompt decisions and action are necessary if an animal becomes nonambulatory. The producer or person in charge must determine immediately whether the injured animal is otherwise healthy and can be nursed back to health or if it cannot be saved. If the nonambulatory animal can be nursed back to health, then protect it from further injury; provide it with shelter, food, and water; and give it veterinary care to minimize its pain and discomfort during the recovery process. If the animal appears to be experiencing severe pain or distress, can't be saved or moved properly, has been chronically ill, or was recently treated with antibiotics, it should be immediately euthanized by a person appropriately trained in the procedure.

Euthanasia. Personnel who routinely work with livestock need to be trained to carry out emergency euthanasia.

Personnel transporting livestock also need to be trained and have the ability to contact appropriate people in an emergency.

One recommended method of euthanasia is to shoot the dairy animal in the center of the forehead (not between the eyes) with a penetrating captive bolt stunner or a firearm. A penetrating captive bolt stunner is the preferred method because it does not fire a free bullet. It can be obtained from a packing plant supply company. The stunner fires a blank cartridge that propels a steel bolt into the animal's brain, has the same effect as a bullet, and kills the animal instantly. If the animal is to be buried, composted, or incinerated, it may be euthanized by a veterinarian using an injectable euthanasia solution. The ability to carry out euthanasia in an emergency is important for all people who routinely handle livestock (American Association of Bovine Practitioners, 1999).

Measures to reduce the number of dead animals include prevention practices (as discussed earlier), sale or proper handling of infirm animals, and early treatment.

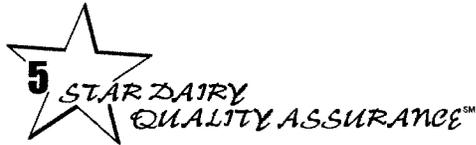
NINE

Sick and injured animals

Prevention of and care for nonambulatory animals

Euthanasia

<p>Dead animals and disposal</p>	<p>Dead animals are potential sources of infection. They should be disposed of promptly by a commercial rendering service or other appropriate means (e.g., burial, composting, or incineration) in accordance with applicable ordinances. Various state biohazard laws now regulate the disposal of infectious wastes. In order to avoid a negative impression of the care provided, remove dead animals from public view until the rendering truck arrives.</p> <p>In cases of outbreaks of contagious disease, necessary euthanasia procedures and disposal of carcasses should be planned in consultation with a veterinarian and government authorities. A postmortem examination on well-preserved animals can provide important animal health information and prevent further losses to the herd. Where warranted and feasible, waste and bedding of an animal that has died should be removed from the facility to an area inaccessible to other animals.</p> <p style="text-align: center;">*****</p>
<p>Summary and Management Tips</p>	<p>Recommended procedures for moving a nonambulatory animal:</p> <ul style="list-style-type: none"> • Gently roll a nonambulatory animal onto a large piece of plywood or conveyor belting (which can be obtained in six-foot-wide strips). If belting is used, reinforce one side with smooth-edged metal strips to prevent it from buckling and bending when moving the animal. If the animal goes down in a pen or alley, tow it on the plywood or belting with a truck or tractor to a transfer point. To off-load a nonambulatory animal from the center compartment of a semi-trailer equipped with side doors or from a low-stock trailer, drag the belting with the animal on it to a transfer point. • Carefully transfer the animal to a properly equipped forklift or to the bucket of a large loader, or move it with a special lifting harness. • Specialized hoists can fit into tight spaces and are built to gently lift and lower a nonambulatory animal. The large wheels allow persons to efficiently move the animal. • If a forklift is used, construct a pallet platform to fit over the forks. Angle the pallet's leading edge to form a ramp for rolling the cow onto the pallet, and equip the pallet with straps to prevent the animal from falling off. Never use exposed forks. • Use the bucket of a large loader only when there are at least three people available to transfer the animal into the bucket. One person runs the loader, and the other two roll the animal onto the bucket. • Do not drag or lift an animal by its limbs unless there is no other alternative and only if the animal must be moved only a few feet, such as in a milking parlor. If the animal must be dragged because no other moving alternative exists or because it can be saved only by dragging, pad noninjured limbs and use padded belts to which a rope, chain, or cable can be attached. Drag the animal the shortest possible distance to a point where a better method of moving can be employed. • If a mature animal is discovered to be down, it may need to be moved. If the animal is down in a stallion, tie stall, or free stall, frequently the rear leg on the down side is cramped in an unnatural position. Often moving an animal so the legs are properly positioned will allow the animal to stand on its own. If, following treatment, the animal is unable to rise, it is imperative that it be moved so that its legs can be extended. The only practical way to move such an animal is with a strong halter on the head or a padded chain around the neck. If a single rear limb is used to move the animal, further injury may be incurred.
<p>Resources</p> <p>40</p>	<p><u>Proper Handling for Non-Ambulatory Animals</u> (National Institute for Animal Agriculture, 1992) <u>Preventing Crippled and Nonambulatory Animals</u> (National Institute for Animal Agriculture, 2000) <u>Practical Euthanasia of Cattle</u> (Animal Welfare Committee of AABP, 1999)</p>



Annual Review

An annual review of dairy animal care is based on HACCP principles, an established quality control concept known as hazard analysis and critical control points. It emphasizes prevention of potential problems by building quality (and/or safety) controls into the production process at key points.

HACCP involves the basic steps of:

- (1) Identifying risks to quality associated with each phase of production.
- (2) Determining quality control points where the identified high risk can be reduced or eliminated. (See list on page one.)
- (3) Establishing Best Management Practices for these quality control points. (See pages two through seven.)
- (4) Establishing procedures to monitor these quality control points and make changes if problems persist. (Self-evaluation and DQA FIVE-STAR Dairy Quality AssuranceSM Program.)

An annual self-audit using the enclosed on-the-dairy Self-Evaluation Guide and DQA FIVE-STAR Dairy Quality AssuranceSM Walk-Through together provides the opportunity to monitor progress toward even better or more efficient dairy animal care practices. The verification review that is normally made with a licensed veterinarian present provides a monitoring tool and a record of the steps taken. This is a responsible response to consumer needs and may meet governmental requirements for quality animal care.

A voluntary review of Best Management Practices implemented on the dairy will help provide direction and suggestions for areas of improvement related to animal care. The DQA FIVE-STAR Dairy Quality AssuranceSM Program will provide dairy producers with benchmark scores and a detailed Plan of Action for the implementation of Best Management Practices to ensure quality animal care. Be aware that any regulatory action that substantiates any act of animal abuse, cruelty or neglect will result in immediate suspension of all DQA verification or support of this dairy.

For consumers, the credibility of what is done to provide excellent animal care depends on verification with a licensed practitioner. This does not imply dairy producers are not currently providing such care, but a third party can verify that producers are following a recognized quality assurance program for dairy animal care.

The Milk & Dairy Beef Quality Assurance Program through the DQA FIVE-STAR Dairy Quality AssuranceSM Program provides animal care guidance to the producer, a verification procedure, and a registration process which are accepted by the public at large.

Contact:

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TEN

HACCP

*DQA FIVE-STAR
Dairy Quality
AssuranceSM Walk-
Through*

Bibliography

- Albright, J.L. 1987. Dairy Animal Welfare: current and needed research. *J. Dairy Sci.* 70:2711-2731.
- Albright, J.L. 1993. Feeding Behavior of Dairy Cattle. *J. Dairy Sci.* 76:485-498.
- Albright, J.L. 1994. Behavioral considerations -- animal density, concrete/flooring. Pages 171-176 in *Proceedings of National Reproduction Workshop*, American Assoc. of Bovine Practitioners, Sept. 19-22, 1994.
- Albright, J.L. 2000a. How many cows in a group? *Hoard's Dairyman*, 145:377.
- Albright, J.L. 2000b. Why and how to read a cow or bull. *Hoard's Dairyman*, 145:751.
- Albright, J.L. 2000c. Dairy cattle behavior, facilities, handling and husbandry. Pages 127-150 in *Livestock Handling and Transport*, 2nd ed. Edited by T. Grandin, CABI Publishing, Wallingford, UK.
- Albright, J.L., A.R. Cennamo and E.W. Wisniewski. 1992. Animal behavior considerations. *Proceedings National Conference on Milking Center Design*. Northeast Reg. Agr. Eng. Service, Cornell University, Ithaca, N.Y.
- Albright, J.L. and C.W. Arave. 1997. *The Behavior of Cattle*. CAB International, Wallingford, UK.
- Agricultural Research Service. 1991. *Effects of Electrical Voltage/Current on Farm Animals*. Agriculture Handbook 696. Superintendent of Documents, Government Printing Office, Washington, D.C.
- American Society of Agricultural Engineers. 1983. *Dairy Housing II, Proc. Second National Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- American Association of Bovine Practitioners, Animal Welfare Committee. 1999. *Practical Euthanasia of Cattle*.
- American Veterinary Medical Association. 1998-2002. AVMA Network. Veterinarians and VFD.
- Anderson, N. 2000. Time-lapse Video Opens Our Eyes to Cow Behavior and Comfort. *AABP Proceedings--Vol. 34*. American Association of Bovine Practitioners. September 2001, pp. 35-42.
- Animal Welfare Committee. 2000. Tail Docking of Dairy Cattle. Canadian Veterinary Medical Association.
- Arave, C.W., 1993. Personal communication.
- Armstrong, D.V. and W.T. Welchert. 1994. Dairy cattle housing to reduce stress in a hot-arid climate. Pages 598-604 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am Soc. Agric. Eng., St. Joseph, Mich.
- Bailey, T. and J. Murphy. 1999. Monitoring Dairy Heifer Growth. Virginia Cooperative Extension. Virginia - Maryland Reg. College of Vet. Med., Virginia Tech, Blacksburg, Va.
- Bartlett, B. 2000. As I see it . . . May 2000 *UP Ag Connections Newsletter*. MSU Extension. University of Michigan.
- Battaglia, R.A. 1998. *Handbook of Livestock Management*, 2nd ed. Prentice Hall, Upper Saddle River, New Jersey.
- Berry, S.L. 2001. Locomotion Scoring of Dairy Cattle. *Zinpro Illustrated Handbook on Cattle Lameness*. University of Calif., Davis, and Zinpro Corporation, Eden Prairie, Minn.
- Bickert, W.G., D.F. McFarland and G.W. Atkeson. 1994. Housing dairy calves from weaning to calving. Pages 797-806 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Black, T. Post Weaning Management of Grain-Fed Veal. *FACTSHEET - Agdex #*: 415/20. Updated June 25, 2001. Ontario Ministry of Agriculture, Food and Rural Affairs, Ontario, Canada.
- Body Condition Scoring in Dairy Cattle. 1997. Dairy Body Condition Score (BCS) Chart. Elanco Animal Health.
- Body Condition Scoring Guide for Dairy Replacement Heifers. 1993. Roche Vitamins, Inc.
- Bray, D.R., R.A. Bucklin, R. Montoya, and R. Giesy. 1994. Means to reduce stress in hot, humid climates. Pages 589-597 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Bray, D.R., R.A. Bucklin, R. Montoya, and R. Giesy. 1995. Comparison of two cooling systems on body temperature of dairy cattle. *J. Dairy Sci.* 78 (Suppl. 1):258. (abstr.)
- Britt, J.H., J.D. Armstrong, and R.G. Scott. 1986. Estrus behavior in ovariectomized Holstein cows treated repeatedly to induce estrus during lactation. *J. Dairy Sci.* 69 (Suppl. 1):91. (Abstr.)
- Bulk Tank Cultures Can Help Diagnose Problems. NMC Newsletter, *Udder Topics*, February 1997. 1997 National Mastitis Council Annual Meeting Proceedings, p. 65
- Calf Care Protocol for the Dairy Producer*, draft presented to the Veal/Dairy Joint Task Force for Calf Quality. February 21, 1993, Orlando, Florida, by Dr. Stan Curtis, task force chair and head of the Department of Dairy and Animal Science at Penn State University.
- Calf Management Protocol. 2001. Animal Science. Iowa State University, Ames, Iowa.

- Canadian Veterinary Medical Association. 2000. Tail Docking of Dairy Cattle.
- Carlson, K. Biosecurity—Profit for the Taking. 2001. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Caring for Dairy Animals On-Farm Evaluation Guide. 1994. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Milk and Dairy Beef Residue Prevention Protocol: 1995 Producer Manual. 1994. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Milk and Dairy Beef Residue Prevention Protocol: 2002 Producer Manual. 2002. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Parasites and Pests—Management for Profit. 2000. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Raising Quality Replacement Heifers—Growing Your Profits. 2001. Agri-Education, Inc., Stratford, Iowa.
- Carlson, K. Quality Environmental Stewardship Consultation Guide. 2000. Agri-Education, Inc., Stratford, Iowa.
- Cassell, B. 1999. AI Bulls Are the Best Choice for Genetic Improvement. Dairy Pipeline: December 1999. Va. Coop Ext., Virginia Tech, Blacksburg, Va.
- Chapa, A. 2000. Calf Management—Newborn to Weaning. Dairy News. December 2000.
- Crump, J.A. et al. 2002. An Outbreak of Escherichia coli O157:H7 Infections Among Visitors to a Dairy Farm. N Eng J. Med. 347:555-560.
- Curtis, S.E. 1983. Environmental Management in Animal Agriculture. Iowa State University Press, Ames, Iowa.
- Curtis, S.E. and J.G. Drummond. 1982. Air Environment and Animal Performance. Pages 107-118 in Handbook of Agricultural Productivity. Vol. II: Animal Productivity. M. Rechcigl, Editor. CRC Press, Boca Raton, Fla.
- Dairy Animal Care Materials, National Agricultural Library, 1555 Connecticut Ave., N.W., Suite 200, Washington, D.C.
- Dairy Heifer Production. 2000. Agriculture Alternative. The Pennsylvania State University, University Park, Pa.
- Dairy Protocol: Vaccine Recommendations. 2001. Animal Science. Iowa State University, Ames, Iowa.
- Dairy Reference Manual, 3rd Edition. 1995. The Pennsylvania State Univ. NE Regional Ag Engr. Service.
- Dairy Workgroup. Dairy Care Practices: Animal Care Series. 1998. Sections 1-8. University of California Cooperative Extension. University of California, Davis. 2nd ed.
- Elstein, D. 2002. Keeping cattle cool makes sense. Agric. Res. 50(7): 19.
- Ely, L.O. and L.D. Guthrie. Revised 2000. Raising Dairy Herd Replacements. Cooperative Extension Service, The University of Georgia College of Agricultural and Environmental Sciences, Bulletin 831.
- EPA Office of Air Quality Planning and Standards. 1997. National Ambient Air Quality Standards. United States Environmental Protection Agency.
- Farm Animal Welfare Council. 1997. Report on the Welfare of Dairy Cattle. Part III: The Welfare Issues. FAWC Secretariat, London.
- Farm Flashes. 2001. Increase Potential Profit From Market Cows. Hoard's Dairyman, March 10, 2001, p. 168.
- Faulkner, P. and D. Weary. 2000. Reducing pain after dehorning in dairy calves. J. Dairy Sci. 83:2037-2041.
- Federal Emergency Management Agency. 1997. Animal Disaster Plan Worksheet for Planners and Emergency Managers. FEMA, Washington, D.C.
- Ferguson, J.D., D.T. Galligan and N. Thomsen. 1994. Principal descriptors of body condition score in Holstein cows. J. Dairy Sci. 77:2695-2703.
- Fonner, R. How Can I Develop an Emergency Response Plan for my Livestock Facility? Dept. of Ag. Engr., University of Illinois Extension, Urbana, Ill.
- Food Animal Well-Being - Conference Proceedings and Deliberations. 1993. Purdue University Office of Agricultural Research Programs, West Lafayette, Ind.
- Grade A Pasteurized Milk Ordinance. 1999 Revision. PHS/FDA Publication No. 229. U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration (HFS-626), Washington, DC.
- Goodger, W.J., T. Farver, J. Pelletier, P. Johnson, G. DeSnayer and J. Galland. 1993. The association of milking management practices with bulk tank somatic cell counts. Prev. Vet. Mgd. 15:235.
- Gorewit, R.C., D.J. Aneshansley and L.R. Price. 1992. Effects of voltages on cows over a complete lactation. J. Dairy Sci. 75:2719.
- Grandin, T. 1988. Livestock Handling Guide. Livestock Conservation Institute, Bowling Green, Ky.
- Grandin, T. 1989 (Updated 1999). Behavioral Principles of Livestock Handling. The Professional Animal Scientist, December 1989, pp. 1-11.
- Grandin, T. 1992. Livestock Trucking Guide. Livestock Conservation Institute, Bowling Green, Ky.
- Grandin, T. 1993. Livestock Handling and Transport. CAB International, Wallingford, UK.

Caring for Dairy Animals Technical Reference Guide

- Grandin, T. 2000. Livestock Handling and Transport, 2nd ed. CAB International, Wallingford, UK.
- Grandin, T. 1999. Audits of Stunning and Handling in Federally Inspected Beef and Pork Plants. Presented at American Meat Institute 2000 Conference on Animal Handling and Stunning. February 8-9, 2000. Westin Crown Center, Kansas City, Mo.
- Grandin, T. 1999. Behavioral Principles of Livestock Handling. The Professional Animal Scientist. Colorado State University, Fort Collins, Co.
- Grandin, T. 1999. Improvements in Handling and Stunning of Beef Cattle in Slaughter for 1999. Grandin Livestock Handling Systems, Inc. Report for American Registry of Professional Animal Scientists. June 1, 1999.
- Grandin, T. 2000. Behaviour of Cattle, Pigs, Buffalo and Antelope During Handling and Transport. Internet site. <http://grandin.com/behaviour/transport.html>.
- Grandin, T. 2000. Outline of cattle welfare critical control points on feedlots, ranches, and stocker operations. Grandin Livestock Handling Systems, Inc., Fort Collins, Colo.
- Grandin, T. 2000. Outline of cow welfare critical control points for dairies. Grandin Livestock Handling Systems, Inc., Fort Collins, Colo.
- Grandin, T. 2000. Preventing Crippled and Non-ambulatory Animals. Livestock Behavior, Design of Facilities and Humane Slaughter. Livestock Conservation Institute. Bowling Green, Ky.
- Grandin, T. 1999. Understanding Flight Zone and Point of Balance
- Grant, R. and J. Keown. 1995. Managing Dairy Cattle for Cow Comfort and Maximum Intake. NebGuide. Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska, Lincoln.
- Guide For the Care and Production of Veal Calves. L. L. Wilson, ed. Fourth Edition. 1994. American Veal Association, Inc., Naperville, Ill.
- Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching. Consortium. 1988. Champaign, Ill. Modifications made by the American Veterinary Medical Association/National Milk Producers Federation Guidelines Task Force (J. Albright, C. Arave, S. Curtis, J. Simmons, and K. Siemer. November 1992.)
— Chapter 2. General Guidelines for Sound Animal Husbandry.
— Chapter 6. Guidelines for the Care of Dairy Cattle.
- Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching. 1999. Federation of Animal Science Societies, First Revised Edition, Savoy, Ill. Chapter 6: Guidelines for Dairy Cattle Husbandry (J.L. Albright; R. Blauwicked; K.E. Olson; W.G. Bickert; J.L. Morrill; C.L. Stull-Committee).
- Hahn, G. 1981. Housing and management to reduce climatic impacts on livestock. *J. Animal Sci.* 52:175.
- Harmen, J.D., R. Zhang, and H. Xin. 1994. Human Health Concerns In Livestock and Poultry Housing. Agricultural and Biosystems Engineering Dept., Iowa State Univ., Ames, Iowa.
- Hayes, S. 2000. Injection site important for Beef Quality Assurance. Agri-View, May 25, 2000 issue, p. D1.
- Heath, S.E. 1999. Mitigating Disasters Affecting the Livestock Industry. Animal Management in Disasters. (Mosby)
- Heinrichs, A., V.A. Ishler, G.L. Greaser and J.K. Harper. 2001. Dairy Heifers. Agricultural Alternatives. Penn State Coop. Ext., Penn State University.
- Hinkle, C.N. and Stombaugh, D.P. 1983. Quantity of air flow for livestock ventilation. Pages 169-191 in Ventilation of Agricultural Structures. M.A. Helleickson and J.N. Walker, ed. Am. Soc. Agric. Eng., St. Joseph, Mich.
- Hoehne, J.A., J.M. Zulovich and C.D. Fulhage. 1994. Water system design considerations for dairy production. Pages 677-682 in Dairy Systems for the 21st Century. Proc. Third International Dairy Housing Conf. Am. Soc. Agric. Eng., St. Joseph, Mich.
- Holmes, B.J. and R.E. Graves. 1994. Natural ventilation for cow comfort and increased profitability. 1994. Pages 558-568 in Dairy Systems for the 21st Century. Proc. Third International Dairy Housing Conf. Am. Soc. Agric. Eng., St. Joseph, Mich.
- Hogan, J.S. and K.L. Smith. A Practical Look at Environmental Mastitis. Compendium on Continuing Education for the Practicing Veterinarian. Vol. 9, no. 10, 1987. p. F342. National Mastitis Council Factsheet. Revised 10/97.
- Hutchinson, L.J., T.L. Smith, and C.M. Burns. 1989. Pennsylvania Dairy Health and Biosecurity Manual. Pennsylvania State Univ., Pennsylvania State, Pa.
- I Care About My Animals. 1990. American Farm Bureau Federation, 225 Touhy Avenue, Park Ridge, Ill.
- Irish, W.W. and R.O. Martin. 1983. Design considerations for free stalls. Pages 108-121 in Dairy Housing II. Proc. Second National Dairy Housing Conf. Am. Soc. Agric. Eng., St. Joseph, Mich.
- Irish, W.W. and W.G. Merrill. 1986. Design parameters for free stalls. Pages 45-52 in Dairy Free Stall Housing. Proc. Dairy Free Stall Housing Symp. NE Reg. Agric. Eng. Serv., Harrisburg, Pa.
- Janni, K. 2001. Understanding animal behavior can reduce dairy farm injuries. Safe Work Practices on Dairy Farms. FO-0878. University of Minn. Extension, University of Minnesota.
- Janssen, D., C.L. Guard and L. Warnick. 2001. Association of Lameness in Dairy Cattle with Other Diseases. The AABP Proceedings-Vol. 34. American Association of Bovine Practitioners, 2001, pp. 144.
- Jones, G.A. 1998. Bottlenecks in the Milk Factory--The ABCs of Cow Comfort. Feed Facts--Dairy. June 1998. MoorMan's Inc.

- Jones, G.M. and C.C. Stallings. 1999. Reducing Heat Stress for Dairy Cattle. Va. Coop Ext. Virginia Tech. Blacksburg, Va.
- Jones, G.M. 2000. Mastitis Tip of the Month - Flaming Haircuts for Udders. Dairy Pipeline: February 2002. Va. Coop Ext. Virginia Tech. Blacksburg, Va.
- Jorgenson, L.J., N.A. Jorgensen, D.J. Schingoethe, and M.J. Owens. 1970. Indoor versus outdoor calf rearing at three weaning ages. J. Dairy Sci. 53:813.
- Keown, J. 1991. How to Body Condition Score Dairy Animals. NehGuide. Cooperative Extension, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln.
- Kirk, J., Jardon, P. Dairy Hospital Pens. UC Davis Veterinary Medicine Extension.
- Kirkpatrick, M. 1998. Euthanasia Protocol. Veterinary Diagnostic & Production Animal Medicine, Iowa State University, Ames, Iowa.
- Kurtz, J. 2000. Bulk tank culture can help dairy producers fight costly mastitis. News Information. University of Minnesota Extension Service.
- Lawlis, P. 1998. Veal Calves-Recommended code of practice for the care and handling of farm animals. Canadian Agri-Food Research Council, Ottawa, Ontario.
- Littlefield, G., T. Grandin, and J.L. Lanier. 2000. Quiet Handling of Heifers Reduces Aversion to Restraint in a Squeeze Chute. 2001 Animal Sciences Research Report. Dept. of Animal Sciences, Colorado State Univ., Fort Collins, Co.
- Lundeen, T. 2002. Lame cows alter behavior; mineral complexes efficacious. Nutrition and Health/Dairy: Feedstuffs, February 11, 2002, p. 9.
- Management of Dairy Heifers. Extension Circular 385. Pennsylvania State University.
- McFarland, D.F. and M.J. Gamroth. 1994. Freestall designs with cow comfort in mind. Pages 145-158 in Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf. Am. Soc. Agric. Eng., St. Joseph, Mich.
- Mechor, G.D., Y.T. Gröhn, L.R. McDowell, and R.J. Van Saun. Specific gravity of bovine colostrum immunoglobulins as affected by temperature and colostrum components. J. Dairy Sci. 75:3131.
- Midwest Dairy Beef Quality Assurance Center. 2000. Your dairy has a "steak" in the beef business Minneapolis, Minnesota.
- Midwest Plan Service. 2000. Dairy Freestall Housing and Equipment. 7th Edition. Iowa State University, Ames, Iowa.
- Mellenberger, R. 1993. Interaction of Facilities and Mastitis. Dept. of Animal Science, Michigan State University.
- Morrow, D.A. 1990. What to include in your herd health program. Hoard's Dairyman. Ft. Atkinson, Wis.
- Morrow - Tesh, J. 2001. Natural bovine behavior key to evaluating management practices. Journal of The American Veterinary Medicine Association. American Veterinary Medical Association.
- Murphy, M. R., C. L. Davis and G. C. McCoy. 1983. Factors affecting water consumption by Holstein cows in early lactation. J. Dairy Sci. 66:35.
- National Association of Animal Breeders, Certified Semen Services, P.O. Box 1033, Columbia, Mo 65205
- National Dairy Heifer Evaluation Project. 1993. USDA: APHIS: VS, (NAHMS Centers for Epidemiology & Animal Health) Fort Collins, Colo.
- National Mastitis Council. 1993. Recommended Milking Procedures. National Mastitis Council, Arlington, Virginia.
- National Mastitis Council Fact Sheet. 1997. A Practical Look at Environmental Mastitis. <http://www.nmconline.org/environmental.htm>
- National Mastitis Council Newsletter. 2001. Udder Topics. Mastitis Pathogen Notes: Prouteus species. December 2001 issue.
- National Research Council. 1989. Nutrient Requirements of Dairy Cattle. 6th Rev. Ed. Natl. Acad. Sci., Washington, D.C.
- National Research Council. 2001. Nutrient Requirements of Dairy Cattle. 7th Rev. Ed. Natl. Acad. Sci., Washington, D.C.
- Nebel, R. 1996. Reproductive efficiency is still very important!!! Dairy Pipeline: July 1996. Va. Coop Ext., Virginia Tech, Blacksburg, Va.
- Nebel, R. 1996. Why it is almost impossible to catch cows in heat!!! Dairy Pipeline: September 1996. Va. Coop Ext., Virginia Tech, Blacksburg, Va.
- Occupational Safety & Health Administration. 1995. Farm Safety (Fact Sheet No. OSHA 95-39). Occupational Safety & Health Administration, U.S. Dept. of Labor, Washington, D.C.
- Occupational Safety & Health Administration. 1997. Regulations (Standards-29CFR). Limits for Air Contaminants. Occupational Safety & Health Administration, U.S. Dept. of Labor, Washington, D.C.
- Palmer, R. 2001. Choosing Animal Handling Options to Enhance Labor Efficiency and Productivity. Dairy Modernization Planning Guide Part 2. Dairy Business Communications, East Syracuse, N.Y., pp. 22-24.
- Palmer, R.W. 2002. (University of Wis.) Headlocks vs. no headlocks. Hoard's Dairyman. February 25, 2002, p. 141.
- Pankaskie, D. Measure the Progress of Your Replacement Heifer: Decisions made today influence the future productivity and profitability of your dairy herd. 1997. Agway Cooperator.
- Penn State Satellite Teleconference. 1998. Dairy Calf Nutrition Site. Class II - Transition during weaning: Management. Penn State Univ., University Park, Pa.

Caring for Dairy Animals Technical Reference Guide

- Peters, R.R. 1994. Photoperiod and management of dairy cows: A practical review. Pages 662-666 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Pritchett, L.C., L.C. Gay, T.E. Besser and D.D. Hancock. 1991. Management and production factors influencing immunoglobulin G₁ concentration in colostrum from Holstein cows. *J. Dairy Sci.* 74:2336.
- Pritchett, L.C., C.C. Gay, D.D. Hancock and T.E. Besser. 1994. Evaluation of the hydrometer for testing immunoglobulin G₁ concentrations in Holstein colostrum. *J. Dairy Sci.* 77:1761.
- Proper Handling Techniques for Non-Ambulatory Animals.* 1992. National Institute for Animal Agriculture, Bowling Green, Ky.
- Quigley III, J.D., K.R. Martin, L.B. Wallis, and H.H. Dowlen. 1993. Correlations among immunoglobulin concentrations, specific gravity, and total solids in colostrum of Jersey cattle. *J. Dairy Sci.* 76 (Suppl. 1):275.
- Quigley III, J.D., K.R. Martin, D.A. Bemis, L.N.D. Potgieter, C.R. Reinmeyer, B.W. Rohrbach, H.H. Dowlen and K.C. Lamar. 1995. Effects of housing and colostrum feeding on serum immunoglobulins, growth, and fecal scores of Jersey calves. *J. Dairy Sci.* 78:893.
- Recommended Code of Practice for Care and Handling of Dairy Cattle.* 1990. Canadian Federation of Humane Societies. Publ. No. 1853, Agri. Dept. of Canada, Ottawa, Ont.
- Robinson, P.H. 2001. Locomotion Scoring Dairy Cows. University of California, Cooperative Extension, Davis, Calif.
- Rodenburg, J. 2000. Self-Locking Head Gates and Crowding Change Eating Behaviors. Ministry of Agriculture, Food and Rural Affairs. *Dairy Herd-Housing and Environment Infosheets.* Ontario, Canada.
- Roman-Ponce, H., W.W. Thatcher, D.E. Buffington, C.J. Wilcox, and H.H. Van Horn. 1977. Physiological and production responses of dairy cattle to a shade structure in a subtropical environment. *J. Dairy Sci.* 60:424.
- Ruegg, P. 2002. Why is Milk Quality Important? (Powerpoint presentation) Milk Quality in Wis. - Univ. of Wis. Res. & Ext., Madison, Wis.
- Seabrook, F.M. 1994. Psychological interaction between the milker and the dairy cow. Pages 49-58 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Seykora, T. 2000. *Practical Techniques for Dairy Farmers, 3rd Edition.* University of Minnesota, Animal Science, St. Paul, Minn.
- Shearer, J.K., J.B. Elliott, and R.E. Injoque. 1995. Control of digital dermatitis in dairy herds using a topical spray application of oxytetracycline. *J. Dairy Sci.* 78 (Suppl. 1):170. (abstr.)
- Shultz, T. 1984. Weather and shade effects on cow corral activities. *J. Dairy Sci.* 50:89.
- Stull, C.L., E. DePeters, and G. Beall. 1993. *Dairy Care Practices.* University of California Cooperative Extension, Davis, Calif.
- Stull, C.L. and S.L. Berry. 2001. *Calf Care Protocol for the Dairy Producer.* American Veal Association, Middleton, Penn.
- Stull, C.L., S. Berry, and E. Peters. 1998. *Dairy Care Practices.* University of California Cooperative Extension, Davis, Calif.
- Stull, C.L., S. M.A. Payne, S.L. Berry, P.J. Hullinger. 2002. Evaluation of the scientific justification for tail docking in dairy cattle, pp. 1298-1303. NAVMA, Vol. 220. No. 9.
- The Humane Society of the United States. 1997. Disaster Planning Tips for Pets, Livestock, and Wildlife. Disasters Services Program. The Humane Society of the United States, Washington, D.C.
- Tillotson, R.J. and W.G. Bickert. 1994. Dairy housing ventilation modification due to level of milk production. Pages 317-326 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Tucker, C.B., D. Fraser and D.M. Weary. 2000. Tail Docking Dairy Cattle: Effects on Cow Cleanliness and Udder Health. American Dairy Science Assoc., 2001. *J. Dairy Sci.* 84:84-87.
- Understanding Dairy Cattle Behavior to Improve Handling and Production.* 1992. A video produced by the National Institute for Animal Agriculture, Bowling Green, Ky.
- Veenhuisen, M.A. and R.E. Graves. 1994. Handling and treatment facilities for large dairies. Pages 641-650 in *Dairy Systems for the 21st Century, Proc. Third International Dairy Housing Conf.* Am. Soc. Agric. Eng., St. Joseph, Mich.
- Weary, D.M. 2000. Dehorning Dairy Calves. Animal Welfare Program. Univ. of British Columbia, Vancouver, Canada.
- Waldner, D.N., J. Kirkpatrick, T.W. Lehenbauer. 2002. Recommended Vaccination Schedules for a Comprehensive Dairy Herd Health Prog. Okla. State Prog.
- Walter-Toews, D., et al. 1986. Dairy Calf Management, Morbidity and Mortality in Ontario Holstein Herds. IV. Association of Management with Mortality. *Prev. Vet Med* 4:159-171, 1986.
- Webster, A.J., F.J. Chlumecky and B.A. Young. 1970. Effects of cold environments on the energy exchanges of young beef cattle. *Can. J. Animal Sci.* 50:89.
- Whittlestone, W.G., R. Kilgour, H. de Langen and G. Duirs. 1970. Behavioral stress and the cell count of bovine milk. *J. Milk Food Technology.* 33:217.
- Wisconsin Department of Ag, Trade & Consumer Protection. 2000. The Wisconsin John's disease regulations—How they impact your dairy. Wisconsin.
- Wohlt, J. and L. Katz. 1996. Dehorning of Dairy Animals: Necessity, Methods, and Implications. FS769. Rutgers Cooperative Extension. N.J. Ag. Experiment Station. The State University of New Jersey, New Brunswick.
- Woodsuff, J. 2000. Injection sites. Fort Dodge Animal Health. 46

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Caring for Dairy Animals

Caring for Dairy Animals—On-The-Dairy Self-Evaluation Guide and Technical Reference Guide is endorsed by the following food organizations, dairy producer organizations, veterinarian professional associations, and governmental agencies:

Endorsement statements:

Food Marketing Institute/National Council of Chain Restaurants

The animal care guidelines contained in the Technical Reference Guide entitled *Caring for Dairy Animals* has the endorsement of the Food Marketing Institute and the National Council of Chain Restaurants. We are recommending that our member companies follow them as well. The Food Marketing Institute (FMI) conducts programs in research, education, industry relations and public affairs on behalf of its 2,300 member companies — food retailers and wholesalers — in the United States and around the world. The National Council of Chain Restaurants is a national trade association representing forty of the nation's largest multi-unit, multi-state chain restaurant companies.

National Milk Producers Federation

The National Milk Producers Federation (NMPF) is a farm commodity organization representing most of the dairy marketing cooperatives serving this nation. The NMPF is an effective voice on national issues for dairy cooperatives and their dairy farmer members.

Professional Dairy Heifer Growers Association

Conceived by a group of heifer growers and others, the PDHGA has the following goals for development of quality control points and best management practices:

1. To provide a template for a heifer grower to use as a benchmark for evaluating his business.
2. To provide criteria that a dairyman can use to evaluate a grower for his heifers.

Upon completion of the *Raising Quality Replacement Heifers—A Guide to Best Management Practices* self-audit, PDHGA encourages its members to complete the DQA FIVE-STAR Dairy Quality Assurance™ Program.

Holstein Association, USA Inc.

Having been involved in its development, Holstein Association, USA Inc., confidently endorses the content of the *Caring for Dairy Animals—Technical Reference Guide* published by the Dairy Quality Assurance Center and used as the primary reference for its DQA FIVE-STAR Dairy Quality Assurance™ Program.

American Association of Bovine Practitioners

The American Association of Bovine Practitioners is an international association of veterinarians organized to enhance the professional lives of its members through relevant continuing education that will improve the well-being of cattle and the economic success of their owners, increase awareness and promote leadership for issues critical to cattle industries, and improve opportunities for careers in bovine medicine.

National Mastitis Council

The National Mastitis Council provides a forum for education and global exchange of information on milk quality, mastitis and relevant research. The Council develops and publishes educational materials including books, brochures and audio visuals on udder health, milking management and milk quality.

Association of Equipment Manufacturers

The Association of Equipment Manufacturers (AEM) includes the Milking Machine Manufacturers Council and is the international trade and business development resource for companies that manufacture equipment, products and services for the construction, agricultural, industrial, mining, forestry, materials-handling and utility fields.

Wisconsin Milk Marketing Board

The Wisconsin Milk Marketing Board administers an integrated communications program to build demand for Wisconsin milk by maintaining, and in some cases establishing, awareness of the high quality found in Wisconsin milk and the dairy products produced with that milk.

National Association of Animal Breeders

NAAB's twenty members account for about 95 percent of the dairy cattle semen sales in the United States. These organizations, both private and farmer-owned, are very competitive in the field. Under the NAAB umbrella, however, these organizations come together for the common good of the livestock industry to present a unified design for cattle improvement.

Milk & Dairy Beef Quality Assurance Center, Inc.

The Milk & Dairy Beef Quality Assurance (DQA) Program was developed in 1990, featuring internal self-audits and third-party verification by DQA-approved auditors. Nearly 20,000 dairies have registered their milk safety and quality assurance efforts with the DQA Center. This verification/registration/recognition process was expanded to include animal care and environmental assurance in 1995, and pathogen management and personnel development in 2002.



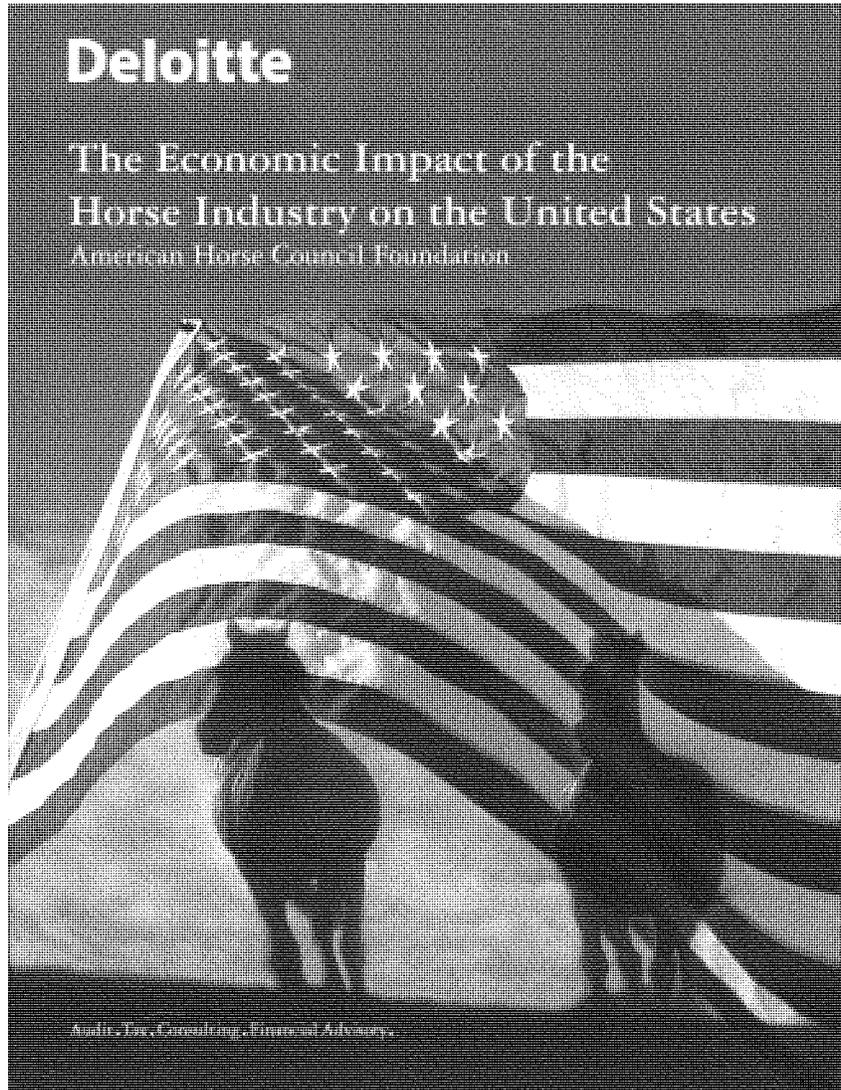




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Section One

EXECUTIVE SUMMARY

As a large, economically diverse industry, the United States horse industry contributes significantly to the American economy. Horse owners and industry suppliers, racetracks and off-tracking betting operations, horse shows and other competitions, recreational riders and other industry segments all generate discrete economic activity contributing to the industry's vibrancy. The spending generated within the horse industry, and the subsequent spending between co-dependent industries, contributes hundreds of thousands of jobs and billions of dollars to the economy on an annual basis.

The significance of the industry is reflected in the following:

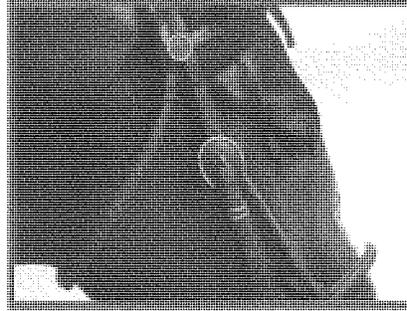
- The horse industry contributes approximately \$39 billion in direct economic impacts to the U.S. economy on an annual basis.
- Racing, showing and recreation all generate between \$10 billion and \$12 billion in annual direct impacts.
- When considering indirect and induced spending, the horse industry annually generates approximately \$102 billion for the U.S. economy.
- Of the total \$102 billion in economic impacts reported, approximately \$32.0 billion is generated from the recreational segment, \$28.8 billion from the showing segment, \$26.1 billion from the racing segment and \$14.7 billion from other industry segments.
- Approximately 1.96 million people own horses, with another 2 million people involved as volunteers or through a family affiliation.
- The horse industry sustains approximately 1.4 million full-time equivalent jobs on an annual basis, with nearly 460,000 of those jobs created from the direct spending within the industry.
- There are approximately 9.2 million horses in the U.S. with approximately 3.9 million involved in recreation and another 2.7 million horses participating in horse shows and other competitions.
- Approximately 28% of horse owners have an annual household income of over \$100,000, with approximately 34% of horse owners having an annual household income of less than \$50,000.
- The horse industry pays approximately \$1.9 billion in taxes on an annual basis to all levels of government.



This study was commissioned by the American Horse Council Foundation in 2004. The AHCF retained Deloitte Consulting LLP in June of 2004 to develop a study of the Economic Impacts of the U.S. Horse Industry. The final study was issued in July 2005.

Economic Impacts

- Produces a total economic impact valued at approximately \$101.5 billion, with an activity distribution as follows:
 - \$26.1 billion from Racing
 - \$28.8 billion from Showing
 - \$32.0 billion from Recreation
 - \$14.7 billion from Other activities
- Produces a direct economic impact valued at approximately \$38.8 billion, with an activity distribution as follows:
 - \$10.7 billion from Racing
 - \$10.8 billion from Showing
 - \$11.9 billion from Recreation
 - \$5.5 billion from Other activities
- Generates approximately \$1.9 billion in annual taxes (of which \$1.0 billion is paid to state government and \$275 million to local government)



Industry Participation and Employment

- Involves approximately 4,659,700 Americans, including
 - 1,955,800 horse owners
 - 701,900 employees
 - 2,001,900 volunteers
- Generates approximately 453,600 direct jobs and 1,411,300 total jobs over primary activities as follows:
 - 146,600 direct jobs and 383,800 total jobs generated by Racing
 - 99,100 direct jobs and 380,400 total jobs generated by Showing
 - 128,300 direct jobs and 435,100 total jobs generated by Recreation
 - 79,600 direct jobs and 212,000 total jobs generated by Other activities

Horse Population Characteristics

- Has approximately 9,223,000 horses, including
 - 1,291,800 Thoroughbreds
 - 3,288,300 Quarter Horses
 - 4,642,700 Other horses (registered and unregistered)
- The 9,223,000 horses in the United States represent the following activities:
 - 844,500 in Racing
 - 2,719,000 in Showing
 - 3,906,900 in Recreation
 - 1,752,400 in Other activities



Section Two

PROJECT BACKGROUND

In 1996, the American Horse Council Foundation ("AHCF") commissioned a study to estimate the economic impacts of the horse industry on the United States. This study produced estimates for several key industry characteristics including the number of horses in the United States, the total direct industry contribution to U.S. Gross Domestic Product, and the total number of jobs created/sustained by the horse industry.

Since 1996, several changes have had a profound impact on the industry. Other forms of gaming at racetracks have gained increasing acceptance and approval, with, for example, video lottery terminals (slot and electronic gaming machines) and account wagering being approved in many jurisdictions across the United States. The proliferation of the Internet, both for the advertisement and purchase of goods and services, has had a profound impact on horse owners and horse industry suppliers, as well as the pari-mutuel wagering industry. New wagering technologies continue to be introduced at racetracks and OTBs, some of which have contributed to the growth in Off-Track wagering.

Changes to federal, state and local tax policies have also directly affected horse owners and farms. Advances in veterinary medicine and improved horse breeding practices have increased the life span of horses as well as the percentage of live foals to mares bred. There has also been expanded interest in retraining horses for second careers and long-term care for retired horses. These changes are just a few of the many examples illustrating differences in the current horse industry from the industry that was represented in the last version of the study.

Recognizing the industry's need for more current economic information, the AHCF retained Deloitte Consulting LLP ("Deloitte") in June of 2004 to develop a current economic impact analysis. The current study does not differ dramatically from the 1996 study. In fact, some of the same economic modeling and sampling approaches used for the 1996 study have been applied to the 2005 study. Applying a similar methodology allows for greater consistency between the 1996 study and this current version. However, the 2005 report goes beyond merely reproducing the work that was previously conducted. This study has made several enhancements to improve both the quality of data collected for this study, the accuracy with which the data has been reported, and the methods by which the information and findings are presented. In addition, previous studies have been more horse racing centric; this study has more thoroughly and effectively captured other vital elements of the industry (e.g. showing and recreation) in both the survey sampling and economic analysis.

Some of the key horse industry statistics and economic indicators reflected in this study include:

- Estimated number of horses in the U.S.
 - By activity (e.g., racing, showing, recreation, other)
 - By breed (e.g., Quarter Horse, Thoroughbred)⁽¹⁾
- Estimated number of horses in each of the 50 states and the District of Columbia
- Number of people participating in the industry
 - By form of participation (e.g., owner, industry supplier, volunteer, etc.)
- Direct, Indirect and Induced economic impacts of the industry on U.S. and individual state economies
 - Contribution to Gross Domestic Product
 - Number of Full-Time Equivalent (FTE) jobs produced

(1) Breakouts for Thoroughbreds and Quarter Horses in this study have been provided courtesy of the funding support of The Jockey Club and the American Quarter Horse Association.

Contemporary perceptions of the horse industry are frequently limited to horse racing and/or the farms that support horse racing. This study highlights the true diversity of the industry, from the individual owner with a single horse to corporations that may own several farms and hundreds of horses. The information will show how the industry is comprised of many different socio-economic segments, with each population contributing to the industry through their respective spending on goods and services, as well as by providing employment and volunteer opportunities.

With methodological enhancements, greater representation from the showing and recreation industry segments and the largest sample size of horse owners ever captured, this report is the most comprehensive economic impact study ever issued on the U.S. horse industry.





Section Three

REPORT OVERVIEW

The 2005 economic impact analysis of the U.S. horse industry report is presented in three volumes. The organization of the report has been modified from the 1996 version. The three volumes include:

- *National Report* – This section highlights economic impacts from the horse industry on a national basis. Statistical information is compiled and consolidated for the entire United States, and all economic data and associated impacts are provided on a national basis. The methodology and approach used to develop the report are introduced in this section, with the detailed description available in the Technical Appendix.
- *Technical Appendix* – The Appendix provides additional details on the overall study approach including survey sampling approach, data collection activities, impact methodology, confidence intervals, and the development of the economic models. The Appendix also provides additional detail on the supporting rationale for key project assumptions.
- *State Breakouts* – A specific report was developed for each of the 15 “Breakout States.” Each report summarizes the economic impacts generated from the horse industry on that particular state. In addition, each section contains impact and employment information segmented by primary horse use (racing, showing, recreation, and other), as well as by breed and a combination of both. The Breakout States contributed additional support to help fund the overall economic impact study.

In making economic impact estimates, accepted economic principles and modeling approaches have been used in this report. Impact estimates included in the report reflect not only the industry’s direct contribution to U.S. Gross Domestic Product, but also all of the additional spending stimulated in other inter-related industries. Consistent with the

approach taken in the previous study, the economic impacts are not inclusive of patron spending outside of the actual showing or racing facility. For instance, major equestrian events such as the AQHA World Championship Show, the Rolex Kentucky Three Day Event, the Kentucky Derby, the Hambletonian, or the Breeders’ Cup World Thoroughbred Championships generate significant visitation from out-of-area patrons. These patrons spend money on airfare, hotels, restaurants, shopping and other travel related expenditures. These expenditures are not captured in this economic impact study, only those patron expenditures within the actual confines of the facility are captured. The same approach is taken for people traveling to attend and/or participate in horse shows. Including these “out-of-facility” expenditures would significantly increase the impact estimates shown in this report.

As this section will illustrate, the U.S. horse industry has a very large and positive economic impact on other segments of the U.S. economy. The economic impacts manifest themselves in the following ways:

- *Direct Effects* are purchases made by individuals directly involved in the horse industry on goods and services required specifically for the horse industry. The purchases are exactly equal to the value of goods and services produced. For example, \$100 spent by a horse owner to buy a saddle for a horse would be considered direct spending and would provide \$100 in value to the horse industry.
- *Indirect Effects* are purchases made by industry suppliers and their suppliers to support the manufacturing and delivery of their respective products. For example, the supplier selling a saddle must purchase raw materials to make the saddle, the equipment to manufacture the saddle (or pay another supplier to manufacture the saddle), and support services to deliver and market the

saddle, etc. Each of the businesses involved in the manufacturing and delivery of the saddle also must pay their respective suppliers, and so on. This spending effect is reflected in the Indirect Economic Impacts.

- *Induced Effects* are purchases made by individuals employed by the U.S. horse industry or the industry's suppliers. For example, a small business owner providing recreational trail rides presumably spends a percentage of their earnings on food, clothing, entertainment, etc. As a result of the business owner's spending, workers in each of those other inter-related industries will be able to increase their production and consumption, and so on.

The economic activity generated by the horse industry quantified throughout this report is shown in terms of economic impacts, employment impacts and fiscal/tax impacts.





Section Four

SIZE OF THE U.S. HORSE INDUSTRY

The U.S. horse industry not only sustains a diverse segment of businesses and suppliers across the entire United States, but the industry continues to provide recreation and enjoyment to millions of participants and non-commercial owners. The horse industry itself comprises many different sub-segments, from the small rural owner who owns a single horse for recreational purposes, to the largest commercial breeding farms and industry suppliers. The U.S. horse industry touches many economic segments including breeding, horse maintenance and training, recreation and many other lesser known horse-related activities. As Table 5 in this document will illustrate, all 50 states contain horses and as such, support horse-related activities.

The size of the industry can be seen in Table and Chart 1.

Table 1 - Number of Horses by Activity

TRAINING	844,321
RECREATION	2,708,918
OTHER	1,511,449
TOTAL	5,064,688

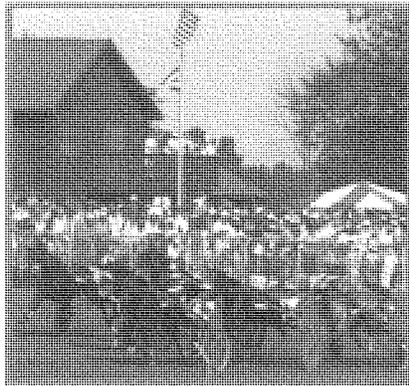
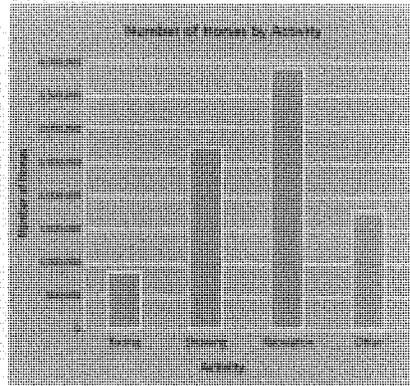


Chart 1



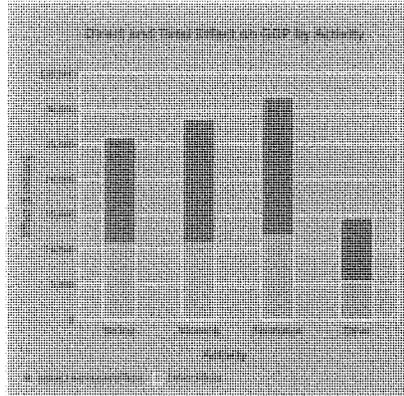
The United States horse industry consists of approximately 9.2 million horses representing many different breeds, uses and disciplines. As highlighted in Table 1, each of the primary use categories has a significant number of horses. Horses identified with a primary use of recreation comprise the largest horse population segment, with over 3.9 million horses in the U.S.

Table 2 - Direct and Total Effect on GDP by Activity⁽¹⁾⁽²⁾

Activity	Direct	Total	Total
Racing	\$10,007	\$19,427	\$29,434
Showing	\$10,700	\$18,000	\$28,700
Recreation	\$11,000	\$20,500	\$31,500
Other	\$6,500	\$9,100	\$15,600
TOTAL	\$38,207	\$67,027	\$105,234

- (1) Numbers shown in millions
- (2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

Chart 2



Horses from the racing, showing, recreation and other use categories stimulate a direct economic impact of \$38.8 billion and an overall impact of \$101.5 billion. As documented in Table 8, the total direct and overall impacts generated in the industry from all horses (including those

who could not be categorized in a specific use category) are slightly higher, as the impacts attributable to those horses that cannot be categorized to a specific use category are not shown in Table 2.

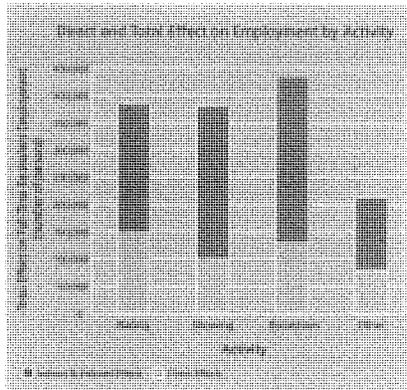
Each of the primary use categories has a significant economic impact on the overall economy with recreation having a total impact of \$32.0 billion, showing \$28.8 billion, racing \$26.1 billion and other uses \$14.7 billion respectively. The direct impacts are generally referenced and relied upon more regularly by economists than total impacts as direct spending represents the direct input into the economy prior to the application of any multipliers (which are more open to interpretation).

Table 3 - Direct and Total Effects on Employment by Activity⁽¹⁾

Activity	Direct	Total	Total
Racing	144,625	277,011	421,636
Showing	92,151	201,320	293,471
Recreation	140,004	260,757	400,761
Other	7,000	10,000	17,000
TOTAL	463,780	749,088	1,212,868

- (1) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

Chart 3



The U.S. horse industry also creates a significant number of jobs for the U.S. economy. As Table 3 shows, the industry directly supports approximately 454,000 full-time equivalent employees. When including the indirect and induced employment impacts, the industry generates approximately 1.4 million FTEs. (As noted above, the number of total direct FTEs created by the industry is actually 460,000, but approximately 6,000 employees could not be attributed to a primary use category so they are not shown in table 3).

Each segment of the industry plays a primary role in full-time job creation, with the recreation segment alone creating approximately 435,000 jobs. This is followed closely by the racing and showing segments, which create approximately 384,000 and 380,000 jobs respectively. Other use categories create approximately 212,000 jobs.

The economic data points included in this section provide compelling evidence of the size and importance of the horse industry. The approach used to estimate industry-related jobs and their characteristics is addressed in greater detail later in this report. Details regarding the actual calculations can be found in the Technical Appendix.

Participation in the U.S. Horse Industry

To estimate the number of participants in the U.S. horse industry, it is necessary to formalize a definition for the industry. This study and its surveys have remained consistent with the 1996 study by defining "the horse industry" as activities directly contributing to the production of horses or to the production of entertainment and recreation services that utilize horses. Based on this definition, the following individuals were included as industry participants:

- Horse owners, including partial owners with no active role in the care, maintenance or training of the horse(s).
- Employees of horse owners, industry suppliers, racetracks and shows, including all full-time, part-time and seasonal employees.
- Family members of owners and other volunteers who are involved in the care and maintenance of a horse(s) without pay.

Consistent with the 1996 approach, we have not included individuals that attend racing, shows or other horse-related events, or who lease horses on a short-term basis. Including these individuals would result in an even higher participation estimate.

Unlike the 1996 study we did not list separately the employees of the respondents that identified themselves as industry suppliers and did not own any horses. This group of industry suppliers includes individuals such as stable owners, trainers, veterinarians, rodeo stock contractors, horse transportation providers, jockeys, sulky drivers, rodeo cowboys, and mounted police, as direct participants. These are obviously important participants in the industry, but as will be discussed more fully below, they have been included as indirect participants. In addition, the economic impact of these segments will be captured through horse owner expenditures, as an indirect effect on GDP so as to avoid double counting the direct expenditures of service providers with the indirect expenditures of horse owners using their services.

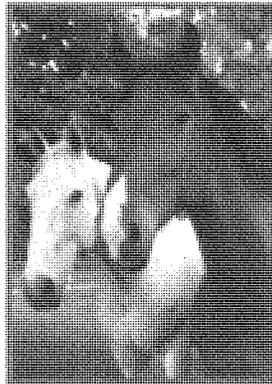


Table 4 illustrates total horse industry participants. This table may not include all industry participants under the age of 18, since surveys were directed to only those participants of at least 18 years of age. Therefore the data reflected in Table 4 may not fully include a population that clearly represents an important industry segment. For instance, approximately 23% of the U.S. Equestrian Federation's total membership consists of junior members.

Nonetheless, expenditures incurred by this under-18 population are likely captured in the economic impact estimates as the expenditures associated with junior activities should be captured when adults complete their surveys as horse owners and include the horse-related expenditures they incur on behalf of their children (as directed by the survey instructions).

Adhering to this definition, it is estimated that 4.7 million people participated in the horse industry. Table 4 highlights the participation by industry sub-segment, as well as the percentage of the total ownership population each group

represents. As the table illustrates, there are nearly 2 million horse owners, and another 2 million individuals who participate in the industry through a family association or as a volunteer. Of the 1.96 million horse owners, approximately 240,000 are dedicated primarily to breeding activities, while another 480,000 owners identified their primary role in the industry as competing.

The horse industry also provides over 700,000 jobs across all use categories; these jobs are converted to Full-Time Equivalent jobs in subsequent tables.

The Number of Horses

This study includes horse population estimates for the U.S. and each state. A more detailed account of this process is provided later in this volume. The horse owners included in the survey sample are representative of all segments of the U.S. horse industry, with total horse estimates being fully inclusive of both recreational and commercial horse owners. Table 5A illustrates the number of horses within each state.

Table 4 - Total Number of Industry Participants by Form of Participation⁽¹⁾

Form of Participation	Number of Participants	Percentage of Total Participants
Horse Owners	1,956,827	41.97%
Primary Activity: Breeding	237,000	4.92%
Primary Activity: Competing	481,238	10.23%
Primary Activity: Other	1,118,589	23.82%
Primary Activity: Service Provider	110,002	2.30%
Employment	701,246	14.81%
of Owners	308,306	6.44%
of Racetracks	393,940	8.37%
of Shows	33,100	0.71%
Family Members and Volunteers	2,001,700	42.10%
TOTAL	4,659,779	100.00%

(1) Owner estimates not inclusive of horse owners under the age of 18.



Chart 4

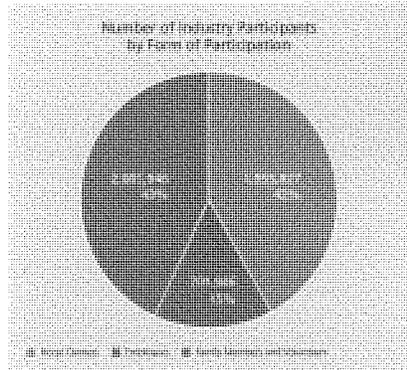


Table SA - Number of Horses by State

State	Number of Horses
Alabama	148,157
Alaska	37,639
Arizona	173,554
Arkansas	65,878
California	696,246
Colorado	261,404
Connecticut	31,448
Delaware	11,484
District of Columbia	33
Florida	501,794
Georgia	179,312
Hawaii	2,627
Idaho	158,458
Illinois	283,244
Indiana	212,080
Iowa	142,344
Kansas	178,651
Kentucky	569,773
Louisiana	164,306
Maine	37,854
Maryland	162,931
Massachusetts	122,444
Michigan	234,437
Minnesota	162,338
Mississippi	113,743
Missouri	281,724
Montana	134,057
Nebraska	159,871
Nevada	21,619
New Hampshire	68,434
New Jersey	82,962
New Mexico	162,191
New York	271,346
North Carolina	166,922
North Dakota	34,991
Ohio	166,899
Oklahoma	228,134
Oregon	167,268
Pennsylvania	233,763
Rhode Island	2,322
South Carolina	44,373
South Dakota	106,891
Tennessee	214,544
Texas	276,422
Utah	121,183
Vermont	24,841
Virginia	239,182
Washington	221,942
West Virginia	89,881
Wisconsin	196,831
Wyoming	94,237
TOTAL	6,222,847

Table 5B - Number of Horses by State, Ranked by Horse Count

State	Number of Horses
Texas	276,422
California	696,246
Florida	501,794
Kentucky	569,773
Illinois	283,244
Missouri	281,724
North Carolina	166,922
Pennsylvania	233,763
Kentucky	569,773
Washington	221,942
Virginia	239,182
Michigan	234,437
Minnesota	162,338
Indiana	212,080
New York	271,346
Iowa	142,344
Minnesota	162,338
Illinois	283,244
Michigan	234,437
Kentucky	569,773
Ohio	166,899
Wisconsin	196,831
Arizona	173,554
Oregon	167,268
Montana	134,057
Idaho	158,458
Nebraska	159,871
Nebraska	159,871
Nevada	21,619
New Mexico	162,191
Minnesota	162,338
South Dakota	106,891
Ohio	166,899
Mississippi	113,743
Wyoming	94,237
South Carolina	44,373
New Hampshire	68,434
New Jersey	82,962
North Dakota	34,991
Connecticut	31,448
Maine	37,854
New Hampshire	68,434
Vermont	24,841
Delaware	11,484
District of Columbia	33
TOTAL	6,222,847

Note: Bold font indicates a focus state - with additional detail available in Breakout State Volume

As Table 5B highlights, Texas – with almost 1 million horses - has the most horses of any state. California and Florida are second and third highest with approximately 700,000 and 500,000 horses respectively. As the table highlights, every state in the U.S. has a presence of horses, with 45 of the 50 states representing at least 20,000 horses.

The methodology used in developing state-by-state horse estimates is highlighted in the Technical Appendix. It is important to understand that in estimating total horse counts, several factors can have an influence on the number of horses shown in a particular state, as well as explaining differences in horse counts from other published sources.

- Responses to the Horse Owner/Industry Supplier survey were tabulated based on the primary address of the respondent's home residence and/or operational headquarters. To simplify the survey process instrument, respondents were not asked to identify the states in which their horses were stabled, nor the states in which they competed. Asking additional state-specific questions would have significantly complicated the survey process and compromised the quality of respondent data.
- The survey process solicited input from all industry segments and ownership types. Other published sources frequently solicit data from only those horse owners that own at least five horses. As indicated, this study surveyed a range of owners, from those with only a single horse used for recreational purposes to large farms with hundreds of horses.
- Horse counts in this study reflect both registered and unregistered horses. It is also expected that some owners of unregistered horses may have indicated their horses were Thoroughbreds or Quarter Horses based on their animals having Thoroughbred or Quarter Horse bloodlines somewhere in the pedigree.
- While the horse counts in most states are consistent with (or higher than) expectations, some states, particularly a few in the Midwest and West, have lower counts than anticipated. It is possible that the understatement is due to the presence of large working and commercial ranches whose horse populations could not adequately be captured through the sampling scheme.

Survey respondents also identified the breed and primary use of the horse(s) for which they were either the primary or partial owner. Horse owners were asked to identify the primary use of their horse(s), with seven possible options

(racing, showing, other competition, recreation, work, breeding and other). Owners were separately asked to identify the breed of their horses (Thoroughbred, Quarter Horse and other). In developing impact estimates it was determined that an insightful way of presenting the data would be by breed and use. Further, it was determined that the use categories should be collapsed to four primary activities (racing, showing, recreation, and other). The process by which these assignments were made is presented in the Technical Appendix.

Table 6 segments the total horse count by use and by breed. Each horse was assigned to one of three breed categories (Thoroughbred, Quarter Horse, or Other)¹, as well as assigned to one of four primary use categories (racing, showing, recreation, other). Horse assignments were based primarily upon the survey responses provided by the horse owner sample.

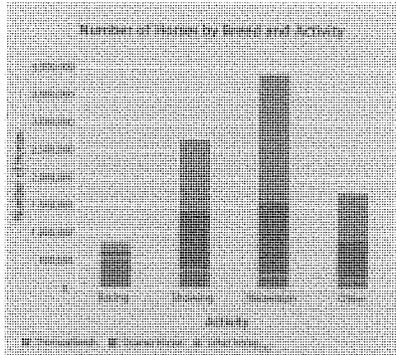
(1) The term "Other Horses" in the breed category refers to all other registered and unregistered horses.

Table 6 - Number of Horses by Breed and Activity

Breed	Racing	Showing	Recreation	Other
Thoroughbred	1,176,000	1,176,000	1,176,000	1,176,000
Quarter Horse	1,176,000	1,176,000	1,176,000	1,176,000
Other Horses	1,176,000	1,176,000	1,176,000	1,176,000

(1) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under other horses are predominantly Standardbreds.

Chart 6



(1) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under other horses are predominantly Standardbreds.

Table 6 highlights some key industry characteristics:

- Almost 4 million horses are used for recreation - more than any of the three other primary uses.
- Quarter Horses represent the largest single breed in the showing industry with more than 1 million of the 2.7 million horses in this segment.
- As anticipated, Thoroughbreds make up the overwhelming majority of the racing segment, with approximately 560,000 used for racing.

It should be noted that the "Other" use category includes horses whose primary use was identified as either "Work" (on ranches, feedlots, riding stables, horse drawn carriages, back country packing, etc) or "Other." "Other Competition" which was defined as horses whose primary use is any sanctioned competitive riding discipline that is neither racing nor showing, but is performed in competition with other horses or riders for compensation in the form of money, prizes or rewards, was included, after consultation with the Steering Committee, in the Showing category.





Section Five

THE ECONOMIC IMPACT OF THE HORSE INDUSTRY ON THE U.S. ECONOMY

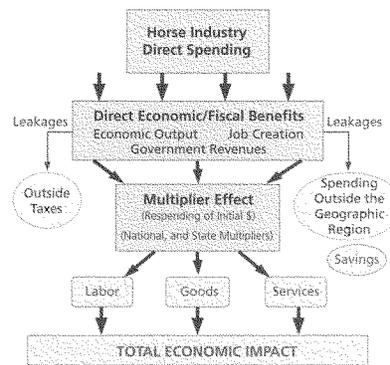
As indicated earlier, economic impact can be measured in three different categories: direct, indirect and induced impacts.

Standard economic theory estimates the total economic impact of spending by applying a "multiplier" to the direct effect in order to calculate the indirect and induced impacts. Each multiplier is intended to estimate the number of times a single dollar of spending circulates through the economy. Multipliers differ depending on industry segment. For example, \$1 of spending in the horse industry will have a different economic impact than \$1 of spending in the telecommunications industry.

The methodology developed for this study uses the primary data collected from industry segments (racetracks, shows, and horse owners) to measure spending internal to the horse industry. Internal industry spending (expenditures specifically related to the operation of horse-related activities) is estimated from the survey responses of industry participants. For each of the spending categories, a corresponding multiplier is applied to generate the overall indirect and induced effects. A more detailed description of the multiplier can be found in the Technical Appendix.

This approach, while conservative, minimizes a potential critique that total economic and employment impacts have been inflated due to a loosely developed definition of "horse-related" activities. In this approach, the spending that is being estimated is clearly within the horse industry, and thus accurately reflects the operation of the industry. Moreover, direct spending/impacts (also referred to as GDP contribution) is generally referenced and relied upon more regularly by economists than total impacts, as direct spending represents the direct input into the economy prior to the application of any multipliers (which are more open to interpretation).

Overview of Economic Impact Approach



Horse Industry Direct Impacts/Contribution to U.S. Gross Domestic Product

The contribution to United States Gross Domestic Product is estimated by taking the value of goods and services from each horse industry segment and providing a sum total from all segments (GDP contribution is the same as the "direct" effect). The estimated contribution to GDP from the U.S. horse industry is approximately \$39.2 billion per year.

This estimate was generated using a methodology consistent with the approach applied in 1996. When the Bureau of Economic Analysis (BEA) estimates total GDP contribution for various industries, the BEA does not capture a critical element of the horse industry when estimating the total value of horse related goods and services – more specifically the

value of non-cash transactions. The survey tool applied to this project allows for the capture of information for which no cash transaction was involved. For example, a horse owner presumably derives value from a horse used entirely for recreation, which generates no net revenue/compensation for the owner, the same way an individual receives value from owning and selectively driving an antique automobile. Otherwise, there would be no purpose in owning a non-revenue generating horse, or any non-revenue generating item for that matter. The horse and the automobile both require care and maintenance, while providing no cash benefit.

As part of this process, we have included the non-cash value to horse owners from horse services in our impact estimates. We are not able to distinguish between those owners that are operating as a business and those who are in the industry

for the pure pleasure of the participation. Therefore, as a conservative estimate of the non-cash value we excluded horse owner profits, either positive or negative, in the calculation of the impact. Our estimates indicate that most horse owners were operating at a "loss" in a simple accounting sense. That is, their horse-related revenues were smaller than their expenses. It should be noted that profits generated from horse shows and racetracks was assumed to be distributable (net of income taxes) to the owners of the various venues and part of the economic impact.

Table 7 summarizes the value of the horse industry's goods and services for various horse-related industry sub-segments. The direct effect is widely considered the most important economic indicator. The indirect and induced effects are included when estimating the total economic impact.

Table 7 - Direct, Indirect and Induced Effects on GDP by Expenditure Category

Expenditure Category	2011 Total		
	Direct	Indirect	Induced
Operating that Generates Economic Effects			
Horse-Related Goods (e.g., feed, tack, etc.)	\$7,884	\$11,954	\$71,345
Horse-Related Services (e.g., boarding, training)	\$9,884	\$18,250	\$27,734
Horse-Related Transportation (e.g., training)	\$3,873	\$2,071	\$7,946
Overhead (e.g., utilities, office supplies, etc.)	\$4,456	\$6,287	\$8,745
Capital Expenses (e.g., equipment and structures)	\$8,138	\$16,587	\$24,824
Operating that Distributes Economic Effects			
Employee Compensation	\$1,319	\$1,014	\$3,323
Profits Distributable to Owners	\$1,040	\$1,813	\$2,662
Trace and Land Purchases	\$4,383		\$6,343
TOTAL	\$28,084	\$48,685	\$148,847

(1) Numbers shown in millions
 (2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

Table 7 illustrates several key points about the annual operation of the horse industry, including;

- Contributions of nearly \$40 billion to U.S. GDP.
- Stimulates approximately \$63 billion in indirect and induced impacts.
- Attracts investments of nearly \$25 billion in capital equipment and structures.
- Creation of over \$4.1 billion in taxes and land purchases.

Table 7 highlights the total direct, indirect and induced impacts generated from the horse industry. As with the total number of horses, the economic impacts were also segmented by the breed of the horse as well as the primary use of the horse. Table 8 highlights how the direct impacts are generated by breed and activity. Note that the total direct impact shown does not reconcile to the total direct impact shown in the previous table; a small proportion of the spending and revenue were from respondents who described themselves as horse owners, but who reported having zero horses. We have speculated that in these instances the respondent may be caring for a horse owned by someone else, or the respondent may have sold the horse during the year. For this reason, this economic activity cannot be split across breed or activity, and so does not appear in Table 8.

Table 8 - Total Direct Effect on GDP by Breed and Activity (1)(2)

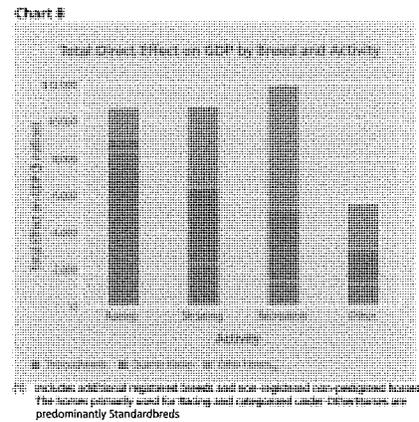
	Revenue	Expenses	Wages	Other	Total
Racing	\$4,154	\$2,777	\$1,253	\$1,881	\$13,004
Showing	\$803	\$4,076	\$1,348	\$1,799	\$11,074
Recreation	\$1,625	\$4,441	\$6,050	\$2,532	\$15,281
Total	\$7,582	\$11,294	\$8,651	\$6,212	\$39,559

(1) Numbers shown in millions
 (2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.
 (3) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for Racing and categorized under Other Horses are predominantly Standardbreds.

Table 8 illustrates several important characteristics of the horse industry:

- Racing, showing and recreation all generate between \$10 billion and \$12 billion in direct impacts. This is particularly important considering that the racing segment is commonly the only industry segment for which significant economic activity is generally associated.
- Thoroughbreds and Quarter Horses generate \$13.1 billion and \$10.5 billion respectively in direct economic impacts. Equally important, "Other Horses" (registered and unregistered) generate approximately \$15.3 billion in economic impacts.

The significant amount of direct spending (almost \$40 billion) stimulated by the horse industry contributes to economic activity in many other industries as well. These impacts are reflected in the indirect and induced impacts. Table 9 shows the horse industry contributes over \$62 billion in indirect and induced spending - equaling \$101.5 billion when added to the \$39 billion in direct impacts shown in Table 8.



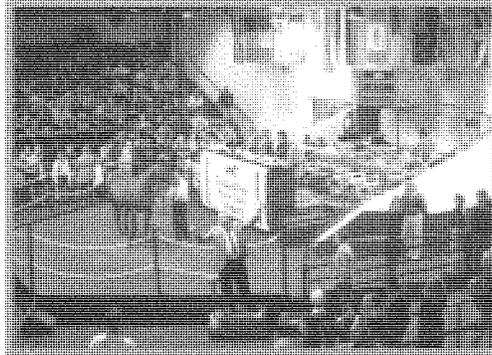
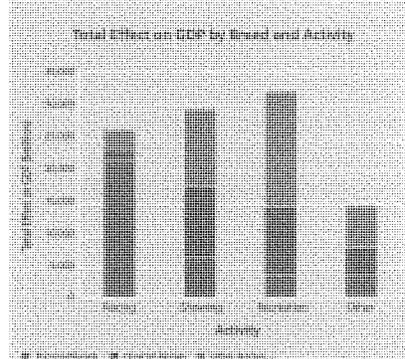


Table 9 - Total Effect on GDP by Breed and Activity⁽¹⁾⁽²⁾

	Production	Consumption	Investment	Government	Total
Racing	\$28,771	\$5,388	\$1,414	\$2,326	\$37,899
Other Horses	\$1,627	\$38,612	\$88,567	\$4,526	\$133,332
Other Horses	\$3,728	\$11,877	\$11,219	\$5,758	\$32,582
TOTAL	\$34,126	\$55,877	\$101,199	\$12,610	\$203,812

- (1) Numbers shown in millions
- (2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.
- (3) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for Racing and categorized under Other Horses are predominantly Standardbreds.

Chart 9



- (3) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for Racing and categorized under Other Horses are predominantly Standardbreds.

When considering indirect and induced expenditures, the racing, showing and recreational segments all generate over \$26 billion in economic impacts. Once again, the numbers highlight the significance of each industry segment as well as the impact of Quarter Horses, the country's largest registered breed, and of the Thoroughbreds, which generate the highest share of the horse industry's GDP.

The largest contribution to GDP is generated by Thoroughbreds in racing, stimulating economic activity of approximately \$20.8 billion. Quarter Horses generate in excess of \$21 billion in combined showing (\$10.8 billion) and recreation (\$10.6 billion), while the combination of other breeds generates almost \$12 billion and \$18 billion in economic activity in showing and recreation respectively.

Full-Time Equivalent Jobs Provided by the Horse Industry

In determining the number of individuals participating in the horse industry, it is estimated that approximately 702,000 people participate as employees (see Table 4). In order to more accurately assess the number of horse industry employees, part-time and seasonal employees were converted into a Full-Time Equivalent basis. Following this conversion, it was estimated that the industry generates approximately 460,000 direct FTE jobs. When considering the jobs created from indirect and induced spending, the industry creates approximately 1.43 million full-time equivalent jobs.

Table 10 - Direct, Indirect and Induced Effects on Full-time Equivalent Employment⁽¹⁾

Direct Effect	460,000
Indirect Effect	814,304
Induced Effect	1,158,698
TOTAL	1,432,602

(1) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

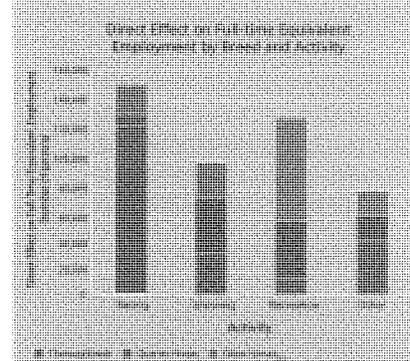
Table 11 summarizes full-time equivalent jobs generated in the horse industry, segmented by breed and primary use. As the table highlights, the racing segment contributes the greatest total jobs with FTE employment in excess of 146,000. Within the racing segment, the Thoroughbred breed contributes approximately 114,000 of these jobs. The showing and recreation segments generate approximately 99,000 and 128,000 jobs respectively. Those horses identified as having an "other" primary use contribute almost 80,000 jobs to the economy.

Table 11 - Direct Effect on Full-Time Equivalent Employment by Breed and Activity⁽¹⁾

Activity	Other	Quarter	Thoroughbred	Other	TOTAL
Racing	104,411	21,127	20,121	41,222	146,881
Showing	28,187	69,067	31,437	68,874	137,565
Recreation	21,827	26,877	50,766	30,216	139,686
TOTAL	146,425	117,071	101,714	140,312	405,522

(1) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.
 (2) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under Other Horses are predominantly Standardbreds.

Chart 11



(1) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under Other Horses are predominantly Standardbreds.

In the same way that multipliers are used to estimate economic impacts, multipliers are also used to estimate the total number of jobs created through indirect and induced spending.

- Direct employment represents jobs provided by the industry itself (see section III).
- Indirect employment represents jobs provided as a result of spending by industry suppliers.
- Induced employment represents jobs provided as a result of spending by industry employees.

As mentioned, when considering indirect and induced job creation, the horse industry creates over 1.4 million jobs. Table 12 provides a summary on how those jobs are generated by breed and use.

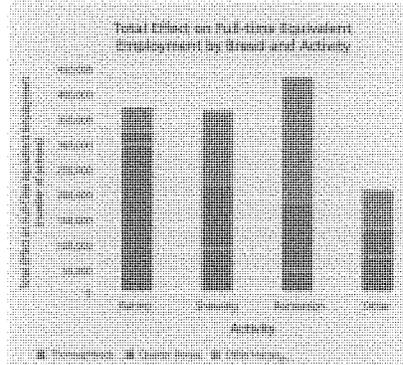
Table 12 - Total Effect on Full-Time Equivalent Employment by Breed and Activity⁽¹⁾

	Thoroughbred	Quarter Horse	Paint Horse	Other Horses	Total
Direct	307,336	38,332	43,477	74,191	513,336
Indirect	14,893	136,857	138,933	57,823	388,506
Induced	11,905	733,317	254,933	79,896	1,080,051
Total	334,134	1,248,506	437,343	212,010	1,432,003

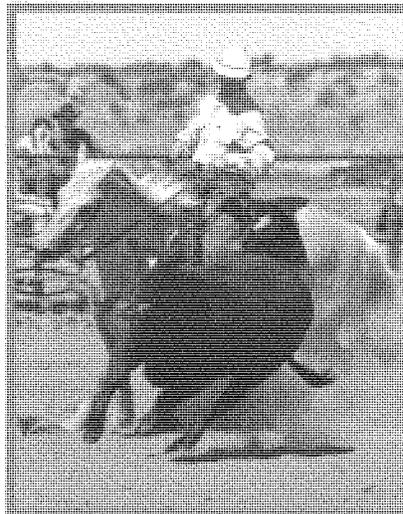
(1) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horses, but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.
 (2) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under Other Horses are predominantly Standardbreds.

As shown in Table 12, the racing and showing segments create approximately the same number of full-time equivalent jobs, with the respective segments generating 384,000 and 380,000 jobs. The recreation segment generates over 435,000 jobs, with over 255,000 of those jobs being generated by "other" horses.

Chart 12



(1) Includes additional registered breeds and non-registered non-pedigreed horses. The horses primarily used for racing and categorized under Other Horses are predominantly Standardbreds.



Taxes Paid by the Horse Industry

Taxes paid by the horse industry, while not included in indirect or induced impact estimates, do have a profound impact on local, state and federal budgets. Different taxes apply to different segments of the horse industry. In total, approximately \$1.9 billion in taxes are paid on an annual basis by the horse industry to various levels of government.

Tax estimates were developed using responses taken directly from the surveys. The same weighting approach was applied in estimating taxes as was used in estimating other revenues and expenses. In other words, the federal, state and local taxes reported on the surveys were combined, and then appropriately weighed to estimate the total taxes paid for the entire industry (by industry segment).



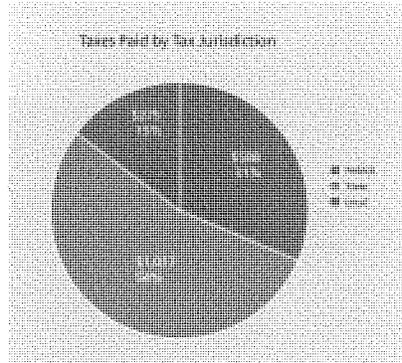
Table 13 summarizes the national tax impact generated by the U.S. horse industry.

Table 13 - Taxes Paid by Tax Jurisdiction⁽¹⁾

Tax Jurisdiction	Tax Paid	Percentage
Federal	\$1,228	65%
State	\$587	31%
Local	\$75	4%
TOTAL	\$1,890	100%

(1) Dollar magnitudes shown in millions

Chart 13



(1) Dollar magnitudes shown in millions.



Section Six

HORSE OWNER DEMOGRAPHICS

The entire horse industry comprises many different sub-sectors, with each sub-sector representing a diverse and vibrant cross-section of geographies and socio-economic classifications. The dynamic industry composition creates the overall economic impact.

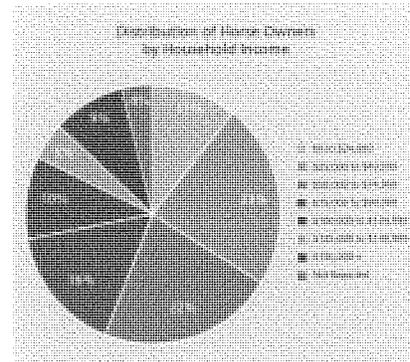
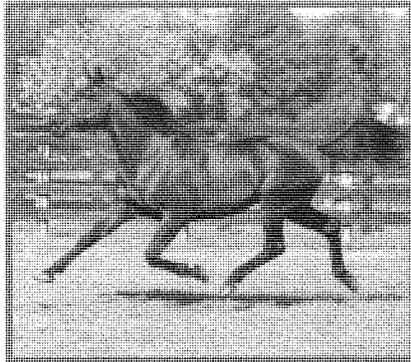
Table 14 illustrates the economic diversity of the overall horse owning population. Approximately 45% of the total sample has a gross annual household income of between \$25,000 and \$75,000. Approximately 9% of the industry population has an income greater than \$150,000 per year, while an almost equal amount (11%) has an annual income of less than \$25,000. Table 14 helps to summarize the economic diversity of the horse industry and indicates how, depending on segment and activity, all different economic stratifications play a prominent role in the horse industry.

Table 14 - Distribution of Horse Owners by Household Income⁽¹⁾

Household Income	Count	Percent
\$0 to \$24,999	209,879	11%
\$25,000 to \$49,999	453,511	23%
\$50,000 to \$74,999	435,930	22%
\$75,000 to \$99,999	306,797	16%
\$100,000 to \$124,999	199,646	10%
\$125,000 to \$149,999	94,672	5%
\$150,000 +	179,268	9%
Not Reported	76,124	4%
TOTAL	1,955,827	100%

(1) Owner estimates not inclusive of horse owners under the age of 18.

Chart 14



Geographic and Age Diversity in the Horse Industry

The horse industry reaches into the far corners of all 50 states. The industry impact is generated from the smallest of rural communities to the largest cities. Certain activities such as breeding, training and maintenance are traditionally conducted in more rural areas, while racetracks and horse shows have generally operated in more urban areas. Regardless of primary type of involvement in the industry, the survey results indicate that horse owners reside in a diverse geography.

Table 15 highlights the wide range of communities represented from the horse owning population.

Table 15 - Distribution of Horse Owners by Community Size⁽¹⁾

Community Size	Count	Percent
Less than 1,000 people	307,339	13%
1,000 to 4,999	391,491	20%
5,000 to 9,999	471,135	23%
10,000 to 49,999	393,310	20%
50,000 to 99,999	171,458	9%
100,000 to 499,999	68,157	3%
500,000 +	139,943	7%
Not Reported	38,072	1%
TOTAL	1,955,827	100%

(1) Owner estimates not inclusive of horse owners under the age of 18.

Chart 15

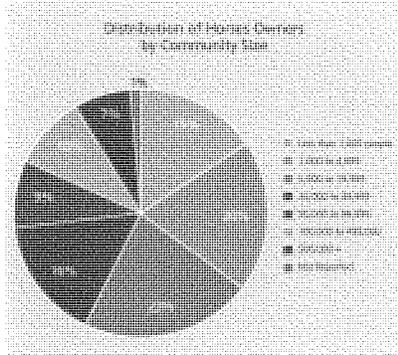


Table 15 highlights how the horse industry benefits from participation by individuals representing all different types of home communities. Approximately 57% of the total sample resides in communities with less than 20,000 individuals. This population segmentation confirms the expectation that the industry is strongly supported by those individuals residing in what by most standards would be considered rural. However, the industry also represents individuals living in more heavily populated areas, with almost 26% of the sample living in communities with at least 50,000 residents.

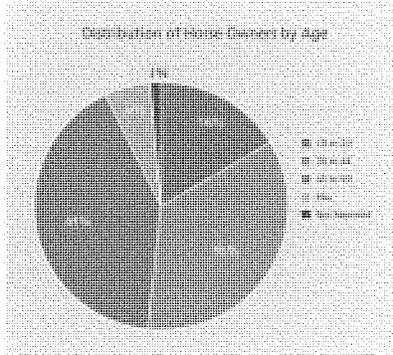
The horse industry also represents many different age categories as well. A plurality of horse owners are between the ages of 45 and 59. Approximately 16% of the horse owner population is represented by a more youthful segment, between 18 and 29. As noted earlier, Table 16 does not include children that participate within the industry, primarily through recreational and showing activities, as the surveys were targeted only to individuals of at least 18 years of age.

Table 16 - Distribution of Horse Owners by Age⁽¹⁾

Age	Count	Percent
18 to 29	318,311	16%
30 to 39	400,307	20%
40 to 49	347,347	18%
50 +	377,762	19%
Not Reported	20,000	1%
TOTAL	1,955,827	100%

(1) Owner estimates not inclusive of horse owners under the age of 18.

Chart 16





Section Seven

INDUSTRY SPENDING ACTIVITY

This section provides a more micro view of the economic activity that is occurring within the industry. Economic impacts have been summarized based upon the spending reported from each of the various horse industry segments. Spending from all horse shows, racetracks, farms and owners in aggregate generate the direct impacts, and the impacts have been summarized on an industry-wide basis.

This section provides revenue and expense information on a per-horse, per show and per racetrack basis. The information collected from the industry surveys, in conjunction with the input of industry experts, was used to develop the tables in this section.

Table 17 summarizes industry revenues and expenses on a per-horse basis.

Table 17 - Annual Revenue and Expense per Horse by Activity

Activity	Revenue	Expenses	Net Income	Revenue	Expenses
Revenue	\$1,000	\$0	\$1,000	\$1,000	\$0
Boarding Fees	\$1,200	\$200	\$100	\$1,200	\$200
Board Fees	\$114	\$50	\$64	\$114	\$50
Horse Sales	\$1,000	\$319	\$681	\$1,000	\$319
Boarding and Training	\$663	\$365	\$298	\$663	\$365
Veterinary Services	\$0	\$12	-\$12	\$0	\$12
All Other Revenue	\$127	\$107	\$20	\$127	\$107
Expenses	\$2,000	\$2,000	\$0	\$2,000	\$2,000
Horse Related Costs					
Feed, Bedding and Other Supplies	\$114	\$220	-\$106	\$114	\$220
Medicine and Vitamins	\$143	\$112	\$31	\$143	\$112
Tack, Equipment and All Other Supplies	\$200	\$167	\$33	\$200	\$167
Horse Related Services					
Boarding and Training	\$1,014	\$177	\$837	\$1,014	\$177
Rider Education/Lessons	\$13	\$89	-\$76	\$13	\$89
Board Fees	\$103	\$79	\$24	\$103	\$79
Spending Parties	\$101	\$195	-\$94	\$101	\$195
Veterinary Services	\$107	\$132	-\$25	\$107	\$132
All Other Horse Services	\$100	\$44	\$56	\$100	\$44
Transportation and Input					
Trucking services/Inputs	\$100	\$100	-\$100	\$100	\$100
Travel and Transportation	\$100	\$100	-\$100	\$100	\$100
General Operating Expenses					
Entity Fees	\$100	\$100	-\$100	\$100	\$100
Facilities Maintenance	\$100	\$100	-\$100	\$100	\$100
All Other Business Expenses	\$100	\$100	-\$100	\$100	\$100
Subtotal					
Employee Compensation/Wages and Non-Cash	\$100	\$100	-\$100	\$100	\$100
Taxes					
General Taxes	\$100	\$100	-\$100	\$100	\$100
State Taxes	\$100	\$100	-\$100	\$100	\$100
Local Taxes	\$100	\$100	-\$100	\$100	\$100

While the figures represent average revenue and expense amounts, they may not be typical—for example, horse sales revenue is usually \$0, but the average is obviously higher. As another example, purse revenue is obviously zero for most horse owners, but when aggregating the many owners with zero dollars in purse revenue with a few owners with very large purse revenues, the average falls somewhere in between—representing a number that’s an average, but perhaps not typical.

It is important to recognize that Table 17 shows per-horse data based on industry averages. On average, across all breeds and segments, the annual expenses associated with a horse exceed revenues by approximately \$1,700.

The revenue and expense characteristics of operating a typical horse show differ from individual horse ownership. Table 18 summarizes the revenue and expenses associated with a single horse show.

Consistent with the approach applied to horse ownership, this table provides information based upon industry averages. Revenues and expenses for horse shows may vary widely based upon size of the show, geographic location and number of participants.

Table 18 - Horse Show Revenue and Expense per Show

Category	Amount
Revenue	\$159,000
Admissions, Concessions, Parking and Programs	\$150,000
Sponsors and Donations	\$20,000
Entry Fees	\$70,000
Gift Receipts	\$10,000
All Other Revenue	\$10,000
General Operating Expenses	\$136,000
Facility Rent	\$100,000
Facilities Maintenance	\$10,000
Equipment, Vehicle, and Facility Rental	\$10,000
All Other Business Expenses	\$10,000
Salaries, Wages and Benefits Paid	\$10,000
Taxes	\$10,000
Federal Taxes	\$5,000
State Taxes	\$5,000
Local Taxes	\$0

On a per show basis a typical horse show:

- Generates gross revenues of approximately \$159,000
- Generates gross expenses of approximately \$136,000
- Operates at a profit of approximately \$23,000

Entry fees are the largest and most important revenue stream for horse shows, and directly link to the amount that a horse show can pay to the participants in cash and prizes. It is also important to recognize that the economic impacts from horse shows are not just generated from the profit, but from all of the expenses associated with the horse show as well.

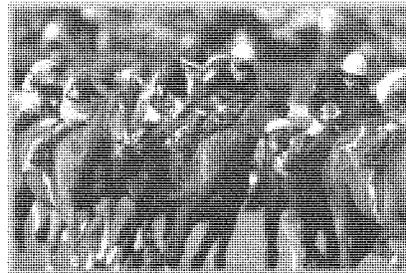
Racetracks are generally the most visible revenue generating mechanism in the horse industry. Table 19 summarizes the average revenues and expenses incurred for racetracks.

Table 19 - Racetrack Revenue and Expense per Track

Category	Amount
Revenue	\$30,800,000
Admissions, Concessions, Parking and Programs	\$1,500,000
Total Wagering	\$29,300,000
All Other Revenue	\$0
General Operating Expenses	\$28,800,000
Salaries, Wages and Benefits Paid	\$10,000,000
Facilities Maintenance	\$10,000,000
Salaries, Wages and Benefits Paid	\$10,000,000
Equipment, Vehicle, and Facility Rental	\$10,000,000
All Other Business Expenses	\$10,000,000
Taxes	\$2,000,000
Federal Taxes	\$1,000,000
State Taxes	\$1,000,000
Local Taxes	\$0

(1) Inclusive of purses

On average, racetrack operations have revenues of approximately \$30.8 million and expenses of approximately \$28.8 million, including tax obligations. It is important to note, however, that the racetrack profit estimated for each track is not necessarily revenues minus expenses (as collected and defined in the survey). Depending on geography, each track has different financial obligations at both the local and/or state levels as to what they are required to pay, either as a percentage of net profits or as a percentage of gross revenues or both.





Section Eight

THE ROLE OF BREEDING IN THE HORSE INDUSTRY

The role of breeding plays a very significant role in the horse industry, generating billions in economic impacts and thousands of jobs. The breeding of horses has the most prominent role in the showing and racing segments of the industry.

Racing can be broken down into three tiers of production: racetrack operation/OTB facilities, maintaining competitive and potentially competitive horses, and breeding, which includes maintaining potential and retired breeding horses. Each tier is dependent on the other tier for its income. For instance, tracks and OTBs generate revenue from the general public which attends and/or wagers upon competitive racing horses, owners of competing horses derive their income from the racetracks in the form of purses, and breeders derive their income by selling horses to owners who use the horses in

competition. Breeding plays a significant role in the racing industry. The importance of breeding in the racing sector is shown by:

- Approximately 428,000 horses are involved in the breeding process or are transitioning into or out of the breeding process – in the racing sector alone.
- Breeding horses in the racing segment produce a direct impact for the industry of approximately \$2.2 billion and a total impact of almost \$6 billion.
- Approximately 39,000 full-time equivalent jobs are created directly from breeding activity, a total of approximately 100,000 FTE jobs are created when considering the indirect and induced impacts.

Table 20 - Measures of the Racing Sector by Tier of Production⁽²⁾

	Number of Horses	GDP Generated	GDP Received	FTE Jobs Associated	Total Jobs Created
Tracks and OTB Operations		\$8,340	\$11,653	42,157	325,190
Maintaining Horses	410,700	\$3,000	\$8,307	65,760	458,140
Breeding Horses	427,823	\$2,247	\$5,906	39,570	90,296

(1) Numbers shown in millions

(2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

Breeding also plays a significant role in the showing industry segment. While the showing segment may not have the national attention from races like the Kentucky Derby or the Breeders' Cup, it features thousands of local, regional and

national shows. Competitive horse shows have many of the same dynamics as racing; shows require horses to compete for prizes, and horses are bred specifically for the purposes of becoming competitive in the show ring.

Table 21 - Measures of the Showing Sector by Tier of Production^(1,2)

Tier	Number of Horses	GDP Contribution ⁽¹⁾	GDP Impact ⁽²⁾	FTE Jobs Produced	FTE Jobs Generated
Showing - All use of care		\$4.31	\$1.019	6,578	15,172
Showing - Breeding	704,000	\$2.163	\$21,704	35,029	239,859
Showing - Race	700,000	\$2.147	\$4,053	33,864	50,669

(1) Numbers shown in millions

(2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.



Table 21 illustrates the significant role breeding plays in the showing segment. For instance:

- Approximately 704,000 horses are involved in the breeding process or are transitioning into or out of the breeding process – in the showing sector alone.
- Breeding horses in the showing segment produce a direct impact for the industry of approximately \$2.3 billion and a total impact of almost \$6.1 billion.
- Approximately 34,000 full-time equivalent jobs are created directly from breeding activity, a total of approximately 94,000 FTE jobs are created when considering the indirect and induced impacts.

Clearly the maintenance of competitive horses and the breeding of horses for the purpose of competition is a significant contributor to the overall impacts generated by the horse industry.

When considering the racing and showing segments in combination with one another, the total impacts from breeding are even more significant as shown in Table 22.

Table 22 - Measures of the Racing and Showing Sectors by Tier of Production⁽²⁾

	Number of Horses	Direct Impact	Indirect Impact	Total Impact	Total Jobs
Showing and Racing	1,130,000	\$5.873	\$7.872	\$13.745	342,000
Breeding	1,130,000	\$11.975	\$8.221	\$20.196	499,000
Total	2,260,000	\$17.848	\$16.093	\$33.941	841,000

(1) Numbers shown in millions

(2) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-total results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

For instance:

- Approximately 1,130,000 horses are involved in the breeding process or are transitioning into or out of the breeding process.
- Breeding produces a direct impact for the industry of approximately \$4.5 billion and a total impact of \$12 billion for the horse industry.
- Approximately 72,000 full-time equivalent jobs are created directly from breeding activity, a total of approximately 193,000 FTE jobs are created when considering the indirect and induced impacts.

The appropriate classification of a horse during certain transition periods is not always clearly defined. For instance, young horses such as foals, weanlings, yearlings and two-year olds are eventually expected to race. However, as they have yet to start competing, their appropriate classification can be debated. For purposes of this study, the survey respondents were relied upon to determine the appropriate classification of each horse.

The number of horses involved in these activities was weighted appropriately to develop estimates for the entire horse population, consistent with other activities throughout the report and described in the Technical Appendix.





Section Nine

COMPARATIVE ANALYSIS AND BREAKOUT OF STATES

As part of the Economic Impact Study of the U.S. Horse Industry, state specific data and additional economic impact estimates were generated for a number of "Breakout" states. Those states that contributed to the funding of the economic impact initiative were selected as Breakout States.

Individual Breakout State reports contain economic impact and demographic data relevant to each respective state. Table 23 provides a state-by-state comparison highlighting a few key economic indicators and industry characteristics.

Table 23 - Rank Among Breakout States⁽³⁾

State	Total Market Revenue		Number of Horses		Registered in Industry		Total Effect on the Economy	
	Number	Rank	Count	Rank	Count	Rank	Employment Effect	Rank
California	\$4,372	1	628,345	2	311,119	3	130,470	1
Colorado	\$1,569	9	255,503	8	102,477	8	21,325	14
Florida	\$5,256	3	500,124	3	409,963	2	103,061	2
Indiana	\$1,216	10	202,888	9	93,977	11	22,556	12
Kentucky	\$3,549	4	226,173	5	194,375	4	56,179	4
Louisiana	\$2,495	5	164,305	11	56,170	14	24,545	11
Maryland	\$1,570	8	112,930	12	69,620	12	20,764	10
Missouri	\$1,687	12	291,255	7	125,131	7	56,582	5
New Jersey	\$1,149	13	82,982	15	55,697	13	21,280	13
New Mexico	\$791	14	187,181	13	81,736	10	45,089	6
New York	\$2,384	6	291,906	10	152,030	6	35,273	8
Ohio	\$2,293	7	306,896	6	181,460	5	43,637	7
Oklahoma	\$1,305	11	80,184	4	177,888	9	12,613	9
Texas	\$5,730	2	978,822	1	455,649	1	57,041	3
Virginia	\$2,891	15	99,227	14	39,169	15	4,912	15

(1) Revenues shown in millions

(2) Is not reflective of industry participants under the age of 18 as this population group was excluded from the survey sample

(3) A small number of the horse owner survey respondents did not provide adequate information relating to the breed and use of their horse(s), but did provide economic impact information, such as revenues, expenses, and employee counts. This economic data has been included in our national and state-level results, but cannot be reported by breed and/or use. As a result, reported national and state-level totals for GDP impact and jobs are slightly higher than those reported by breed and use.

Horse Counts:

- Texas, with almost 1 million horses (978,822), has more horses than any other state.
- California and Florida each have over a half-million horses, with 698,345 and 500,124 respectively.
- The 15 Breakout States represent over 51% of the U.S. horse population.

Total Effect on GDP

- The total effect on GDP is a factor of both the number of horses within a state, in conjunction with the number of racetracks and shows. As table 23 illustrates, there is a direct correlation in many states between the rank of number of horses and the total effect on GDP. For instance, Texas and California rank 1 and 2 respectively in the number of horses, and 1 and 2 in the total GDP contribution. While California has fewer horses than Texas, it has significantly more racetracks which generate additional economic impact. Kentucky, Florida, Ohio, New Mexico, Colorado and Wyoming all have essentially the same GDP ranking as horse ranking. States such as Louisiana, New York and Maryland have a greater impact on GDP than each state's comparatively lower horse ranking due in large part to the significant presence of racing in that state.
- The 15 Breakout States represent approximately 37% of the total horse industry U.S. GDP contribution.
- All but two of the Breakout States annually contribute at least \$1 billion to U.S. GDP, with seven states contributing \$2 billion or more.

Industry Participants

- Consistent with total horse count, Texas, Florida and California all have the most industry participants.
- The Breakout States represent 53% of the total U.S. participation in the horse industry.

Total Effect on FTE Employment:

- More jobs are created in California (130,000) from horse industry activity than any other Breakout State.
- The horse industry creates approximately 96,000 jobs in the State of Kentucky, the 4th highest among the Breakout States and approximately 40,000 more jobs than the next highest state (Missouri).
- With the exception of Wyoming, every state in the Breakout sample has at least 20,000 jobs generated by the U.S. horse industry, with seven states having at least 40,000 jobs generated by the horse industry.

State Breakouts are available from the American Horse Council Foundation and include additional information for each of the states included in the comparative table.





Section Ten

**CAPTURING GAMING MACHINE AND ELECTRONIC
WAGERING IN THE ECONOMIC IMPACT ANALYSIS**

As part of the survey process, each racetrack and OTB facility was asked to provide the following key revenue items:

- Wagering revenue from Thoroughbred, Quarter Horse and Standardbred/other breed racing respectively
- Total handle from Thoroughbred, Quarter Horse and Standardbred/other breed racing respectively
- Revenue from admissions, concessions, parking and programs
- "Other" revenue (electronic gaming, electronic wagering and Internet wagering)

The first three items are straightforward and common vernacular to the industry. The fourth, "other revenue," bears additional explanation.

Electronic Gaming Machines

Racetracks were queried about the presence of electronic gaming machines ("alternative gaming") at their tracks. For purposes of this survey, electronic gaming machines were defined as slot machines, video lottery terminals (VLTs), video poker, instant racing, electronic pull-tabs, electronic keno or any other video based electronic gaming machines. Approximately 19% of responding tracks provided data in connection with some form of electronic gaming option.

In the process of analyzing revenue information, it became apparent that some tracks included revenues from electronic gaming (if provided at the track), while others tracks did not, sometimes for reasons of confidentiality. For this reason, it was difficult to determine from survey responses the total amount of revenue realized from sources such as video lottery terminals (VLTs) and slot machines, and provide a reliable

national estimate. Nonetheless, independent pari-mutuel wagering revenue estimates available through industry sources confirmed that participating tracks did include revenue attributable to alternative forms of gaming in the "other" revenue section of their survey. As noted, "other" revenue may include revenues from advance deposit wagering and Internet-based services in addition to alternative gaming.

Of the seven tracks offering electronic gaming machines, four indicated that their tracks received 70% or more of their total revenue from this form of wagering. The average percentage of wagering revenues derived from electronic gaming machines was approximately 58% of total revenues.

The majority of tracks that responded to the survey did not offer alternative gaming, reflecting the relative scarcity of racetrack/casino facilities ("racinos") among the total population of racetracks in 2003.⁽¹⁾ As a result, the sample size for racinos was too small to draw firm conclusions about the use of electronic gaming for the entire industry.

In addition, the survey did not attempt to capture the extent of non-electronic forms of alternative gaming such as card clubs, which in 2003 existed only at racetracks in California, Florida and Minnesota.

In lieu of adequate survey data regarding electronic gaming, published data and citations to Web-based resources are included below. It should be noted that revenues from alternative gaming sources for a particular state may include non-horse facilities such as greyhound tracks or other stand-alone facilities. The figures on the following page should not be added to any economic impact or revenue number expressed elsewhere in this report, but may be used as anecdotal evidence of the size and scope of electronic gaming as a sector of the horse industry.

Footnote:

(1) In 2003, nine states – Arkansas, Delaware, Iowa, Louisiana, New Mexico, New York, Oregon, Rhode Island and West Virginia – had authorized slots/video gaming at pari-mutuel horse racing facilities. New York, however, had not yet installed any gaming machines at the end of 2003 and Rhode Island's were not located at horse racing facilities, leaving only seven states with economic impacts/revenues from alternative gaming.

According to state gaming regulatory agencies, six states showed significant revenues from electronic gaming machines at horse racing facilities.

Table 24 - Gaming Machines at Racetracks - 2003⁽¹⁾

State	Number of Machines	Revenue
Alabama	1,000	\$40,000,000
California	2,000	\$20,000,000
Florida	1,414	\$151,821,234
Illinois	2,391	\$134,610,705
Mississippi	1,775	\$121,000,000
Texas	3,400	\$111,174,400

(1) Information provided by The Jockey Club, the National Thoroughbred Racing Association, Breeders' Cup Limited, and International Gaming and Wagering Business.

In New Mexico, a "before and after" impact of gaming legislation on the horse racing industry reported that within three years of enactment, tax revenues, purses, operating expenses and jobs increased exponentially.

Table 25 - Gaming Machines at New Mexico Horse Tracks

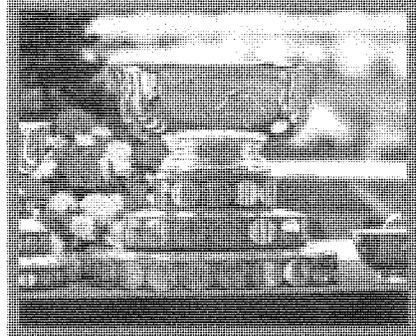
Year	Number of Machines	Revenue
2001	1,000	\$10,000,000
2002	1,500	\$15,000,000
2003	2,000	\$20,000,000
2004	2,500	\$25,000,000
2005	3,000	\$30,000,000

In a 2003, the University of Arizona Racetrack Industry Program conducted a study of the effects of gaming at racetracks on breeding and the racing product. Their finding indicated that the number of breeding stallions and mares, foals born in-state and average yearling sale prices at auction increased substantially in four of five U.S. states surveyed – Delaware, Iowa, New Mexico and West Virginia. Only Louisiana did not see a substantial increase until 2004 when slot machines replaced video poker machines at the horse tracks with a significant, almost 500%, increase in the numbers of machines. The quality of the racing product in terms of average number of horses per race, number of race days and races, and number of allowance and stakes races increased significantly in the same four states, especially when compared to surrounding states.

Electronic Wagering and Internet Wagering

Racetracks and off-track betting facilities were asked to indicate a presence of electronic wagering or advance deposit wagering at their respective facility. For purposes of this survey, electronic wagering was defined as off-track betting technology that allows for wagering by way of cable, phone, wire, or any other technology (excluding Internet) that is remote from the racetrack site. A total of 12 respondents reported the utilization of electronic wagering. These respondents that reported the use of electronic wagering indicated the revenue their respective track realized from this form of wagering ranged from 1% to 90% annually. The average percentage of total revenues derived from electronic wagering was approximately 38%.

Because the survey queried only racetracks and off-track betting facilities, the scope of the electronic or advance deposit wagering industry may be understated. According to a 2002 Bear Stearns report, "The Global Account Wagering Industry: What Treasures Does It Hold?", more than 23 advance deposit wagering industry suppliers (many operating independent of any racetrack) exist in the United States. Additionally, the survey reflects statistics from 2003, when electronic and advance deposit wagering had only begun to show its promise as a pari-mutuel wagering service. According to The Jockey Club and Equibase LLC, an estimated 15.2% of the total wagering on U.S. horse racing in 2003 was derived from telephone and Internet based account wagering. This is a substantial increase from estimates of 6.2% and 10.0% in 2001 and 2002, respectively.



Finally, tracks were asked to indicate the use of the Internet to accept wagers through the racetrack. For purposes of this study, Internet wagering was defined as off-track betting technology that allows for wagering through the Internet or closed-loop online system by way of personal computer or hand-held device or any other technology (excluding phone betting) that is remote from the racetrack site. A total of 19% of the racetrack respondent sample offered some form of Internet wagering. Six of the seven tracks providing Internet wagering reported that the percentage of total revenues collected through Internet wagering was 5% or less.

One track reported that Internet wagering represented 13% of total wagering revenue.

As with electronic (off-track) wagering, surveys of racetrack-operated Internet wagering sites may understate the scope of this growing service sector, which in 2004 was believed to have handled an estimated \$2 billion (13%) in U.S. pari-mutuel wagers.

Additional information on electronic gaming machines, as well as electronic and Internet wagering in the U.S. pari-mutuel industry may be found in the box below.

SELECTED BIBLIOGRAPHY & ADDITIONAL SOURCES

- Carrington Associates. "Analysis of the Data and Preadvanced Education Reform Issues Fetched in the Thoroughbred Racing Industry." Arlington, Mass: Carrington Associates, 2004. Available online at http://www.carringtonassociates.com/industry/carrington_report111004.PDF.
- Fabrizio, Mike; Hancher, Eric, and Aker, James N. "The Global Account Wagering Industry: What Trainers Know & Think?" New York: Bear Stearns, 2002.
- McQuinn, Patricia. "Gaming Machines in North America." *International Gaming & Wagering Business*, September 2004, pp. 44-49.
- NTRA Wagering Systems Task Force. "Declining Prices and Track Circumstances in Thoroughbred Racing: Causes and Solutions." Lexington, Ky: NTRA, 2004.
- Crutcher, Arnette. "Horse Racing in New Mexico: A Study of Economic Impact and the Impact of Legislation Allowing Limited Gaming." Albuquerque, NM: A. Crutcher & Associates, Inc., 2000.
- University of Arizona Equine Industry Program Students and Faculty. "Gaming at Racetracks: The Effects on the Racing Product." Tucson, Arizona: University of Arizona RTIP, 2000. Available online at <http://ag.arizona.edu/rtp/>.
- Auditor: Tritt C. and Brown, Thomas W. "Economic Impact Analysis of Delaware Equine Industry." Dover, DE: University of Delaware, 2004.



Section Eleven

SUMMARY OF PROJECT METHODOLOGY

Introduction

This section provides a summary of the primary data collection approach and methodology used to estimate economic impacts. Full details are included in the Technical Appendix.

The primary data sources of the estimates presented in this report are derived from four broad surveys of horse industry participants—horse owner/industry suppliers, racetracks, off-track betting organizations, and horse show managers/organizers.

Basic Approach

The 2005 study used an electronic-based surveying approach as its primary data collection mechanism (in contrast to the 1996 study, which relied exclusively on the use of hard copy surveys to collect the survey data). The primary mode of data collection was through an Internet Web site for which respondents were provided a pass code. An on-line reporting tool was developed to monitor survey returns, with electronic surveys being tabulated instantaneously once submitted through the Internet. Surveys were collected primarily during the second half of 2004, and thus, respondents were asked to report on calendar year 2003 information, likely having the benefit of a 2003 tax return.

Postcard invitations asking individuals to participate in the study were sent to every individual/organization in the sampling frame over the period of five days. For a portion of the horse owner/industry supplier sample, an invitation (both a first invitation and/or follow-up) was sent via e-mail. Prior to the e-mail distribution, we confirmed that a sampling bias was not being introduced into the survey frame by excluding those horse owner/industry suppliers without an e-mail record. For the horse show, racetrack and OTB segments, phone prompts were also made. Hard copy surveys were also available to members of the sample population(s) without access to a readily available computer.

In general, participation in this study was relatively strong. For example, 27,951 horse owner/industry suppliers participated in the survey process, with 18,648 individuals providing complete and usable surveys. This represents an increase of approximately 400% from the total number of participants in 1996.

Survey Content and Development

Each survey was designed to collect operating and financial information relevant to each of the four industry segments. For example, racetracks were asked to provide itemized revenue and expenses, on- and off-track handle, employees, type and number of races hosted, value of assets, capital expenditures, taxes paid, and other pertinent financial/operational information. The Horse Show Manager/Organizer survey focused on the operational characteristics of the horse show(s) the individual managed/organized. Questions focused on types of shows, number of employees, number of attendees, number of horses involved, taxes paid, as well as an itemized list of revenues and expenses.

The Horse Owner/Industry Supplier survey contained the most questions of the four surveys. This survey focused upon the respondent's primary role in the industry, the activities the owner/supplier engaged in within the industry, the number and type of horses owned, their ownership status (sole versus shared ownership), horse-related capital expenses, number of employees, the primary use of their horses, taxes paid, as well as asking for an itemized list of revenues and expenses pertinent to all of their horse-related activities. This survey also asked a series of demographic questions useful in developing a profile of the horse owner/industry supplier segment.

All four of these hard copy survey tools are included at the conclusion of the Technical Appendix.

Collecting Names for the Survey Sample

An industry-wide list consisting of names for each of the four industry segments was created using a compilation of state and association membership lists. Membership information was gathered from approximately 80 different horse owner/industry supplier organizations and affiliates (a 300% increase over the number of participating organizations in the 1996 study). The Horse Show List was generated from the combined lists of 13 different showing organizations. OTB and Racetrack lists are more static (e.g. the number of racetracks and OTBs remains relatively consistent year-to-year) and were generated from information maintained by the Project Steering Committee and from Equibase.

The list of names and addresses was cleaned and validated. Table 1 presents the number of usable addresses obtained through this process. With the exception of the Horse Owner/Industry Supplier survey, each list was sampled in its entirety.

Table 26 - Number of Usable Addresses Before and After Removal of Duplicates⁽¹⁾

Segment	Before	After
Horse Owner/Industry Supplier	7,000,000	1,000,000
Horse Show	745	4,000
OTB	745	1,000

(1) Six-hundred and two OTB outlets received postcard invitations to participate. The OTB survey sample was later included within the racetrack sample as explained in the Technical Appendix.

Horse Owner Survey

For the Horse Owner/Industry Supplier segment, a stratified random sample was selected from the 747,400 names. Horse owners and industry suppliers were divided into two basic groups: economically motivated horse owner/industry suppliers and recreational owners/participants. We assumed a comprehensive sampling frame for the economically motivated industry participants (i.e. we observed the entire population) and a representative sampling frame for the recreational participants. Our approach is comparable to the structure that was used in the 1996 study.

The individuals for both sampling frames came from the numerous association and commercial lists that were collected for this purpose. The methodology for determining the population for recreational owners is described in additional detail.

There were two issues that needed to be considered in preparing the lists for drawing the sample: the removal of duplicate names and the construction of sampling strata. The first issue was a matter of making a unique database from the various lists collected. The lists contained a number of duplicate names and addresses (i.e. the same individual appears on different lists) and we wanted to ensure that each individual selected received only one copy of the survey. Second, to make meaningful statements for each of the specific breakout groups (breed and state), the overall sample was broken into strata and the sample was selected based on the following categories:

1. Thoroughbred Lists
2. Quarter Horse Lists
3. Other Breed Lists
4. Non-Breed Association Lists
5. Retail/Commercial Lists

The mapping of the individual lists to their specific group and removal of duplicate names is detailed in the Technical Appendix.



As noted above, we assumed that the association lists provided the full population of the economically motivated owners. Given the sampling scheme, we needed to estimate the population of the non-economically motivated or recreational owners. To accomplish this we used assumptions similar to those used in the 1996 study. In particular, we took advantage of the fact that there was an overlap between the association lists and the retail lists. For example, individuals on the American Quarter Horse Association list were also found on the retail lists such as HorseCity.com. We assumed that non-economically motivated owners belonged to the retail lists in the same proportion as economically motivated owners. We allowed this proportion to vary by state. For example, if in one state we observed 25% of the economically motivated owners were also on a retail list, we assumed that the non-economically motivated owners on the retail list represented 25% of the total number of non-economically motivated owners. That is, to determine the relevant population for this group, we would inflate the number of non-economically motivated owners observed on our lists by a factor of four.

The overall survey response data was captured electronically and combined to form our sample data. After a data cleansing and validation process (detailed in the Technical Appendix), the database contained approximately 18,648 usable responses.

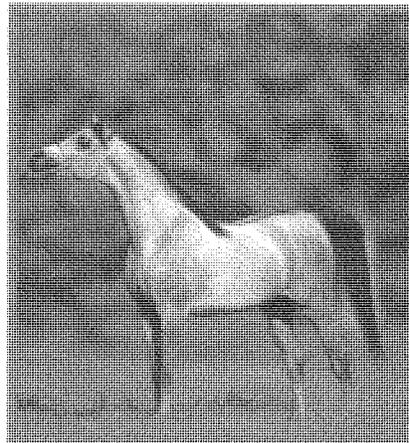
In designing the sampling methodology, we estimated the total number of horse owners and industry suppliers both nationally and by state using the association and membership

lists provided to us by the Project Steering Committee. This process was described above. Based upon the number of responses we received from each state and stratum, we then extrapolated the responses from the survey both to state and national totals.

Horse Show Survey

For the Horse Show Industry segment, we employed an exhaustive sampling approach. In an exhaustive sampling approach, every name/organization included in the database receives a solicitation to participate. This approach could be used in this instance because this segment has a relatively small number of names/organizations when compared to the horse owner/industry supplier sample, and therefore the associated postage, printing and distribution costs were within the project budget.

We identified 4,865 horse showing organizations as the national population of the Horse Showing Industry. This group would include shows such as the AQHA World Championship Show and the Rolex Kentucky Three Day Event and very small local and regional shows. We received 186 survey responses from this group, for a response rate of 3.82%.

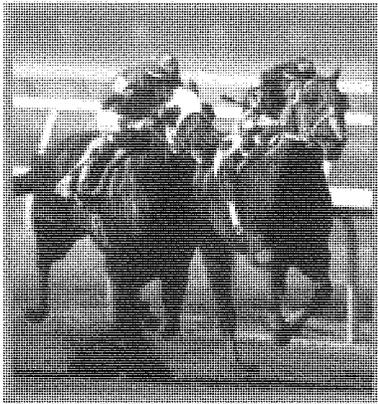


Racetrack and OTB Survey

For the Racetrack Industry segment, we also employed an exhaustive sampling approach. We identified 122 primary racing tracks, both Thoroughbred and non-Thoroughbred, nationally for this study.

Although originally the survey had intended to include off-track betting facilities, we received only six survey responses from these types of facilities. After carefully reviewing data from many different industry sources including Equibase, the Association of Racing Commissioners International, The Jockey Club, the 2004 Trotting and Pacing Guide, state racing summaries, the Thoroughbred Times Racing Almanac and others, it was concluded that the OTB revenue information was being reported in the total handle figures reported by participating racetracks. Therefore, to eliminate the possibility of double-counting, we relied exclusively on the racetrack sample to provide information of the racing segment of the industry. Impacts attributable to OTBs are captured in the indirect and induced effects.

We received 47 raw completed surveys from racetracks; 14 from telephone interviews and 33 from completed electronic surveys. However, some of the telephone surveys were follow-up surveys from the same tracks that had completed electronic surveys, so the final number of completed unique surveys represented 41 tracks, including six responses from non-racing venues such as steeplechase events and state/country fair events. Removing these responses from the surveys resulted in 35 survey responses.



Derivation of Economic Impacts

To calculate the overall economic impact of the horse industry we used the IMPLAN economic impact assessment modeling software. IMPLAN is a widely used input-output model of the U.S. economy to measure aggregate economic effects. In this study IMPLAN was used to calculate the economic impact generated by: 1) operating expenditures and 2) compensation to employees.

The total economic impact of operating expenditures by horse owners, racetracks and shows is defined as the sum of direct, indirect and induced effects. Direct expenditures were classified in various expense categories. For horse owners, for example, we used categories ranging from Feed, Bedding and Grooming supplies to expenditures on Equipment and Structures. These direct expenditures trigger incremental expenditures called indirect effects. As an example, the construction of a new building will require expenditures on building materials. These building materials themselves require additional expenditures on raw materials, and so on. The IMPLAN input-output model produces multipliers for 509 industries to summarize the chain of subsequent expenditures. In order to calculate the direct effects we first determined the industries that are represented within each expense category. The multiplier for each expense category was then calculated as the output-weighted average of the different industry output multipliers. For U.S. total calculations we used national output levels; for the individual state calculations we used state output levels. To estimate the indirect output effects we used the Type I industry output multipliers as calculated by the IMPLAN model. We similarly calculated induced effect multipliers for each expense category.

Induced effects are caused by the additional expenditures received by the employees at each stage in the chain of subsequent expenditures caused by the initial direct expenditures. To estimate the induced output effects we used the Type N industry output multipliers as calculated by the IMPLAN model. To calculate the impact of these expenditures on employment we used the employment multipliers as calculated by the IMPLAN model in a similar fashion.

To estimate the additional output impact caused by the direct employee compensation we calculated a weighted average output multiplier on the distribution of consumption expenditures across all IMPLAN industries. We similarly calculated the employment effect associated with direct employee compensation.

Handling of Taxes

In estimating the total economic impact of the horse industry, we had to account for payments of taxes by horse industry participants. Taxes are deemed a "leakage" when estimating economic impacts, as the dollars paid in taxes do not induce spending or hiring in the private sector. In the Horse Owner/Industry Suppliers segment, employee compensation amounts are reduced by taxes to reflect the fact that employees of the horse industry spend only after-tax wages directly in the economy. As previously stated, profits are ignored for Horse Owner/Industry Suppliers. In the Horse Show and Racing Industry segments, we also reduced employee compensation amounts by estimated tax amounts. Profits from these segments are included, and profits are assumed to be distributed to owners, and then taxed at personal tax rates before being introduced into the economy to stimulate indirect and induced spending and economic activity.

We used a blended federal, state, and local personal income tax rate for each state, based on statistics from the Tax Foundation, and applied these rates when calculating indirect and induced economic activity.



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This study was commissioned by the American Horse Council Foundation with major funding support from American Quarter Horse Association, The Jockey Club, the National Thoroughbred Racing Association and Breeders' Cup Limited, Kennel Club Association, American Paint Horse Association, American Association of Equine Practitioners, U.S. Trotting Association, Thoroughbred Owners and Breeders Association and the U.S. Equestrian Federation.

A Project Steering Committee provided guidance and direction throughout the project. Appreciation is expressed to the Project Steering Committee, which consisted of Don Rick, Executive Vice President & Executive Director, The Jockey Club; Peggy Hendershot, Vice President, Legislative and Corporate Planning, National Thoroughbred Racing Association and Breeders' Cup Limited; Jay Hickey, President, American Horse Council; John Long, Chief Executive Officer, U.S. Equestrian Federation; and Don Treadway, Executive Director of Marketing and Membership Services, American Quarter Horse Association.

Special thanks go to the following individuals: The American Quarter Horse Association, the National Thoroughbred Racing Association and Breeders' Cup Limited, and the United States Equestrian Federation.

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ANIMAL SHELTER FACILITY LIST
Ability to Accept Horses

<u>Representative</u>	<u>Location</u>	<u>Humane Society / Animal Shelter</u>	<u>Aware of Horse Rescue Facility in Area</u>
Leonard Boswell	Des Moines, IA	(515) 262-9203 Horses accepted	YES
Kirsten Gillibrand	Hudson, NY	(518) 828-6044 Horses not accepted	NO
Steve Kagen	Green Bay, WI	(920) 469-3110 Horses not accepted	NO
Tim Holden	St. Clair, PA	(570) 622-7769 Horses not accepted	NO
Joe Baca	San Bernardino, CA	(909) 882-2934 Horses not accepted	NO
Denis Cardoza	Atwater, CA	(209) 725-0273 Horses not accepted	NO
Nicholas Lampson	Stafford, TX	(713) 433-6421 Horses not accepted	NO
Joe Donnelly	Granger, IN	(574) 255-4726 Horses not accepted	NO
Jim Costa	Fresno, CA	(559) 225-5715 Horses not accepted	NO
Timothy Mahoney	Sebring, FL	(863) 655-1522 Horses not accepted	NO
Bob Etheridge	Greenville, NC	(252) 413-7247 Horses not accepted	NO
Michael Rogers	Anniston, AL	(256) 236-1581 Horses not accepted	NO
Steve King	Kiron, IA	(712) 655-2012 Horses not accepted	NO
Virginia Foxx	Clemmons, NC	(336) 721-1303 Horses not accepted	NO
Mike Conaway	Midland, TX	(432) 689-0999 Horses not accepted	YES
Jean Schmidt	Cincinnati, OH Clermont County	(513) 732-8854 Horses not accepted	NO
Adrian Smith	Gering, NE	(308) 635-0922 Horses not accepted	NO
Tim Walberg	Tipton, MI	(517) 263-9111 Horses not accepted	NO

**SUPPLEMENTAL QUESTIONS FOR THE RECORD FOR
MR. GENE BAUR**

**LIVESTOCK, DAIRY, AND POULTRY
SUBCOMMITTEE HEARING
MAY 8, 2007**

Committee on Agriculture Staff

Subcommittee on Livestock, Dairy, and Poultry Staff Director—Chandler Goule
(202) 225-8407

Question Submitted by:

The Honorable Steve King

Legislative Contact—Brent Boydston
(202)225-4426

Mr. Baur you testified that “bulls and boars are manually stimulated by farm workers in order to bring about ejaculation and semen collection. Such behavior could be considered bestiality and a violation of the law if not performed in the name of agricultural production.”

Does Farm Sanctuary support or oppose bestiality?

Farm Sanctuary opposes bestiality.

Do you personally support or oppose bestiality?

I personally oppose bestiality.

Does Farm Sanctuary support or oppose H.R. 1592, Hate Crimes Legislation?

H.R. 1592 is not within Farm Sanctuary’s issue area. We have not analyzed the bill and do not have an official position on this legislation.

Do you personally support or oppose H.R. 1592, Hate Crimes Legislation?

I am not familiar with H.R. 1592 and cannot provide an opinion about the legislation in particular. However, I am personally opposed to hate crimes, cruelty and intolerance.

**SUPPLEMENTAL QUESTIONS FOR THE RECORD TO
MR. WAYNE PACELLE**

**LIVESTOCK, DAIRY, AND POULTRY
SUBCOMMITTEE HEARING
MAY 8, 2007**

Committee on Agriculture Staff

Subcommittee on Livestock, Dairy, and Poultry Staff Director—Chandler Goule
(202) 225-8407

Question Submitted by:

The Honorable Steve King

Legislative Contact—Brent Boydston
(202)225-4426

To Wayne Pacelle:

1. In your reply to my original question regarding your Op-Ed in the Sioux City Journal, you referenced your claim that it is illegal to consume horse flesh in America, saying “I have never made that specific claim in any other piece, as a perusal of any other op-ed or web piece I have authored on the subject would confirm”. You continue by explaining that your original submission was 1200 words but was shorted to 800 words and your statement “it is illegal to consume horse flesh in America—a good law” had its meaning altered. Can you provide me with your original 1200 word editorial?

WP Response: No, but I’d be happy to discuss the issue with you personally if you wish.

2. In your reply to my written question from the May 8, 2007 hearing before the House Livestock, Dairy and Poultry Subcommittee you did not answer my first question, “please cite the statute(s) that forbid(s) consumption of horse flesh in America” and instead said “The Congress made it illegal to use federal dollars to inspect horse meat for human consumption, and several states—California and Texas among them—ban the slaughter of horses for human consumption”, I ask my question again: **please cite the statute(s) that forbid(s) consumption of horse flesh in America.** In the 109th Congress, during debate on the House floor during consideration of H.R. 503, Chairman Peterson said “I don’t believe it is illegal to consume horse meat in the United States. If you want to shoot your horse and butcher it and eat it, you can do it. So people need to understand that, number one.” Do you believe that it is legal or illegal to consume horse flesh in the United States?

WP Response: There is no federal law barring consumption of horse meat in the United States, but a number of states bar slaughtering horses for human consumption – including California and Texas. Illinois is the latest state to enact a law to ban the slaughtering of horses for human consumption. These statutes do not appear to bar individuals from consuming horse meat. I am attaching a chart that provides more specific information about the state laws dealing with horse slaughter.

HORSEMEAT FOR HUMAN CONSUMPTION

Summary of State Prohibitions

May, 2007

Four states (CA, IL, OK, TX) have laws prohibiting horsemeat for human consumption. AZ prohibits horsemeat in state institutions. OH prohibits only certain portions of the horse from use for human consumption. Many states require labeling, posting of signs, consumer notification, and/or prohibitions of mixing with other meats.

STATE	STATUTE
Arizona 3-2129	Horsemeat shall not be served in or sold to state institutions for human consumption.
California Penal Code 598c 598d	It is unlawful for any person to possess, to import into or export from the state, or to sell, buy, give away, hold, or accept any horse with the intent of killing, or having another kill, that horse, if that person knows or should have known that any part of that horse will be used for human consumption. Horsemeat may not be offered for sale for human consumption. No restaurant, cafe, or other public eating place may offer horsemeat for human consumption.
Illinois H.B. 1711	It is unlawful for any person to slaughter a horse if that person knows or should know that any of the horse meat will be used for human consumption and provides that is unlawful for any person to possess, to import into or export from the State, or to sell, buy, give away, hold, or accept any horse meat if that person knows or should know that any of the horse meat will be used for human consumption. Any person who knowingly does so shall be guilty of a Class C misdemeanor.
Ohio 919.11	No person shall sell for human consumption the tongue, diaphragm, heart, esophagus, lips, ears, or glands of a horse, nor shall these parts of a horse be included in a horse meat food product intended for human consumption.
Oklahoma 63 Ok 1-1136 63 Ok 1-1137	It shall be unlawful for any person to sell, offer or exhibit for sale, or have in his possession with intent to sell, any quantity of horsemeat for human consumption. It shall be unlawful for any person to transfer the possession of any horsemeat to any other person when the person so transferring knows, or in the exercise of a reasonable discretion should have known, that the person receiving the horsemeat intends to sell it, offer it for sale, exhibit it for sale, or keep it in his possession with intent to sell it for human consumption.
Texas Agric. Code 149.002 149.003	A person commits an offense if the person: (1) sells, offers for sale, or exhibits for sale horsemeat as food for human consumption; or (2) possesses horsemeat with the intent to sell the horsemeat as food for human consumption. A person commits an offense if the person: (1) transfers horsemeat to a person who intends to sell the horsemeat, offer or exhibit it for sale, or possess it for sale as food for human consumption; and (2) knows or in the exercise of reasonable discretion should know that the person receiving the horsemeat intends to sell the horsemeat, offer or exhibit it for sale, or possess it for sale as food for human consumption.

**SUPPLEMENTAL QUESTIONS FOR THE RECORD FOR
MR. GENE BAUR**

**LIVESTOCK, DAIRY, AND POULTRY
SUBCOMMITTEE HEARING
MAY 8, 2007**

Committee on Agriculture Staff

Subcommittee on Livestock, Dairy, and Poultry Staff Director—Chandler Goule
(202) 225-8407

Question Submitted by:

The Honorable Steve King

Legislative Contact—Brent Boydston
(202)225-4426

Mr. Baur you testified that “bulls and boars are manually stimulated by farm workers in order to bring about ejaculation and semen collection. Such behavior could be considered bestiality and a violation of the law if not performed in the name of agricultural production.”

Does Farm Sanctuary support or oppose bestiality?

Farm Sanctuary opposes bestiality.

Do you personally support or oppose bestiality?

I personally oppose bestiality.

Does Farm Sanctuary support or oppose H.R. 1592, Hate Crimes Legislation?

H.R. 1592 is not within Farm Sanctuary’s issue area. We have not analyzed the bill and do not have an official position on this legislation.

Do you personally support or oppose H.R. 1592, Hate Crimes Legislation?

I am not familiar with H.R. 1592 and cannot provide an opinion about the legislation in particular. However, I am personally opposed to hate crimes, cruelty and intolerance.

**SUPPLEMENTAL QUESTIONS FOR THE RECORD FOR
MR. WAYNE PACHELLE**

**LIVESTOCK, DAIRY, AND POULTRY
SUBCOMMITTEE HEARING
MAY 8, 2007**

Committee on Agriculture Staff

Subcommittee on Livestock, Dairy, and Poultry Staff Director—Chandler Goule
(202) 225-8407

Question Submitted by:

The Honorable Steve King

Legislative Contact—Brent Boydston
(202)225-4426

1) Your piece in the May 10, 2006, edition of the Sioux City Journal states “it is illegal to consume horse flesh in America—a good law.” Yet during the committee hearing on May 8, 2007, you flatly denied making that statement by saying “I don’t believe I ever said that.” Please cite the statute(s) that forbid(s) consumption of horse flesh in the United States.

Response: During the May 8th hearing, I replied to Rep. King on this subject by asking for the source of the quote, since I did not feel comfortable confirming or denying the quote without seeing a citation and its context. I am pleased that he has now provided the original source (rather than the Kingwatch.com web site), which was an op-ed published by the Sioux City Journal on May 10, 2006. As originally submitted to the Sioux City Journal, the piece was nearly 1200 words, and it had to be cut to 800 or so words for publication. The original text I had submitted made reference to the amendments approved in the House and Senate in 2005 -- overwhelmingly by votes of 269-158 in the House and 69-28 in the Senate -- during consideration of the FY 2006 Agriculture Appropriations Act, to ban the use of federal funds for any inspections of horse or horse flesh for human consumption. In the editing of the piece, the line was shortened, and the meaning altered. I have never made that specific claim in any other piece, as a perusal of any other op-ed or web piece I have authored on the subject would confirm. The Congress made it illegal to use federal dollars to inspect horse meat for human consumption, and several states -- California and Texas among them -- ban the slaughter of horses for human consumption.

2) In your prepared testimony to the House Subcommittee on Livestock, Dairy and Poultry on May 8 2007, you state “scientific studies have pointed to the possibility that pigs, whose diet can include ground-up cattle remains, may harbor a porcine form of mad cow disease”. Experts in TSE’s have debunked this myth time and again. What’s your source for such an alarmist statement?

Response (taken from our website, www.hsus.org):

British government researchers proved that pigs are indeed susceptible to infection with bovine spongiform encephalopathy or "mad cow disease" in research published in 1990 in *The Veterinary Record*, the official scientific journal of the British Veterinary Association.¹ In a memorandum to the Veterinary Laboratories Agency of the United Kingdom, one of the researchers explained that the study provided "incontrovertible evidence of the transmissibility of BSE to the pig."²

A number of studies have even suggested a link between pork consumption and Creutzfeldt-Jakob disease, an invariably fatal brain disease affecting humans. A study published in 1985 in the prestigious *American Journal of Epidemiology*,³ concluded that "consumption of pork as well as its processed products (e.g., ham, scrapple) may be considered as risk factors in the development of Creutzfeldt-Jakob disease." The study was co-authored by Dr. D. Carleton Gajdusek, recipient of the Nobel Prize in Medicine for his research on these brain diseases.

Dr. Paul Brown, former medical director for the U.S. Public Health Service, also expressed concern in 1996 that pigs and poultry could be harboring mad cow disease and passing it on to humans. "It's speculation, but I am perfectly serious," Brown told *New Scientist*.⁴

The European Union has followed the recommendations of the World Health Organization⁵ and banned the feeding of slaughterhouse waste and blood to pigs as a preventive measure against mad cow disease, but this practice remains legal and continues in the United States.

The National Pork Producers Council claims that no naturally occurring cases of "mad pig" disease have ever been discovered. The Consumers Union (publisher of *Consumer Reports*), however, has petitioned the federal government to reopen an investigation into a case in which a U.S. Department of Agriculture veterinarian may have found a cluster of suspect pigs in New York ([read the petition](#)).

One reason we may not be detecting the disease in pigs is that it could take up to 16 months after exposure for the animal to develop the disease,² while pigs raised for food in the United States are typically slaughtered at less than 6 months of age.⁶ The British scientists whose 1990 study showed that pigs were susceptible to mad cow disease wrote in an internal memorandum that “it is plausible pigs could be preclinically infected with BSE, but since so few are allowed to reach adulthood this has not been recognized as a clinical disease.”⁷

A 2004 review in the *Journal of Neuroscience* ([full text](#)) goes further and suggests that there may in fact be cases of infected and infectious pigs who are “subclinical,” meaning they don’t display any symptoms and could therefore fly under industry radar.⁸

It is understandable that pork industry representatives would try to downplay the risk. By ignoring the science, though, they are doing a disservice to their producers and their customers. And ignoring something doesn’t make it so. I’d invite the naysayers to take a look at our supporting references:

1. Dawson M, Wells GA, Parker BN, Scott AC. Primary parenteral transmission of bovine spongiform encephalopathy to the pig. *Veterinary Record*. 1990; 127:338-9.
2. Memorandum from Wells GAH to Little TWA. In confidence: parental transmission of BSE to the pig. BSE90/8.29/3.1. August 29, 1990.
3. Davanipour Z, Alter M, Sobel E, Asher DM, Gajdusek DC. A case-control study of Creutzfeldt-Jakob disease: dietary risk factors. *American Journal of Epidemiology*. 1985; 122:443-51.
4. Pearce F. BSE may lurk in pigs and chickens. *New Scientist*. April 6, 1996: 5.
5. World Health Organization Consultation on Public Health Issues Related to Bovine Spongiform Encephalopathy and the Emergence of a New Variant of Creutzfeldt-Jakob Disease. *Morbidity and Mortality Weekly Review*. 1996; 45(14):295-6, 303.

6. U.S. Department of Agriculture. 2001. Part I: reference of swine health and management in the United States, 2000. National Animal Health Monitoring System. Fort Collins, CO. #N338.0801.
7. Memorandum from Dr. H. Pickles Med ISD/3 to Dr. Richardson PD and Mrs. Shorsby MCA. Experimental porcine spongiform encephalopathy. BSE23/1 0058. August 23, 1990.
8. Castilla J, Gutierrez-Adan A, Brun A, et al. Subclinical bovine spongiform encephalopathy infection in transgenic mice expressing porcine prion protein. *Journal of Neuroscience*. 2004; 24:5063-9.

**SUPPLEMENTAL QUESTIONS FOR THE RECORD TO
MR. WAYNE PACHELLE**

**LIVESTOCK, DAIRY, AND POULTRY
SUBCOMMITTEE HEARING
MAY 8, 2007**

Committee on Agriculture Staff

Subcommittee on Livestock, Dairy, and Poultry Staff Director—Chandler Goule
(202) 225-8407

Question Submitted by:

The Honorable Steve King

Legislative Contact—Brent Boydston
(202)225-4426

To Wayne Pachelle:

1. In your reply to my original question regarding your Op-Ed in the Sioux City Journal, you referenced your claim that it is illegal to consume horse flesh in America, saying “I have never made that specific claim in any other piece, as a perusal of any other op-ed or web piece I have authored on the subject would confirm”. You continue by explaining that your original submission was 1200 words but was shorted to 800 words and your statement “it is illegal to consume horse flesh in America—a good law” had its meaning altered. Can you provide me with your original 1200 word editorial?

WP Response: No, but I’d be happy to discuss the issue with you personally if you wish.

2. In your reply to my written question from the May 8, 2007 hearing before the House Livestock, Dairy and Poultry Subcommittee you did not answer my first question, “please cite the statute(s) that forbid(s) consumption of horse flesh in America” and instead said “The Congress made it illegal to use federal dollars to inspect horse meat for human consumption, and several states—California and Texas among them—ban the slaughter of horses for human consumption”, I ask my question again: **please cite the statute(s) that forbid(s) consumption of horse flesh in America.** In the 109th Congress, during debate on the House floor during consideration of H.R. 503, Chairman Peterson said “I don’t believe it is illegal to consume horse meat in the United States. If you want to shoot your horse and butcher it and eat it, you can do it. So people need to understand that, number one.” Do you believe that it is legal or illegal to consume horse flesh in the United States?

WP Response: There is no federal law barring consumption of horse meat in the United States, but a number of states bar slaughtering horses for human consumption – including California and Texas. Illinois is the latest state to enact a law to ban the slaughtering of horses for human consumption. These statutes do not appear to bar individuals from consuming horse meat. I am attaching a chart that provides more specific information about the state laws dealing with horse slaughter.

HORSEMEAT FOR HUMAN CONSUMPTION

Summary of State Prohibitions

May, 2007

Four states (CA, IL, OK, TX) have laws prohibiting horsemeat for human consumption. AZ prohibits horsemeat in state institutions. OH prohibits only certain portions of the horse from use for human consumption. Many states require labeling, posting of signs, consumer notification, and/or prohibitions of mixing with other meats.

STATE	STATUTE
Arizona 3-2129	Horsemeat shall not be served in or sold to state institutions for human consumption.
California Penal Code 598c 598d	It is unlawful for any person to possess, to import into or export from the state, or to sell, buy, give away, hold, or accept any horse with the intent of killing, or having another kill, that horse, if that person knows or should have known that any part of that horse will be used for human consumption. Horsemeat may not be offered for sale for human consumption. No restaurant, cafe, or other public eating place may offer horsemeat for human consumption.
Illinois H.B. 1711	It is unlawful for any person to slaughter a horse if that person knows or should know that any of the horse meat will be used for human consumption and provides that is unlawful for any person to possess, to import into or export from the State, or to sell, buy, give away, hold, or accept any horse meat if that person knows or should know that any of the horse meat will be used for human consumption. Any person who knowingly does so shall be guilty of a Class C misdemeanor.
Ohio 919.11	No person shall sell for human consumption the tongue, diaphragm, heart, esophagus, lips, ears, or glands of a horse, nor shall these parts of a horse be included in a horse meat food product intended for human consumption.
Oklahoma 63 Ok 1-1136 63 Ok 1-1137	It shall be unlawful for any person to sell, offer or exhibit for sale, or have in his possession with intent to sell, any quantity of horsemeat for human consumption. It shall be unlawful for any person to transfer the possession of any horsemeat to any other person when the person so transferring knows, or in the exercise of a reasonable discretion should have known, that the person receiving the horsemeat intends to sell it, offer it for sale, exhibit it for sale, or keep it in his possession with intent to sell it for human consumption.
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