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U.S. GOVERNMENT
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106TH CONGRESS
2D SESSION

S. 1066

AN ACT

To amend the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage the use of and research into agricultural best practices to improve the environment, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Carbon Cycle and Agricultural Best Practices Research Act''.

SEC. 2. FINDINGS.

Congress finds that—

(1) agricultural producers in the United States—

(A) have, in good faith, participated in mandatory and voluntary conservation programs, the successes of which are unseen by the general public, to preserve natural resources; and

(B) have a personal stake in ensuring that the air, water, and soil of the United States are productive since agricultural productivity directly affects—

(i) the economic success of agricultural producers; and

(ii) the production of food and fiber for developing and developed nations;

(2) in addition to providing food and fiber, agriculture serves an environmental role by providing benefits to air, soil, and water through agricultural best practices;

(3) agricultural best practices include the more efficient use of agriculture inputs and equipment;

(4)(A) agricultural best practices accentuate the carbon cycle by increasing the conversion of carbon

dioxide from the air into plants that produce grain and forage;

(B) at the end of the growing season, plant material decomposes, adding carbon to soil;

(C) carbon can persist in soil for hundreds and even thousands of years; and

(D) through conservation practices, the additional carbon in soil results in multiple environmental benefits, erosion reduction, moisture retention, water quality improvements, and increased crop yields;

(5) according to the Climate Monitoring and Diagnostics Laboratory of the National Oceanic and Atmospheric Administration, North American soils, crops, rangelands, and forests absorbed an equivalent quantity of carbon dioxide emitted from fossil fuel combustion as part of the natural carbon cycle from 1988 through 1992;

(6) the estimated quantity of carbon stored in world soils is more than twice the carbon in living vegetation or in the atmosphere;

(7) agricultural best practices can increase the quantity of carbon stored in farm soils, crops, and rangeland;

(8) by increasing use of voluntary agricultural best practices, it is possible to offset carbon dioxide emissions, thereby benefiting the environment, without implementing a United Nations-sponsored climate change protocol or treaty;

(9) Federal research is needed to identify—

(A) the agricultural best practices that supplement the natural carbon cycle; and

(B) Federal conservation programs that can be altered to increase the environmental benefits provided by the natural carbon cycle; and

(10) increasing soil organic carbon is widely recognized as a means of increasing agricultural production and meeting the growing domestic and international food consumption needs with a positive environmental benefit.

SEC. 3. AGRICULTURAL BEST PRACTICES.

Title XIV of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3101 et seq.) is amended by adding at the end the following:

"Subtitle N—Carbon Cycle and Agricultural Best Practices

"SEC. 1490. DEFINITIONS.

''In this subtitle:

"(1) AGRICULTURAL BEST PRACTICE.—The term 'agricultural best practice' means a voluntary practice used by 1 or more agricultural producers to manage a farm or ranch that has a beneficial or minimal impact on the environment, including—

"(A) crop residue management;

"(B) soil erosion management;

"(C) nutrient management;

"(D) remote sensing;

"(E) precision agriculture;

"(F) integrated pest management;

"(G) animal waste management;

"(H) cover crop management;

"(I) water quality and utilization management;

"(J) grazing and range management;

"(K) wetland management;

"(L) buffer strip use; and

"(M) tree planting.

"(2) CONSERVATION PROGRAM.—The term 'conservation program' means a program established under—

"(A) subtitle D of title XII of the Food Security Act of 1985 (16 U.S.C. 3830 et seq.);

''(B) section 401 or 402 of the Agricultural Credit Act of 1978 (16 U.S.C. 2201, 2202);

''(C) section 3 or 8 of the Watershed Protection and Flood Prevention Act (16 U.S.C. 1003, 1006a); or

''(D) any other provision of law that authorizes the Secretary to make payments or provide other assistance to agricultural producers to promote conservation.

''SEC. 1491. CARBON CYCLE AND AGRICULTURAL BEST PRACTICES RESEARCH.

''(a) IN GENERAL.—The Department of Agriculture shall be the lead agency with respect to any agricultural soil carbon research conducted by the Federal Government.

''(b) RESEARCH SERVICES.—

''(1) AGRICULTURAL RESEARCH SERVICE.—The Secretary, acting through the Agricultural Research Service, shall collaborate with other Federal agencies to develop data and conduct research addressing soil carbon balance and storage, making special efforts to—

''(A) determine the effects of management and conservation on soil organic carbon storage in cropland and grazing land;

''(B) evaluate the long-term impact of tillage and residue management systems on the accumulation of organic carbon;

''(C) study the transfer of organic carbon to soil; and

''(D) study carbon storage of commodities.

''(2) NATURAL RESOURCES CONSERVATION SERVICE.—

''(A) RESEARCH MISSIONS.—The research missions of the Secretary, acting through the Natural Resources Conservation Service, include—

''(i) the development of a soil carbon database to—

''(I) provide online access to information about soil carbon potential in a format that facilitates the use of the database in making land management decisions; and

''(II) allow additional and more refined data to be linked to similar

databases containing information on forests and rangeland;

''(ii) the conversion to an electronic format and linkage to the national soil database described in clause (i) of county-level soil surveys and State-level soil maps;

''(iii) updating of State-level soil maps;

''(iv) the linkage, for information purposes only, of soil information to other soil and land use databases; and

''(v) the completion of evaluations, such as field validation and calibration, of modeling, remote sensing, and statistical inventory approaches to carbon stock assessments related to land management practices and agronomic systems at the field, regional, and national levels.

''(B) UNIT OF INFORMATION.—The Secretary, acting through the Natural Resources Conservation Service, shall disseminate a national basic unit of information for an assessment of the carbon storage potential of soils in the United States.

''(3) ECONOMIC RESEARCH SERVICE REPORT.—Not later than 1 year after the date of enactment of this section, the Secretary, acting through the Economic Research Service, shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate a report that analyzes the impact of the financial health of the farm economy of the United States under the Kyoto Protocol and other international agreements under the Framework Convention on Climate Change—

''(A) with and without market mechanisms (including whether the mechanisms are permits for emissions and whether the permits are issued by allocation, auction, or otherwise);

''(B) with and without the participation of developing countries;

''(C) with and without carbon sinks; and

''(D) with respect to the imposition of traditional command and control measures.

''(4) COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE.—

''(A) IN GENERAL.—The Cooperative State Research, Education, and Extension Service shall, through land-grant colleges and univer-

sities, develop a comprehensive national carbon cycle and agricultural best practices research agenda.

''(B) RESEARCH MISSIONS.—The research missions of the Secretary, acting through the Cooperative State Research, Education, and Extension Service, include the provision, through land-grant colleges and universities, of research opportunities to improve the scientific basis for using land management practices to increase soil carbon sequestration needed for producers, including research concerning innovative methods of using biotechnology and nanotechnology.

''(C) ACTIVITIES.—The Secretary, acting through the Cooperative State Research, Education, and Extension Service, shall—

''(i) identify, develop, and evaluate agricultural best practices using partnerships comprised of Federal, State, or private entities and the Department of Agriculture, including the Agricultural Research Service;

''(ii) develop necessary computer models to predict and assess the carbon cycle,

as well as other priorities requested by the Secretary and the heads of other Federal agencies;

''(iii) estimate and develop mechanisms to measure changes in carbon levels resulting from voluntary Federal conservation programs, private and Federal forests, and other land uses;

''(iv) develop outreach programs, in coordination with cooperative extension services, to share information on carbon cycles and agricultural best practices that is useful to agricultural producers; and

''(v) research new technologies that may increase carbon cycle effectiveness, such as biotechnology and nanotechnology.

''(c) CONSORTIA.—

''(1) IN GENERAL.—The Secretary may designate not more than 2 carbon cycle and agricultural best practices research consortia to carry out this section.

''(2) SELECTION.—The consortia designated by the Secretary shall be selected in a competitive manner by the Cooperative State Research, Education, and Extension Service.

''(3) CONSORTIA PARTICIPANTS.—The participants in the consortia may include—

''(A) land-grant colleges and universities;

''(B) State geological surveys;

''(C) research centers of the National Aeronautics and Space Administration;

''(D) other Federal agencies;

''(E) representatives of agricultural businesses and organizations; and

''(F) representatives of the private sector.

''(4) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this subsection $5,000,000 for each of fiscal years 2001 through 2005.

''(d) PROMOTION OF AGRICULTURAL BEST PRACTICES.—The Secretary shall promote voluntary agricultural best practices that take into account soil organic matter dynamics, carbon cycle, ecology, and soil organisms that will lead to the more effective use of soil resources to—

''(1) enhance the carbon cycle;

''(2) improve soil quality;

''(3) increase the use of renewable resources; and

''(4) overcome unfavorable physical soil properties.

''(e) ANNUAL REPORT.—The Secretary shall submit to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate an annual report that describes programs that are or will be conducted by the Secretary, through land-grant colleges and universities, to provide to agricultural producers the results of research conducted on agricultural best practices, including the results of—

''(1) research;

''(2) future research plans;

''(3) consultations with appropriate scientific organizations;

''(4) proposed extension outreach activities; and

''(5) findings of scientific peer review under section 103(d)(1) of the Agricultural Research, Extension, and Education Reform Act of 1998 (7 U.S.C. 7613(d)(1)).

''SEC. 1492. CARBON CYCLE REMOTE SENSING TECHNOLOGY.

''(a) IN GENERAL.—The Secretary, in cooperation with the Administrator of the National Aeronautics and

Space Administration, shall develop a carbon cycle remote sensing technology program—

''(1) to provide, on a near-continual basis, a real-time and comprehensive view of vegetation conditions; and

''(2) to assess and model agricultural carbon sequestration.

''(b) USE OF CENTERS.—The Administrator of the National Aeronautics and Space Administration shall use regional earth science application centers to conduct research under this section.

''(c) RESEARCHED AREAS.—The areas that shall be the subjects of research conducted under this section include—

''(1) the mapping of carbon-sequestering land use and land cover;

''(2) the monitoring of changes in land cover and management;

''(3) new systems for the remote sensing of soil carbon; and

''(4) regional-scale carbon sequestration estimation.

''(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $5,000,000 for each of fiscal years 2001 through 2005.

"SEC. 1493. RESEARCH INCENTIVE PAYMENTS.

''(a) IN GENERAL.—In addition to payments that are made by the Secretary to producers under conservation programs, the Secretary may, subject to appropriations authorized in subsection (c), offer research incentive payments to producers that are participating in the conservation programs to compensate the producers for allowing researchers to scientifically analyze, and collect information with respect to, agricultural best practices that are carried out by the producers as part of conservation projects and activities that are funded, in whole or in part, by the Federal Government.

''(b) CONFIDENTIALITY.—

''(1) IN GENERAL.—Except as provided in paragraph (2), any information submitted to the Secretary under subsection (a) shall be confidential and may be disclosed only if required under court order.

''(2) RELEASE OF INFORMATION IN AGGREGATE FORM.—The Secretary may release or make public information described in paragraph (1) in an aggregate or summary form that does not directly disclose the identity, business transactions, or trade secrets of any person that submits the information.

''(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as are nec-

essary to carry out this section for each of fiscal years 2001 through 2005.

"SEC. 1494. ASSISTANCE FOR AGRICULTURAL BEST PRACTICES AND NATURAL RESOURCE MANAGEMENT PLANS UNDER CONSERVATION PROGRAMS.

''(a) IN GENERAL.—In addition to assistance that is provided by the Secretary to producers under conservation programs, the Secretary, on request of the producers, shall provide, subject to appropriations authorized in subsection (c), education through extension activities and technical assistance to producers that are participating in the conservation programs to assist the producers in planning, designing, and installing agricultural best practices and natural resource management plans established under the conservation programs.

''(b) INFORMATION TO DEVELOPING NATIONS.—The Secretary shall disseminate to developing nations information on agricultural best practices and natural resource management plans that—

''(1) provide crucial agricultural benefits for soil and water quality; and

''(2) increase production.

''(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as are nec-

essary to carry out this section for each of fiscal years 2001 through 2005.

"SEC. 1495. TRACE GAS NETWORK SYSTEM.

"(a) ESTABLISHMENT.—The Secretary, in conjunction with the Administrator of the National Oceanic and Atmospheric Administration, may establish a nationwide trace gas network system to research the flux of carbon between soil, air, and water.

"(b) PURPOSE OF SYSTEM.—The trace gas network system shall focus on locating appropriate research equipment on or near agricultural best practices that are—

"(1) undertaken voluntarily;

"(2) undertaken through a conservation program of the Department of Agriculture;

"(3) implemented as part of a program or activity of the Department of Agriculture; or

"(4) identified by the Administrator of the National Oceanic and Atmospheric Administration.

"(c) MEMORANDUM OF UNDERSTANDING.—The Secretary may enter into a memorandum of understanding with the Administrator of the National Oceanic and Atmospheric Administration to ensure that research goals of programs established by the Federal Government relating to trace gas research are met through the trace gas network system.

"(d) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this section $10,000,000.".

Passed the Senate October 17 (legislative day, September 22), 2000.

Attest:

Secretary.

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