

104TH CONGRESS  
2D SESSION

# H. R. 3795

To amend the Competitive, Special, and Facilities Research Grant Act to provide increased emphasis on competitive grants to promote agricultural research projects regarding precision agriculture and to provide for the dissemination of the results of such research projects.

---

## IN THE HOUSE OF REPRESENTATIVES

JULY 11, 1996

Mr. LEWIS of Kentucky (for himself, Mr. CRAPO, Mr. ROBERTS, Mr. ALLARD, Mr. BARRETT of Nebraska, Mr. EWING, Mr. COMBEST, Mr. LATHAM, Mr. LAHOOD, Mr. SMITH of Michigan, Mr. BAESLER, Mr. PETERSON of Minnesota, Mr. CHAMBLISS, Mr. HOLDEN, Mrs. CHENOWETH, and Mr. PASTOR) introduced the following bill; which was referred to the Committee on Agriculture

---

## A BILL

To amend the Competitive, Special, and Facilities Research Grant Act to provide increased emphasis on competitive grants to promote agricultural research projects regarding precision agriculture and to provide for the dissemination of the results of such research projects.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Precision Agriculture  
3 Research, Education, and Information Dissemination Act  
4 of 1996”.

5 **SEC. 2. EMPHASIS ON COMPETITIVE GRANTS TO PROMOTE**  
6 **PRECISION AGRICULTURE.**

7 (a) PROMOTION OF PRECISION AGRICULTURE.—Sub-  
8 section (k) of the Competitive, Special, and Facilities Re-  
9 search Grant Act (section 2 of Public Law 89–106; 7  
10 U.S.C. 450i) is amended to read as follows:

11 “(k) EMPHASIS ON PRECISION AGRICULTURE.—

12 “(1) DEFINITIONS.—For purposes of this sec-  
13 tion:

14 “(A) PRECISION AGRICULTURE.—The term  
15 ‘precision agriculture’ means an integrated  
16 information- and production-based farming sys-  
17 tem that is designed to increase long-term, site  
18 specific and whole farm production efficiencies,  
19 productivity, and profitability while minimizing  
20 unintended impacts on wildlife and the environ-  
21 ment by—

22 “(i) combining agricultural sciences,  
23 agricultural inputs and practices, agro-  
24 nomic production databases, and precision  
25 agriculture technologies to efficiently man-  
26 age agronomic systems;

1           “(ii) gathering on-farm information  
2           pertaining to the variation and interaction  
3           of site-specific spatial and temporal factors  
4           affecting crop production;

5           “(iii) integrating such information  
6           with appropriate data derived from remote  
7           sensing and other precision agriculture  
8           technologies in a timely manner in order to  
9           facilitate on-farm decisionmaking; and

10          “(iv) using such information to pre-  
11          scribe and deliver site-specific application  
12          of agricultural inputs and management  
13          practices in agricultural production sys-  
14          tems.

15          “(B) PRECISION AGRICULTURE TECH-  
16          NOLOGIES.—The term ‘precision agriculture  
17          technologies’ includes—

18               “(i) instrumentation and techniques  
19               ranging from sophisticated sensors and  
20               software systems to manual sampling and  
21               data collection tools that measure, record,  
22               and manage spatial and temporal data;

23               “(ii) technologies for searching out  
24               and assembling information necessary for

1 sound agricultural production decision  
2 making;

3 “(iii) open systems technologies for  
4 data networking and processing that  
5 produce valued systems for farm manage-  
6 ment decisionmaking, including high band-  
7 width networks, distributed processing,  
8 spatial databasing, object technology, glob-  
9 al positioning systems, data modeling, high  
10 performance image processing, high resolu-  
11 tion satellite imagery, digital  
12 orthophotogrammetry simulation, geo-  
13 graphic information systems, computer  
14 aided design, and digital cartography; and

15 “(iv) machines that deliver informa-  
16 tion based management practices, includ-  
17 ing global positioning satellites, digital  
18 field mapping, on-the-go yield monitoring,  
19 automated pest scouting, and site-specific  
20 agricultural input application to accom-  
21 plish the objectives of precision agriculture.

22 “(C) ADVISORY BOARD.—The term ‘advi-  
23 sory board’ means the National Agricultural  
24 Research, Extension, Education, and Econom-  
25 ics Advisory Board established under section

1 1408 of the National Agricultural Research,  
2 Extension, and Teaching Policy Act of 1977 (7  
3 U.S.C. 3123).

4 “(D) AGRICULTURAL INPUTS.—The term  
5 ‘agricultural inputs’ includes all farm manage-  
6 ment, agronomic, and field applied agricultural  
7 production inputs, such as machinery, labor,  
8 time, fuel, irrigation water, commercial nutri-  
9 ents, livestock waste, crop protection chemicals,  
10 agronomic data and information, application  
11 and management services, seed, and other in-  
12 puts used in agriculture production.

13 “(E) SYSTEMS RESEARCH.—The term ‘sys-  
14 tems research’ means an integrated, coordi-  
15 nated, and iterative investigative process, which  
16 considers the multiple interacting components  
17 and aspects of precision agriculture systems, in-  
18 cluding synthesis of new knowledge regarding  
19 the physical-chemical-biological processes and  
20 complex interactions with cropping and natural  
21 resource systems, precision agriculture tech-  
22 nologies development and implementation, data  
23 and information collection and interpretation,  
24 production scale planning, production-scale im-

1           plementation, and farm production efficiencies,  
2           productivity, and profitability.

3           “(2) EMPHASIS ON RESEARCH, EDUCATION,  
4           AND INFORMATION DISSEMINATION GRANTS.—The  
5           Secretary of Agriculture, in collaboration with the  
6           advisory board, shall ensure that research, edu-  
7           cation, and information dissemination grants made  
8           under subsections (b) are, where appropriate, con-  
9           sistent with the development and promotion of preci-  
10          sion agriculture. Research, education, and informa-  
11          tion dissemination projects supported by such grants  
12          and designed to develop and demonstrate precision  
13          agriculture shall address one or more of the follow-  
14          ing:

15                 “(A) The study and promotion of compo-  
16                 nents of precision agriculture technologies using  
17                 a systems research approach that would in-  
18                 crease long-term, site-specified and whole farm  
19                 production efficiencies, productivity, profit-  
20                 ability.

21                 “(B) The improvement in the understand-  
22                 ing of agronomic systems, including, soil, water,  
23                 land cover, and meteorological variability.

24                 “(C) The development, demonstration, and  
25                 dissemination of information regarding preci-

1           sion agriculture technologies and systems into  
2           an integrated program.

3           “(D) The promotion of systems research  
4           and education projects focusing on the integra-  
5           tion of the multiple aspects of precision agri-  
6           culture, including development, production-scale  
7           implementation, and farm production effi-  
8           ciencies, productivity, and profitability.

9           “(E) The education of agricultural produc-  
10          ers and consumers regarding the benefits of  
11          precision agriculture as it relates to increased  
12          long-term farm production efficiencies, produc-  
13          tivity, profitability, as well as the maintenance  
14          of the environment and improvements in inter-  
15          national trade.

16          “(F) The provision of training and edu-  
17          cational programs for State cooperative exten-  
18          sion services agents, agricultural producers, ag-  
19          ricultural input machinery, product, and service  
20          providers, certified crop advisers and other pro-  
21          fessionals involved in the agricultural produc-  
22          tion and transfer of integrated precision agri-  
23          culture technology.

24          “(3) PRIORITIES FOR RESEARCH, EDUCATION,  
25          AND INFORMATION DISSEMINATION GRANTS.—In

1 making grants to eligible entities under subsection  
2 (b) regarding precision agriculture, the Secretary, in  
3 collaboration with the advisory board, shall give pri-  
4 ority to research, education, and information dis-  
5 semination projects that are designed to accomplish  
6 the following:

7 “(A) The use of precision agriculture tech-  
8 nologies and a systems research approach to in-  
9 crease long-term site-specific and whole farm  
10 production efficiencies, productivity, profit-  
11 ability.

12 “(B) The integration of research, edu-  
13 cation, and information dissemination compo-  
14 nents in a practical and readily available man-  
15 ner so that the findings of the project will be  
16 made readily usable by farmers.

17 “(C) The promotion of the efficient use of  
18 agricultural inputs, rather than the uniform re-  
19 duction in the use of agricultural inputs.

20 “(D) The maximization of the involvement  
21 and cooperation of precision agriculture produc-  
22 ers, certified crop advisers, State cooperative  
23 extension services agents, and agricultural input  
24 machinery, product and service providers in  
25 precision agriculture systems research projects

1 involving on-farm research, education, and in-  
2 formation dissemination of precision agri-  
3 culture.

4 “(E) The cooperation among farms that  
5 are managed using precision agriculture farm  
6 production practices, nonprofit organizations,  
7 agribusiness, agricultural input machinery,  
8 product, and service providers, land-grant col-  
9 leges and universities, the State cooperative ex-  
10 tension services, and Government agencies (in-  
11 cluding National laboratories).

12 “(F) The benefits of precision agriculture  
13 in relationship to global food production, reduc-  
14 ing world hunger, world population trends, and  
15 efforts to maintain and enhance the environ-  
16 ment;

17 “(G) The diversity of United States agri-  
18 cultural production, including production on  
19 family owned and operated farms, large acreage  
20 farms, small acreage farms, and mixed crop,  
21 specialty crop, commodity crop, and livestock  
22 operations.

23 “(H) The maximization of collaboration  
24 with multiple agencies and other partners that  
25 include leveraging of funds and resources.

1           “(4) EDUCATION AND INFORMATION DISSEMI-  
2           NATION.—

3                   “(A) RESERVATION OF FUNDS FOR  
4           PROJECTS.—Of the funds allocated for competi-  
5           tive research grants under subsection (b) relat-  
6           ed to precision agriculture, the Secretary shall  
7           reserve a portion of such funds for education  
8           and information dissemination projects regard-  
9           ing precision agriculture.

10                   “(B) COMPLIANCE WITH PRIORITIES FOR  
11           INFORMATION DISSEMINATION.—In the dissemi-  
12           nation of information derived from research  
13           projects regarding precision agriculture that are  
14           supported by grants made under subsection (b),  
15           the Secretary shall ensure that both employees  
16           of the Department of Agriculture and grant re-  
17           cipients comply with the priorities specified in  
18           paragraph (3).

19           “(5) PRECISION AGRICULTURE PARTNER-  
20           SHIPS.—

21                   “(A) ESTABLISHMENT.—For the purposes  
22           of this section, the Secretary, in collaboration  
23           with the advisory board, shall encourage the es-  
24           tablishment of appropriate multi-state and na-  
25           tional partnerships or consortia between—

1           “(i) land-grant colleges and univer-  
2           sities, State Agricultural Experiment Sta-  
3           tions, State cooperative extension services,  
4           other colleges and universities with demon-  
5           strable expertise regarding precision agri-  
6           culture, agencies of the Department of Ag-  
7           riculture, National laboratories, agri-  
8           businesses, agricultural equipment and  
9           input manufacturers and retailers, certified  
10          crop advisers, commodity organizations,  
11          other Federal or State government entities  
12          and agencies, and non-agricultural indus-  
13          tries and nonprofit organizations with de-  
14          monstrable expertise regarding precision  
15          agriculture; and

16           “(ii) the persons and entities de-  
17          scribed in clause (i) and agricultural pro-  
18          ducers and other land managers.

19           “(B) PARTNERSHIP BETWEEN NATIONAL  
20          LABORATORIES AND DEPARTMENT OF AGRI-  
21          CULTURE.—The partnerships established pursu-  
22          ant to this paragraph shall include the partner-  
23          ship entered into (before the date of the enact-  
24          ment of this paragraph) by the Secretary of  
25          Energy, on behalf of the National laboratories,

1 and the Secretary of Agriculture to promote co-  
2 operation and coordination between the Na-  
3 tional laboratories and agencies of the Depart-  
4 ment of Agriculture in the areas of systems re-  
5 search, technology research and development,  
6 and the transfer, utilization, and private-sector  
7 commercialization of technology.

8 “(C) ROLE OF PARTNERSHIPS.—Partner-  
9 ships described in subparagraphs (A) and (B)  
10 shall be eligible grantees for conducting systems  
11 research (including on-farm research) regarding  
12 precision agriculture and precision agriculture  
13 technologies.

14 “(6) SPECIAL ASPECTS OF RESEARCH  
15 GRANTS.—As part of a research project regarding  
16 precision agriculture that is funded under subsection  
17 (b), the grant recipient shall agree to perform the  
18 following, to the extent practicable:

19 “(A) Study precision agriculture produc-  
20 tion systems that are located in areas that pos-  
21 sess diverse crop, soil, climate, and physical  
22 characteristics.

23 “(B) Study farms that are or have been  
24 managed using precision agriculture farm pro-  
25 duction practices that rely on the efficient use

1 of agricultural inputs and precision agriculture  
2 technologies to increase farm production effi-  
3 ciency, productivity, and profitability.

4 “(C) Conduct demonstration projects on  
5 farms that will be managed using precision ag-  
6 riculture.

7 “(D) Take advantage of the experience and  
8 expertise of agricultural producers through  
9 their direct participation and leadership in  
10 projects.

11 “(E) Utilize advanced access and commu-  
12 nications technologies to transfer practical, reli-  
13 able, and timely information to agricultural pro-  
14 ducers concerning precision agriculture prac-  
15 tices, technologies, and systems.

16 “(F) Promote partnerships among produc-  
17 ers, nonprofit organizations, agribusinesses, ag-  
18 ricultural input machinery, product, and service  
19 providers, colleges and universities, the State  
20 cooperative extension services, and Government  
21 agencies (including National laboratories).”.

22 (b) REPORTING REQUIREMENTS.—Subsection (l) of  
23 the Competitive, Special, and Facilities Research Grant  
24 Act (section 2 of Public Law 89–106; 7 U.S.C. 450i) is  
25 amended to read as follows:

1       “(1) REPORTING REQUIREMENTS OF GRANT RECIPI-  
2   ENTS.—In addition to the record keeping responsibilities  
3   of recipients of assistance under this section, as prescribed  
4   by the Secretary under subsection (f), the Secretary shall  
5   prescribe regulations to require grant recipients to submit  
6   to the Secretary periodic reports regarding the research,  
7   education, and information dissemination activities sup-  
8   ported with such assistance so as to enhance the useful-  
9   ness of the monitoring and evaluation system developed  
10  by the Secretary under section 1413A(b) of the National  
11  Agricultural Research, Extension, and Teaching Policy  
12  Act of 1977 (7 U.S.C. 3129(b)).”.

13       (c) ENTITIES ELIGIBLE FOR GRANTS.—Subsection  
14  (b)(1) of the Competitive, Special, and Facilities Research  
15  Grant Act (section 2 of Public Law 89–106; 7 U.S.C.  
16  450i) is amended—

17           (1) by inserting after “Federal agencies” the  
18       following: “(including National laboratories as de-  
19       fined in section 12(d)(2) of the Stevenson-Wydler  
20       Technology Innovation Act of 1980 (15 U.S.C.  
21       3710a(d)(2)))”; and

22           (2) by inserting after “corporations” the follow-  
23       ing: “(including agricultural input machinery, prod-  
24       uct, and service providers)”.

1 (d) PRECISION AGRICULTURE RESEARCH, EXTEN-  
2 SION, AND EDUCATION, UNDER FUND FOR RURAL AMER-  
3 ICA.—Section 793(c)(2)(A) of the Federal Agriculture Im-  
4 provement and Reform Act of 1996 (Public Law 104–127;  
5 7 U.S.C. 2204f(c)(2)(A)) is amended—

6 (1) by striking “and” at the end of clause (vii);

7 (2) by striking the period at the end of clause  
8 (viii) and inserting “; and”; and

9 (3) by inserting after clause (viii) the following  
10 new clause:

11 “(ix) develop and promote precision  
12 agriculture and precision agriculture tech-  
13 nologies using a systems research ap-  
14 proach, as such terms are defined in sub-  
15 section (k)(1) of the Competitive, Special,  
16 and Facilities Research Grant Act (section  
17 2 of Public Law 89–106; 7 U.S.C. 450i).”.

18 (e) TECHNICAL AMENDMENT.—Subsection (b)(9)(A)  
19 of the Competitive, Special, and Facilities Research Grant  
20 Act (section 2 of Public Law 89–106; 7 U.S.C. 450i) is  
21 amended by striking “subsection (j)” and inserting “sub-  
22 section (k)”.

○