

2018 President's Budget
National Institute of Food and Agriculture

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NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Purpose Statement

Section 7511(f)(2) of the Food, Conservation, and Energy Act of 2008 amends the Department of Agriculture Reorganization Act of 1994 (7 U.S.C. 6971) by establishing an agency to be known as the National Institute of Food and Agriculture (NIFA). On October 1, 2009, all authorities administered by the Administrator of the Cooperative State Research, Education, and Extension Service were transferred to the Director of the NIFA. NIFA continues to invest in and advance agricultural research, education, and extension to solve societal challenges.

Research and Education Activities

Research and Education programs administered by NIFA are the U.S. Department of Agriculture's principal entree to the university system of the United States for the purpose of conducting agricultural research and education programs as authorized by the Hatch Act of 1887, as amended (7 U.S.C. 361a-361i); the McIntire-Stennis Cooperative Forestry Act of 1962, as amended (16 U.S.C. 582a et seq.) (McIntire-Stennis Act); the Competitive, Special, and Facilities Research Grant Act, as amended (7 U.S.C. 450i) (the 1965 Act); the National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended (7 U.S.C. 3101 et seq.) (NARETPA); the Small Business Innovation Development Act of 1982 (Pub. L. 97-219, as amended (15 U.S.C. 638), Section 630 of the Act making appropriations for Agriculture, Rural Development and Related Agencies' programs for fiscal year ending September 30, 1987, and for other purposes, as made applicable by Section 101(a) of Pub. L. 99-591, 100 Stat. 3341, National Defense Authorization Act for Fiscal Year 2012 (Pub. L. 112-81); the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note) (the 1994 Act); the Agricultural Research, Extension, and Education Reform Act of 1998 (Pub. L. 105-185), as amended (AREERA); the Food, Agriculture, Conservation, and Trade Act of 1990 (Pub. L. 101-624) (FACT Act), the Farm Security and Rural Investment Act of 2002 (Pub. L. 107-171) (FSRIA), the Food, Conservation, and Energy Act of 2008 (Pub. L. 110-246) (FCEA), and the Agricultural Act of 2014 (2014 Farm Bill, Public Law 113-79). Through these authorities, the U.S. Department of Agriculture (USDA) participates with State and other cooperators to encourage and assist the State institutions in the conduct of agricultural research and education through the State Agricultural Experiment Stations (SAES) of the 50 States and the territories; by approved Schools of Forestry; the 1890 Land-Grant Institutions and Tuskegee University, West Virginia State University, and Central State University (7 U.S.C. 321 et seq., as amended by Pub. L. 113-79); 1994 Land-Grant Institutions (7 U.S.C. 301 note, as amended by Pub. L. 113-79); by Colleges of Veterinary Medicine; and other eligible institutions. The appropriated funds provide Federal support for research and education programs at these institutions.

The State institutions conduct research on the problems continuously encountered in the development of a permanent and sustainable agriculture and forestry system, and in the improvement of the economic and social welfare of rural and urban families. Because of differences in climate, soil, market outlets, and other local conditions, each State has distinct problems in the production and marketing of crops and livestock. Farmers, foresters, and rural people in the individual States naturally look to their SAES, universities, and colleges for solutions to the State and local problems and request services to help meet changing conditions.

The Department's higher education mission is carried out in strong alliance with States, universities, and the private sector. NARETPA designated USDA as the lead Federal agency for higher education in the food and agricultural sciences. Through NIFA, USDA has implemented that charge with a broad array of initiatives to link teaching, research, and extension; to improve the training of food and agricultural scientists and professionals; and to strengthen the quality of education programs throughout the nation.

Appropriations and additional provisions for research and education activities are authorized under the following Acts:

1. Hatch Act - Payments to agricultural experiment stations under the Hatch Act of 1887 as amended (7 U.S.C. 361a-361i), the Agricultural Experiment Stations Act of August 11, 1955 (Pub. L. 84-352); the Education Amendments of 1972 (Pub. L. 92-318); District of Columbia Public Postsecondary Education Reorganization Act (Pub. L. 93-471); NARETPA (Pub. L. 95-113), as amended; Omnibus Territories Act of October 15, 1977 (Pub. L. 95-134); Act of March 12, 1980 (Pub. L. 96-205); Education Amendments of 1980 (Pub. L. 96-374); Act of

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December 24, 1980 (Pub. L. 96-597); Agriculture and Food Act of 1981 (Pub. L. 97-98); Act of December 8, 1983 (Pub. L. 98-213); Act of October 5, 1984 (Pub. L. 98-454); Food Security Act of 1985 (Pub. L. 99-198); Act of August 27, 1986 (Pub. L. 99-396); FACT Act; Federal Agriculture Improvement and Reform Act of 1996 (FAIR Act) (Pub. L. 104-127); AREERA; FSRIA; FCEA; and the 2014 Farm Bill (Pub. L. 113-79).

Funds under the Hatch Act are allocated to the SAES of the 50 States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, Micronesia, American Samoa, and the Northern Mariana Islands for research to promote sound and prosperous agriculture and rural life.

Eligible State institutions are required to submit a Plan of Work to NIFA for approval before Hatch Act funds are distributed. The Hatch Act provides that the distribution of Federal payments to States for fiscal year 1955 shall become a fixed base, and that any sums appropriated in excess of the 1955 level shall be distributed in the following manner:

- 20 percent equally to each State;
- not less than 52 percent to the States as follows: one-half in an amount proportionate to the relative rural population of each State to the total rural population of all States, and one-half in an amount proportionate to the relative farm population of each State to the total farm population of all States;
- not less than 25 percent for multi-State, multi-disciplinary, multi-institutional research activities to solve problems concerning more than one State; and
- 3 percent for the administration of the Act.

Federal funds provided under the Hatch Act to State institutions must be matched with non-Federal funding on a dollar-for-dollar basis. Matching requirements for the insular areas of the Commonwealth of Puerto Rico, the Virgin Islands, Guam, Micronesia, American Samoa, the Northern Mariana Islands, and the District of Columbia are subject to the matching requirements of an amount equal to not less than 50 percent of the formula funds distributed to each insular area and the District of Columbia as stated in the Hatch Act, as amended by section 7404 of the FCEA. These provisions also state that the Secretary may waive the matching funds requirement of an insular area and the District of Columbia for any fiscal year if the Secretary determines that the government of the insular area or the District of Columbia will unlikely meet the matching requirement for the fiscal year.

Section 7(c) of the Hatch Act allows unexpended funds to be carried over for use during the following fiscal year. In accordance with provisions of AREERA, at least 25 percent of available Hatch Act funds must be used to support multi-State research; States also must expend 25 percent, or two times the level spent in fiscal year 1997 (whichever is less), on activities that integrate cooperative research and extension.

The three percent of funds appropriated under the Hatch Act for administration includes the disbursement of funds and a continuous review and evaluation of the research programs of the SAES supported wholly or in part from Hatch funds. NIFA encourages and assists in the establishment of cooperation within and between the States, and also actively participates in the planning and coordination of research programs between the States and the Department at the regional and national levels.

2. McIntire-Stennis Act - The McIntire-Stennis Cooperative Forestry Act of October 10, 1962, (16 U.S.C. 582a et seq.) as amended by Section 7412 of FCEA; and subject to provisions of Pub. L. 96-374; Pub. L. 97-98; Pub. L. 99-198; FACT Act; FAIR Act; and Section 7101 of Pub. L. 113-79.

The McIntire-Stennis Act authorizes funding of research in State institutions certified by a State representative designated by the governor of each State. The Act provides that appropriated funds be apportioned among States as determined by the Secretary. The Secretary annually seeks the advice of the Forestry Research Advisory Council (Council) to accomplish efficiently the program purpose. The Council consists of not fewer than sixteen members representing Federal and State agencies concerned with developing and utilizing the Nation's forest resources, the forest industries, the forestry schools of the State-certified eligible institutions, SAES, and volunteer public groups concerned with forests and related natural resources. Determination of apportionments follows consideration of pertinent factors including areas of non-Federal commercial forest land, volume of timber cut from growing stock, and the non-Federal dollars expended on forestry research in the State. Section 7412 of FCEA amended the

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McIntire-Stennis Act to include 1890 Institutions (as defined in section 2 of AREERA (7 U.S.C. 7601)) as eligible for consideration in these determinations. The Act also provides that payments must be matched by funds made available and budgeted from non-Federal sources by the certified institutions for expenditure on forestry research. Section 7101 of Pub. L. 113-79 allows eligible State institutions to declare their intention not to be considered a cooperating forestry school, and to alternatively be considered as a Non-Land-Grant College of Agriculture. Such a declaration would remain in effect until September 30, 2018.

3. Payments to 1890 Colleges, including Tuskegee University, West Virginia State University, and Central State University – Section 1445 of NARETPA; Act of October 28, 1978, (Pub. L. 95-547); and subject to provisions of Pub. L. 97-98; Pub. L. 99-198; FACT Act; FAIR Act; AREERA; FSRIA; FCEA; and Section 7129 of Pub. L. 113-79 authorizing support of continuing agricultural research at colleges eligible to receive funds under the Act of August 30, 1890, including Tuskegee University. The general provisions section 753 of Pub. L. 107-76 makes West Virginia State University eligible to receive funds under this program. Section 7129 of Pub. L. 113-79 makes Central State University eligible to receive funds under this program beginning in fiscal year 2016. Eligible State institutions are required to submit a Plan of Work to NIFA for approval before these formula funds are distributed. The agricultural research programs at the 1890 Land-Grant Colleges and Universities are designed to generate new knowledge which will assist rural underprivileged people and small farmers to obtain a higher standard of living. Therefore, there is a high concentration of research effort in the areas of small farms, sustainable agriculture, rural economic development, human nutrition, rural health, and youth and elderly. Congress authorized appropriations in an amount not less than 15 percent of the amounts appropriated each year under Section 3 of the Hatch Act. The Act allows 3 percent for administrative expenses by the Secretary. Distribution of payments made available under section 2 of the 1965 Act for fiscal year 1978 are a fixed base and sums in excess of the 1978 level are to be distributed as follows:

- 20 percent equally to each State;
- 40 percent in an amount proportionate to the rural population of the State in which the eligible institution is located to the total rural population of all States in which eligible institutions are located; and
- 40 percent in an amount proportionate to the farm population of the State in which the eligible institution is located to the total farm population of all the States in which eligible institutions are located.

Section 1445(a)(2) of NARETPA (7 U.S.C. 3222(a)(2)), as amended by section 7122 of FCEA requires that funds appropriated for this program be not less than 30 percent of the Hatch Act appropriation. Section 1445(a) allows unexpended funds to be carried over for use during the following fiscal year. Section 1449 (7 U.S.C. 3222d), requires that Federal funds be matched by the State from non-Federal sources. For fiscal year 2007 and each fiscal year thereafter, not less than 100 percent of formula funds to be distributed must be matched. The Secretary of Agriculture may waive the matching funds requirement above the 50 percent level for any fiscal year for an eligible institution of a State if the Secretary determines the State will be unlikely to satisfy the matching requirement. Allotments to Tuskegee University and Alabama A&M University shall be determined as if each institution were in a separate State.

4. Animal Health and Disease Research - Section 1433 of NARETPA (7 U.S.C. 3195, as amended by Pub. L 113-79), provides for support of livestock and poultry disease research in accredited schools or colleges of veterinary medicine or SAES that conduct animal health and disease research. These funds provide support for new research initiatives and enhance research capacity leading to improved animal health, reduced use of antibacterial drugs and improved safety of foods of animal origin. In accordance with amendments made by Section 7111 of Pub. L. 113-79, allocated funds may only be used to meet the expenses of conducting animal health and disease research, publishing and disseminating the results of such research, and contributing to the retirement of employees subject to the Act of March 4, 1940 (7 U.S.C. 331); for administrative planning and direction; and to purchase equipment and supplies necessary for conducting research described above. These funds shall be distributed as follows:

- 4 percent shall be retained by the Department of Agriculture for administration, program assistance to the eligible institutions, and program coordination;
- 48 percent shall be distributed in an amount proportionate to the value of and income to producers from domestic livestock and poultry in each State to the total value of and income to producers from domestic livestock and poultry in all the States; and

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- 48 percent shall be distributed in an amount proportionate to the animal health research capacity of the eligible institutions in each State to the total animal health research capacity in all the States.

Eligible institutions must provide non-Federal matching funds in States receiving annual amounts in excess of \$100,000 under this authorization. In the event the annual appropriation for this program exceed \$5 million in a fiscal year, Section 7111 of Pub. L. 113-79 authorizes a new competitive grant program under this authority which would be implemented to address the critical needs of animal agriculture by funding eligible entities to conduct research to promote food security, and on the relationship between animal and human health, and to develop and disseminate to the public tools and information based on the research conducted above and sound science.

5. Research Grants - Section 2(c) of the 1965 Act (7 U.S.C. 450i(c)), as amended; and subject to provisions of NARETPA; Pub. L. 97-98; Critical Agricultural Materials Act, (Pub. L. 98-284); Pub. L. 99-198; FACT Act; FAIR Act; and AREERA authorizes Special Research Grants for periods not to exceed three years to SAES, all colleges and universities, other research institutions and organizations, Federal agencies, private organizations or corporations, and individuals. Grants are made available for the purpose of conducting research to facilitate or expand promising breakthroughs in areas of the food and agricultural sciences. AREERA expanded the purposes under this authority to include extension or education activities. Special Grants are awarded on a non-competitive or competitive basis involving scientific peer and merit review processes. Included in Special Grants are:

Minor Crop Pest Management pursuant to Section 2(c) of the 1965 Act (7 U.S.C. 450i(c)), as amended supports the work of the IR-4 program, which is the principal public program supporting the registration of pesticides and biological control agents for use on specialty crops. The IR-4 program provides coordination, funding, and scientific guidance for both field and laboratory research to develop data in support of registration packages to be submitted to the Environmental Protection Agency. Program investments are guided by a priority-setting process that engages commodity producers, State and Federal research scientists, and extension specialists. Funds are awarded on a competitive basis under the program.

Global Change UV-B Monitoring pursuant to Section 2(c) of the 1965 Act (7 U.S.C. 450i(c)), as amended, supports a climatological network which includes 38 climatological sites: 35 in the U.S., two in Canada, and one in New Zealand. The program supports action items for informing decisions and modeling efforts as outlined in the U.S. Global Change Research Program strategic plan.

Potato Research pursuant to Section 2(c) of the 1965 Act (7 U.S.C. 450i(c)), as amended, grants are awarded that develop and test improved potato varieties for commercial production. The program specifically seeks to improve aspects of potato varieties and production to include identifying traits for resistance to pests and diseases, stress, regional adaptation, increased yield, quality, and market appeal. Where appropriate, the program supports the use of technologies to rapidly identify traits for commercially suitable varieties. Further, a program aspect is to develop technologies to rapidly identify potential pest and disease threats, allowing producers a better opportunity to reduce losses. Funds are awarded on a competitive basis under the program.

Aquaculture Centers grants pursuant to section 1475(d) of NARETPA (7 U.S.C. 3322) support aquaculture research, development, demonstration, and extension education to enhance viable and profitable U.S. aquaculture production to benefit consumers, producers, service industries, and the American economy. Funds are awarded on a competitive basis through a regional system.

Supplemental and Alternative Crops pursuant to section 1473D of NARETPA (7 U.S.C. 3319d) grants are awarded to conduct fundamental and applied research related to the development of new commercial products derived from natural plant material for industrial, medical, and agricultural applications. Funds are awarded on a competitive basis under the program.

Sustainable Agriculture Research and Education - Funds are competitively awarded for grants for sustainable agriculture and education as follows:

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Sections 1621 and 1622 of the FACT Act (7 U.S.C. 5811 and 7 U.S.C. 5812 respectively) work to increase knowledge and help farmers and ranchers adopt practices that are productive, profitable, environmentally sound, and good for people and communities. Grants are awarded by four regional administrative councils for projects that address crop and livestock production and marketing, stewardship of natural resources, economics and quality of life.

Sections 1628 and 1629 of the FACT Act (7 U.S.C. 5831 and 7 U.S.C. 5832 respectively) funds are used to disseminate information about sustainable agricultural practices. The program supports the development of technical guides and handbooks plus education and training for Cooperative Extension System agents, and other university, private sector and agency agricultural professionals engaged in the education and transfer of technical information concerning sustainable agriculture. Funds are also used for statewide planning of sustainable agriculture programs.

6. Alfalfa and Forage Research Program pursuant to Section 1672 of FACT Act (7 U.S.C. 5925) supports research into the improvement of yields, pest pressures, creation of new uses of alfalfa and forages for bioenergy, and the development of new storage and harvest systems.

7. Aquaculture Research pursuant to Section 2(c) of the 1965 Act (7 U.S.C. 450i(c)), as amended supports aquaculture research to address issues related to genetics, disease, systems, and economics.

8. Agriculture and Food Research Initiative - Subsection (b) of the 1965 Act (7 U.S.C. 450i(b)) as amended by section 7406 of FCEA and section 7404 of Pub. L. 113-79 establishes an Agriculture and Food Research Initiative (AFRI) to make competitive grants for fundamental and applied research, extension, and education to address food and agricultural sciences (as defined under section 1404 of NARETPA). The Secretary is authorized to award competitive grants to State agricultural experiment stations; colleges and universities; university research foundations; other research institutions and organizations; Federal agencies; national laboratories; private organizations or corporations; individuals; or any group consisting of two or more of the aforementioned entities. Grants will be awarded to address critical issues in United States agriculture in areas of global food security and hunger, climate change, sustainable bioenergy, childhood obesity, food safety, and water in agriculture. Addressing these critical issues will engage scientists and educators with expertise in:

- A) Plant health and production and plant products;
- B) Animal health and production and animal products;
- C) Food safety, nutrition, and health;
- D) Bioenergy, natural resources, and environment;
- E) Agriculture systems and technology; and
- F) Agriculture economics and rural communities.

Of the amount of funds made available for research, no less than 60 percent shall be used for fundamental research and no less than 40 percent shall be used for applied research. No less than 30 percent of the amount allocated for fundamental research shall be made available to make grants for research to be conducted by multidisciplinary teams and no more than 2 percent may be used for equipment grants. In addition, awards may be made to assist in the development of capabilities in the agricultural, food, and environmental sciences (e.g., new investigator and strengthening awards). In accordance with section 7404 of Pub. L. 113-79, entities established under a commodity promotion law or a State commodity board (or other equivalent State entity) may directly submit to the Secretary for consideration proposals for requests for applications that specifically address particular issues related to the priority areas. Accepted topics are incorporated, as appropriate, into AFRI requests for applications. Eligible applicants include State agricultural experiment stations, colleges and universities, university research foundations, other research institutions and organizations, Federal agencies, national laboratories, private organizations or corporations, individuals, and any group consisting of two or more entities identified in this sentence.

To the maximum extent practicable, NIFA, in coordination with the Under Secretary for Research, Education, and Economics (REE), will make awards for high priority research, education, and extension, taking into consideration, when available, the determinations made by the National Agricultural Research, Extension, Education, and Economics Advisory Board. Integrated research, education and extension activities under this program are

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authorized pursuant to the authority found in section 406 of AREERA (7 U.S.C. 7626) and at an amount no less than 30 percent of the funds made available under this authority.

9. Small Business Innovation Research (SBIR) Program - The Small Business Innovation Development Act of 1982 (Pub. L. 97-219, as amended) (15 U.S.C. 638), Section 630 of the Act making appropriations for Agriculture, Rural Development and Related Agencies' programs for fiscal year ending September 30, 1987, and for other purposes, as made applicable by Section 101(a) of Pub. L. 99-591, 100 Stat. 3341 authorizes a competitive program for SBIR. The Small Business Innovation Development Act was designed to strengthen the role of small, innovative firms in Federally funded research and development. Section 5102 of the National Defense Authorization Act for Fiscal Year 2012 (Pub. L. 112-81) amends the Small Business Innovation Development Act to allow the set aside of appropriations for extramural research and development for awards to eligible small firms as follows:

- Not less than 3.0 percent of appropriations in fiscal year 2016; and
- Not less than 3.2 percent of appropriations in fiscal year 2017 and each fiscal year thereafter.

Additionally, Section 5141 of the National Defense Authorization Act for Fiscal Year 2012 (Pub. L. 112-81) as amended allows not more than 3 percent of program funds for fiscal years 2013 through 2017 for administration, oversight, and contract processing costs to conduct the SBIR program.

The SBIR Program is a three-phased effort, but only Phase I and Phase II, the feasibility and follow-on research and development phases respectively, are eligible for support with USDA funds. Firms are encouraged to secure Phase III funding for the commercialization phase from other public or private sources. The research areas supported under the SBIR program address critical issues in U.S. agriculture in the areas of global food security and hunger, climate change, sustainable bioenergy, childhood obesity, and food safety. Addressing these critical issues will engage small businesses with expertise in a number of areas including plant and animal production and protection, forests and related resource sciences, soil and water resources, food and nutrition sciences, rural development, biofuels and biobased products, aquaculture, and small and mid-sized farms. NIFA administers the SBIR program for USDA, including the funds set aside for SBIR from other USDA agencies.

10. Biotechnology Risk Assessment Research Grants Program (BRAG) – Section 1668 of FACT Act and as amended in section 7210 of FSRIA authorizes competitively awarded research grants to identify and develop appropriate management practices to minimize physical and biological risks associated with genetically engineered animals, plants, and microorganisms. Under BRAG, at least 2 percent of appropriations for biotechnology related research is set aside for awards under this program. NIFA and the Agricultural Research Service jointly administer this program.

BRAG supports the generation of new information that assists Federal regulatory agencies in making science-based decisions about the effects of introducing into the environment genetically engineered organisms, including plants, microorganisms (including fungi, bacteria, and viruses), arthropods, fish, birds, mammals, and other animals excluding humans. The program also supports applied and/or fundamental risk assessment research, which is defined as the science-based evaluation and interpretation of factual information in which a given hazard, if any, is identified, and the consequences associated with the hazard are explored.

11. 1994 Institutions Research - The 1994 Act (7 U.S.C. 301 note, as amended by Pub. L. 113-79) authorizes a competitive research grants program for institutions designated as 1994 Institutions. The program allows scientists at the legislatively eligible 1994 Institutions to participate in agricultural research activities that address tribal, national, and multi-State priorities. Pursuant to Section 7402 of Pub. L. 113-79, 1994 Institutions may work with the Agricultural Research Service or at least 1 of the other land-grant colleges or universities, a Non-Land-Grant College of Agriculture, or cooperating forestry schools.

12. Farm Business Management and Benchmarking Program – Section 7208 of FCEA amended FACT Act (7 U.S.C. 5925f) by adding section 1672D which authorizes the competitive program to improve the farm management knowledge and skills of agricultural producers, and establish and maintain a national, publicly available farm financial management database to support improved farm management. Funds are awarded on a competitive basis under the program.

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13. Sun Grant Program – Section 7526 of the Food, Conservation, and Energy Act of 2008 (7 U.S.C. 8114), as amended and reauthorized by section 7516 of Pub. L. 113-79 established this program for grants to sun grant centers and subcenters for competitive awards to enhance national energy through the development, distribution, and implementation of biobased energy technologies. Through biobased energy and product technologies, activities are supported that promote diversification, and the environmental sustainability of, agricultural production in the U.S., and economic diversification in rural areas of the U.S. Funds are also used to enhance the efficiency of bioenergy and biomass research and development programs through improved coordination and collaboration among USDA, Department of Energy, and land-grant colleges and universities.

14. Capacity Building for Non-Land Grant Colleges of Agriculture (NLGCA) – Section 7138 of FCEA (7 U.S.C. 3319i) established this competitively awarded grants program to assist the NLGCA Institutions in maintaining and expanding the capacity of the NLGCA Institutions to conduct education, research, and outreach activities relating to agriculture, renewable resources, and other similar disciplines. Section 7101 of Pub. L. 113-79 defined eligibility for this program and a certification process was implemented accordingly.

15. Federal Administration (direct appropriation) - Authority for direct appropriations is provided in the annual Agriculture, Rural Development, Food and Drug Administration and Related Agencies Appropriations Act. These funds are used to provide support services in connection with the planning and coordination of all research and education programs administered by NIFA, including grants management and reporting services.

16. Higher Education - Section 1417 of NARETPA (7 U.S.C. 3152), was amended by section 7106 of FCEA to provide eligibility to the University of the District of Columbia to receive grants and fellowships for food and agricultural science education. This program is also subject to provisions found in NARETPA; Pub. L. 97-98; Pub. L. 99-198; Second Morrill Act of 1890; Act of June 17, 1988, (Pub. L. 100-339); FACT Act; Equity in Educational Land-Grant Status Act of 1994, (Pub. L. 103-382); FAIR Act; AREERA; Pub. L. 106-78, Aviation and Transportation Security Act of November 19, 2001, (Pub. L. 107-71), and National Veterinary Medical Service Act of December 6, 2003, (Pub. L. 108-161) (NVMSA).

Institution Challenge, Multicultural Scholars, and Graduate Fellowship Grants Program - Funds are awarded for grants and fellowships for food and agricultural sciences education as follows:

Institution Challenge Grants pursuant to section 1417(b)(1) are designed to strengthen institutional capacities, including curriculum, faculty, scientific instrumentation, instruction delivery systems, and student recruitment and retention, to respond to identified State, regional, national, or international educational needs in the food and agricultural sciences, or in rural economic, community, and business development. All Federal funds competitively awarded under this program must be matched by the universities on a dollar-for-dollar basis from non-Federal sources.

The Higher Education Multicultural Scholars Program pursuant to section 1417(b)(5) increases the ethnic and cultural diversity of the food and agricultural scientific and professional workforce, and advances the educational achievement of minority Americans. This competitive program is designed to help the food and agricultural scientific and professional workforce achieve full participation by members of traditionally underrepresented racial and ethnic groups. It is open to all colleges and universities granting baccalaureate or higher degrees in agriculture, forestry, natural resources, home economics, veterinary medicine, and closely allied fields. Federal funds provide 75 percent of the four-year scholarship awards; the remaining 25 percent is contributed by the grantee institutions.

Higher Education-Graduate Fellowships Grants pursuant to section 1417(b)(6) are awarded on a competitive basis to colleges and universities to conduct graduate training programs to stimulate the development of food and agricultural scientific expertise in targeted national need areas. The program is designed to attract highly promising individuals to research or teaching careers in areas of the food and agricultural sciences where shortages of expertise exist. Typically graduate students in the food and agricultural sciences require a minimum of four years to complete a doctoral degree. The USDA fellowships program provides support for doctoral study for three years, and the universities are expected to support the student's fourth year of dissertation research.

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The Secondary Education, Two-year Postsecondary Education, and Agriculture in the K-12 Classroom Program, authorized by section 1417(j) of NARETPA as amended (7 U.S.C. 3152 (j)), is designed to promote and strengthen secondary education in agribusiness and agriscience, and to increase the number and/or diversity of young Americans pursuing college degrees in the food and agricultural sciences. The intent of the program is to encourage teachers creatively to incorporate elements of agriscience and agribusiness into secondary education programs. Section 7109 of FCEA amended section 1417(j) of NARETPA to include support for current agriculture in the classroom programs for grades K-12. Proposals address targeted need areas of curricula design and instructional materials development; faculty development and preparation for teaching; career awareness; linkages between secondary, 2-year post-secondary, and institutions of higher learning; or education activities promoting diversity in students seeking degrees in agribusiness and agriscience. All Federal funds competitively awarded under this program must be matched by the institution on a dollar-for-dollar basis from non-Federal sources.

The 1890 Institution Teaching, Research, and Extension Capacity Building Grants Program pursuant to 1417(b)(4) stimulates the development of high quality teaching, research, and extension programs at the 1890 Land-Grant Institutions and Tuskegee University, West Virginia State University, and Central State University (per Section 7129 of Pub. L. 113-79) to build their capabilities as full partners in the mission of the Department to provide more, and better trained, professionals for careers in the food and agricultural sciences. This competitive program is designed to strengthen institutional teaching, research, and extension capacities through cooperative programs with Federal and non-Federal entities, including curriculum, faculty, scientific instrumentation, instruction delivery systems, student experimental learning, student recruitment and retention, studies and experimentation, centralized research support systems, and technology delivery systems, to respond to identified State, regional, national, or international educational needs in the food and agricultural sciences, or rural economic, community, and business development. Section 7107 of FCEA amended section 1417(b)(4) of NARETPA (7 U.S.C. 3152(b)(4)) to expand extension capacity.

The USDA-Hispanic Serving Institutions Education Partnerships Grants Program pursuant to section 1455 of NARETPA (7 U.S.C. 3241) is the foundation for USDA efforts to better serve Hispanic Americans and to prepare them for careers in agriscience and agribusiness. This competitive program expands and strengthens academic programs in the food and agricultural sciences at Hispanic-serving colleges and universities, including two-year community colleges that have at least 25 percent Hispanic enrollment. Section 7128 of FCEA amended section 1455 to require that all grants made under this program be awarded on a fully competitive basis, and removed the requirement for consortia in subsection (b)(1).

The Native American Institutions Endowment Fund, authorized by the 1994 Act provides for the establishment of an endowment for the legislatively eligible 1994 Institutions (Tribally-controlled colleges). The interest derived from the endowment is distributed to the 1994 Institutions on a formula basis. This program will enhance educational opportunities for Native Americans by building educational capacity at these institutions. The institutions are also able to use the funding for facility renovation and construction. On the termination of each fiscal year, the Secretary shall withdraw the income from the endowment fund for the fiscal year, and after making adjustments for the cost of administering the endowment fund, at 4 percent, distribute the adjusted income as follows. Sixty percent of the adjusted income is distributed among the 1994 Institutions on a pro rata basis, the proportionate share being based on the Indian student count. Forty percent of the adjusted income is distributed in equal shares to the 1994 Institutions.

The Tribal Colleges Education Equity Grants Program - The 1994 Act authorizes the use of funds to benefit those entities identified as the 1994 Land Grant Institutions. Funds are distributed on a formula basis and may be used to support teaching programs in the food and agricultural sciences in the targeted need areas of: 1) curricula design and instructional materials development; 2) faculty development and preparation for teaching; 3) instruction delivery systems and strategic partnerships; 4) student experimental learning; 5) equipment and instrumentation for teaching; and 6) student recruitment and retention. Section 7402 of FCEA amended section 532 of the 1994 Act by adding Iisagvik College. Section 7402 of the Agricultural Act of 2014 amended section 532 of the 1994 Act by adding College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College, effective October 2014. Also FCEA amended section 534 to authorize that funds payable to a 1994 Institution be withheld and redistributed to

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other 1994 Institutions in the event that the Institution declines to accept funds or fails to meet the accreditation requirements of section 533.

The Alaska Native Serving and Native Hawaiian-Serving Institutions Education Grants Program, originally authorized by section 759 of Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2000, Pub. L. 106-78, and redesignated as section 1419B of NARETPA (7 U.S.C. 3156), is aimed at recruiting, supporting and educating minority scientists and professionals, and advancing the educational capacity of Native-serving institutions. Funds may be used to support projects in the targeted areas of: 1) enhancing educational equity for under-represented students; 2) strengthening educational capacities, including libraries, curriculum, faculty, scientific instrumentation, instruction delivery systems, and student recruitment and retention; 3) attraction and retention of undergraduate and graduate students; and 4) cooperative initiatives to maximize the development of resources such as faculty, facilities and equipment to improve teaching programs. Additionally, section 7112 of FCEA permits consortia to designate fiscal agents for the members of the consortia and to allocate among the members funds made available under this program. Funds are awarded on a competitive basis under the program.

Grants for Insular Areas Program - Funds are awarded for grants to insular areas of the Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, the Northern Mariana Islands, Micronesia, the Marshall Islands, or the Republic of Palau for resident instruction and distance education as follows:

Resident Instruction Grants pursuant to section 1491 of NARETPA (7 U.S.C. 3363) and (7 U.S.C. 3222b-2), as amended, is designed to enhance teaching and extension programs in food and agricultural sciences that are located in the insular areas. Funds may be used to enhance programs in agriculture, natural resources, forestry, veterinary medicine, home economics, and disciplines closely allied to the food and agriculture production and delivery systems. Funds also may be used to acquire, alter, or repair facilities or relevant equipment necessary for conducting agricultural research. Funds are awarded on a competitive basis under the program.

Distance Education Grants pursuant to section 1490 of NARETPA (7 U.S.C. 3362), as amended, is designed to strengthen the capacity of insular area institutions. Funds may be used to enhance the capability of the institutions to carry out collaborative distance food and agricultural education programs using digital network technologies. Funds are awarded on a competitive basis under the program.

The Veterinary Medicine Loan Repayment Program, authorized by section 1415A of NARETPA (7 U.S.C. 3151a) as amended, provides for a loan repayment program for a specified payment amount of qualifying educational loans of veterinarians for geographical areas that have a shortage of veterinarians; and areas of veterinary practice that the Secretary determines have a shortage of veterinarians, such as food animal medicine, public health, epidemiology, and food safety. FCEA amended section 1415A to require NIFA to give priority to agreements with veterinarians for the practice of food animal medicine in veterinarian shortage situations and prohibits transfer of funds to the Food Safety and Inspection Service under the National Veterinary Medical Service Act. Funds are awarded on a competitive basis under the program.

The Veterinary Services Grant Program, authorized by section 1415B of NARETPA (7 U.S.C. 3151b) as amended, provides for a competitive grants program to develop, implement, and sustain veterinary services. Program activities will substantially relieve veterinarian shortage situations, facilitate private veterinary practices engaged in public health activities, or support the practices of veterinarians who are providing or have completed providing services under agreement under the Veterinary Medicine Loan Repayment Program.

Extension Activities

The mission of the Cooperative Extension System, a national educational network, is to help people improve their lives through an educational process that uses scientific knowledge focused on issues and needs. Cooperative Extension work was established by the Smith-Lever Act of May 8, 1914, as amended. This work is further emphasized in Title XIV of NARETPA to fulfill the requirements of the Smith-Lever Act, the Cooperative Extension Service in each State, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, American

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Samoa, the Northern Marianas and Micronesia, conduct educational programs to improve American agriculture, communities of all sizes, and strengthen families throughout the United States. This publicly funded, out-of-the-classroom educational network combines the expertise and resources of Federal, State and local partners. The partners in this unique system are:

- NIFA of USDA;
- Cooperative Extension Services at land-grant universities throughout the United States and its territories; and
- Cooperative Extension Services in nearly all of the 3,143 counties or county equivalents in the United States.

Thousands of Extension employees and millions of volunteers support this partnership and magnify its impact. Strong linkages with both public and private external groups are also crucial to the Extension System's strength and vitality.

1. Smith-Lever 3 (b) & (c) - Smith-Lever 3 (b) & (c) formula funds of the Smith-Lever Act, 7 U.S.C. 343 (b)(3), as amended, comprise approximately two-thirds of the total Federal funding for extension activities. These funds are allocated to the States on the basis of the rural and farm population of each State and the territories. States can utilize funds for locally determined programs, as well as for high priority regional and national concerns.

In accordance with section 4 of the Smith-Lever Act, eligible State institutions are required to submit a Plan of Work to NIFA for approval before Smith-Lever 3 (b) & (c) formula funds are distributed. Of the funds authorized under section 3(c), four percent shall be allotted for Federal administrative, technical, and other services, and for coordinating the extension work of the Department and the several States, Territories, and possessions. The remaining balance of funds formula distribution is:

- 20 percent is divided equally among the States;
- 40 percent is paid to the several States in the proportion that the rural population of each bears to the total rural population of the several States as determined by the census; and
- 40 percent shall be paid to the several States in the proportion that the farm population of each bears to the total farm population of the several States as determined by the census.

States must expend 25 percent, or two times the level spent in fiscal year 1997 (whichever is less), on cooperative extension activities in which two or more States cooperate to solve problems that concern more than one State. This also applies to activities that integrate cooperative research and extension.

Smith-Lever 3(b) and (c) funding provided to an 1862 Land-Grant Institution must be matched with non-Federal funding on a dollar-for-dollar basis. Matching requirements for the insular areas of the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, Micronesia, American Samoa, and the Northern Mariana Islands are subject to the matching requirements of an amount equal to not less than 50 percent of the formula funds distributed to each insular area. These provisions also state that the Secretary may waive the matching funds requirement of an insular area for any fiscal year if the Secretary determines the government of the insular area will be unlikely to meet the matching requirement for the fiscal year.

2. Smith-Lever 3(d) - These funds are allocated to the States to address special programs or concerns of regional and national importance. Section 7403 of FCEA amends section 3(d) of the Smith-Lever Act (7 U.S.C. 343(d)) to expand eligibility to the 1890 Land-Grant Institutions and required that funds be awarded on a competitive basis with the exception of the Expanded Food and Nutrition Education Program in which funds are distributed on a formula basis. Section 7417 of FCEA provided eligibility for these programs to the University of the District of Columbia. The following extension programs are supported under the Smith-Lever 3(d) funding mechanism and other specific authorizations:

Expanded Food and Nutrition Education Program – These funds are awarded to the 1862 and 1890 Land-Grant Institutions according to a statutory formula provided in section 1425 of NARETPA (7 U.S.C. 3175) which is amended by section 7116 of FCEA. Funds are used to provide low-income youth and families with information to

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increase nutrition knowledge and improve nutritional practices. Funds are awarded to the eligible institutions as follows: (1) FY 1981 bases; (2) \$100,000 to each institution; (3) a percentage of the increase in funding that exceeds the FY 2007 appropriated level (i.e., 14 percent for FY 2014 and thereafter) distributed to the 1890 Land-Grant Institutions according to the pro rata population for each institution at or below 125 percent of the poverty level; and the remainder to the 1862 Land-Grant Institutions according to the pro rata population for each institution at or below 125 percent of the poverty level.

Farm Safety and Youth Farm Safety Education and Certification Program – The Rural Health and Safety Education Act of 1990, section 2390 of the FACT Act (7 U.S.C. 2661 and 7 U.S.C. 2662) – The Farm Safety program provides competitively awarded projects to Extension working with non-profit disability organizations in conducting AgrAbility projects designed to assist farmers and ranchers with disabilities to stay in agricultural production. The competitively-awarded Youth Farm Safety Education and Certification Program provides funding to states to conduct training and certification needs of youth working in agriculture.

Children, Youth, & Families At Risk - This program focuses on America's children, youth and families to help promote and provide positive, productive, secure environments and contributions to communities and the Nation. Projects are awarded competitively to focus on the national outcomes for youth and families which include early childhood, school age youth, teens, and family outcomes with emphasis on science and reading literacy, and building youth and family program and community capacity.

Federally-Recognized Tribes Extension Program (formerly Extension Indian Reservations) - Section 1677 of the FACT Act, 7 U.S.C. 5930 – Competitively awarded projects to State Extension Services to provide assistance and educational programs in agriculture, community development, youth development, and other societal issues facing Native Americans on reservations. The purpose of this program is to support Extension education on Federally Recognized Indian Reservations and Tribal jurisdictions of Federally Recognized Tribes. This program seeks to continue the Land Grants' mission of inclusion--providing education and research-based knowledge to those who might not otherwise receive it.

New Technologies for Agricultural Extension - Competitively awarded projects that support an Internet-based tool that provides fast and convenient access to objective, peer-reviewed, and researched-based information, education, and guidance on subjects that include food safety, homeland security, natural resources and environment, youth development, families, nutrition and health, and other agricultural related topics.

3. Payments to 1890 Colleges and Tuskegee University, West Virginia State University, and Central State University - Section 1444 of NARETPA, (7 U.S.C. 321-329), provides support to the 1890 Land-Grant Colleges and Universities for fostering, developing, implementing and improving extension educational programs to benefit their clientele. The general provisions, section 753, of Pub. L. 107-76 designated West Virginia State University as eligible to receive funds under any Act of Congress authorizing funding to 1890 Institutions, including Tuskegee University. Section 7129 of Pub. L. 113-79 designates Central State University as an eligible 1890 Land-Grant Institution. Eligible State institutions are required to submit a five-year Plan of Work to NIFA for approval before these formula funds are distributed. Section 7121 of FCEA amended section 1444(a)(2) (7 U.S.C. 3221(a)(2)) to require that at least 20 percent of the total appropriations for each fiscal year under the Smith-Lever Act be allocated for payments to 1890 Institutions for extension activities. Funds will be distributed as follows:

- 4 percent to NIFA for administrative, technical, and other services;
- Payments to States in fiscal year 1978 are a fixed base. Of funds in excess of this amount:
- 20 percent is distributed equally to each State;
- 40 percent is distributed in an amount proportionate to the rural population of the State in which the eligible institution is located to the total rural population of all States in which eligible institutions are located; and
- 40 percent is distributed in an amount proportionate to the farm population of the State in which the eligible institution is located to the total farm population of all States in which eligible institutions are located.

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In accordance with section 1449(c) of NARETPA (7 U.S.C. 3222d), Federal funds provided under section 1444 must be matched by the State from non-Federal sources. Section 1449(c) provides that the Secretary of Agriculture may waive the matching funds requirement above the 50 percent level for any fiscal year for an eligible institution of a State if the Secretary determines that the State will be unlikely to satisfy the matching requirement.

Allotments to Tuskegee University and Alabama A&M University shall be determined as if each institution were in a separate State. Four percent of the funds appropriated under this program is set-aside for Federal Administration.

4. 1890 Facilities (Sec. 1447) - Section 1447 of NARETPA, 7 U.S.C. 3222b, funds are used to upgrade research, extension, and teaching facilities at the eligible 1890 land-grant colleges, including Tuskegee University, West Virginia State University, and Central State University (per Section 7129 of Pub. L. 113-79). Funds are distributed on a noncompetitive formula basis.

5. The Renewable Resources Extension Act - Renewable Resources Extension Act of 1978, 16 U.S.C. 1671-1676, provides funding for expanded natural resources education programs. Funds are distributed primarily by formula to 1862 and 1890 Land-Grant Institutions for educational programs, and a limited number of special emphasis national programs.

6. Rural Health and Safety Education – Rural Health and Safety Education Act of 1990, section 2390 of the FACT Act 7 U.S.C. 2662. This program competitively awards projects that focus on issues related to individual and family health education in one or more of the following areas: 1) healthy living behaviors, family interaction and environmental attributes in rural areas; 2) health literacy and its impact on health status in rural and farm families; and/or 3) related issues of health promotion and health care to rural individuals and families. Land-grant colleges and universities are eligible to receive funds under the Act of July 2, 1862, including the University of the District of Columbia (7 U.S.C. 301 et seq.), and the Act of August 30, 1890 (7 U.S.C. 321 et seq.), including Tuskegee University, West Virginia State University, and Central State University. Applications may also be submitted by any of the Tribal colleges and universities designated as 1994 Land-Grant Institutions under the Educational Land-Grant Status Act of 1994 (7 U.S.C. 2662(i)).

7. Federal Administration (direct appropriation) - Provides a portion of the general operating funds for the Federal staff, and national program planning, coordination, and program leadership for the extension work in partnership with the States and territories. Agriculture in the Classroom (AIRC) program is administered under the federal administration line. AIRC advances agricultural literacy through a grassroots network of State coordinators, school teachers, agribusiness leaders, and other educators by supporting initiatives that include expanding outreach to underrepresented populations; regional demonstration projects; integration of information technology to reduce program delivery costs; and outstanding teacher recognition initiatives.

8. Extension Services at the 1994 Institutions - The 1994 Act authorizes appropriations for Native American communities and Tribal Colleges for extension activities as set forth in the Smith Lever Act. Funding is awarded on a competitive basis to legislatively eligible institutions. Section 7402 of the Agricultural Act of 2014 amended section 532 of the 1994 Act by adding College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College, effective October 2014.

9. Food Animal Residue Avoidance Database Program (FARAD) – Section 7642 of AREERA authorizes the FARAD program. The program is a computer-based decision support system designed to provide livestock producers, extension specialists, and veterinarians with practical information on how to avoid drug, pesticide, and environmental contaminant residue problems.

10. Women and Minorities in Science, Technology, Engineering, and Mathematics Fields - Section 7204 of FCEA amended section 1672 of the FACT Act which provides for competitively awarded grants to increase participation by women and underrepresented minorities from rural areas in the field of science, technology, engineering, and mathematics. Additionally, priority will be given to eligible institutions that carry out continuing programs funded by the Secretary.

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11. Food Safety Outreach Program - Section 405 of AREERA is the authority for the program. The Food Safety Outreach Program awards competitive grants to eligible recipients for projects that develop and implement Food Safety Modernization Act-related food safety training, education, extension, outreach, and technical assistance to owners and operations of small and medium-sized farms, beginning farmers, socially disadvantaged farmers, small processors or small fresh fruit and vegetable merchant wholesalers.

12. Beginning Farmer and Rancher Development Program - Section 7409 of the Agricultural Act of 2014 amended section 7405 of FSRIA and made available, until expended, the enacted amount of \$20 million for each of FY 2014 through FY 2018. The purpose of this mandatory, competitive program is to support the nation's beginning farmers and ranchers by making competitive grants to new and established local and regional training, education, outreach, and technical assistance initiatives that address the needs of beginning farmers and ranchers. To be eligible for a grant under this authority, an applicant must be a collaborative State, tribal, local, or regionally-based network or partnership of public or private entities which may include a State cooperative extension service; a Federal, state, or tribal agency; a community-based or school-based agricultural educational organization; or non-governmental organization; a college or university (including an institution offering associate's degree) or a foundation maintained by a college or university; or any other appropriate partner.

All grantees are required to provide a 25 percent match in the form of cash or in-kind contributions. The maximum amount of an award is \$250,000 per year and the maximum project period is three years. In accordance with Section 7409 of Pub. L. 113-79, not less than 5 percent of the funds used to carry out the program for a fiscal year shall be used to support programs and services that address the needs of limited resource beginning farmers or ranchers; socially disadvantaged farmers or ranchers who are beginning farmers or ranchers; and farmworkers desiring to become farmers or ranchers. Not less than 5 percent of the funds used to carry out the program for a fiscal year shall be used to support programs and services that address the needs of veteran farmers and ranchers.

13. Food Insecurity Nutrition Incentive - Section 4208 of the Agricultural Act of 2014, which amends section 4405 of the Food, Conservation, and Energy Act of 2008 (7 U.S.C. 7517) authorizes the Food Insecurity Nutrition Incentive Program to support projects to increase the purchase of fruits and vegetables among low-income consumers participating in the Supplemental Nutrition Assistance Program (SNAP) by providing incentives at the point of purchase. Mandatory funding is made available in the enacted amount of \$25 million for FY 2018.

14. Agriculture Risk Management Education Program - Section 133 of the Agricultural Risk Protection Act of 2000 amended the Federal Crop Insurance Act to establish a competitive grants program for educating agricultural producers on the full range of risk management activities. These activities include futures, options, agricultural trade options, crop insurance, cash forward contracting, debt reduction, production diversification, marketing plans and tactics, farm resources risk reduction, and other appropriate risk management strategies. This program brings the existing knowledge base to bear on risk management issues faced by agricultural producers and expands the program throughout the Nation on a regional and multi-regional basis. Mandatory funding in the enacted amount of \$5 million is to be made available annually for competitive awards.

Integrated Activities

The following programs are included under the integrated activities account:

Section 7129 of FCEA amended section 406(b) of AREERA (7 U.S.C. 7626(b)) by adding Hispanic-serving agricultural colleges and universities (HSACUs) to the eligibility for section 406 funds. HSACUs are defined in section 1404(10) of NARETPA as colleges and universities that (1) qualify as Hispanic-serving institutions; and (2) offer associate, bachelors, or other accredited degree programs in agriculture-related fields. The following programs are provided pursuant to the authority found in section 406. Funding for all programs is provided on a competitive basis.

1. Methyl Bromide Transition Program - This program is designed to support the discovery and implementation of practical pest management alternatives for commodities affected by the methyl bromide phase-out. The program focuses on short- to medium-term solutions for all commodities at risk using either combinations of presently available technologies or some newly developed practices.

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2. Organic Transition Program - This program supports the development and implementation of biologically based management practices that mitigate the ecological, agronomic and economic risks associated with a transition from conventional to organic agricultural production systems.

3. Crop Protection/Pest Management - This program will support Integrated Pest Management (IPM) projects that respond to pest management challenges with coordinated state-based, regional and national research, education, and extension programs. Activities also will promote further development and use of IPM approaches.

Additional authorities for integrated programs include:

1. Regional Rural Development Centers - Section 2(c)(1)(B) of the 1965 Act (7 U.S.C. 450i(c)(1)(B)) provides funds at four regional centers in Pennsylvania, Mississippi, Utah, and Michigan. Programs are designed to improve the social and economic well-being of rural communities in their respective regions. These funds are distributed competitively according to the extent of the problem that requires attention in each State.

2. Food and Agriculture Defense Initiative Program - Section 1484 of NARETPA (7 U.S.C. 3351) provides for the support and enhancement of nationally-coordinated plant and animal disease diagnostic networks and support activities to identify and respond to high risk biological pathogens in the food and agricultural system. The diagnostic networks currently supported are the National Plant Diagnostic Network (NPDN) and the National Animal Health Laboratory Network (NAHLN). These networks are State/Federal partnerships that are used to increase the ability to protect the Nation from plant and animal disease threats by providing surveillance, early detection, mitigation, and recovery functions that serve to minimize these threats. The Extension Disaster Education Network (EDEN) is supported under this program also. EDEN is a collaborative national effort that is led by State Cooperative Extension Services (CES) to provide disaster education resources for CES educators to use to help farmers and other public sectors in the event of disasters, including agricultural disasters.

3. Organic Agriculture Research and Extension Initiative - Section 7211 of the Agricultural Act of 2014 amended section 1672B of the FACT Act to provide mandatory funding in the enacted amount of \$20 million for FY 2014 through FY 2018 for the Organic Agricultural Research and Extension Initiative. The purpose of this mandatory program is to make competitive grants to support research, education, and extension activities regarding organically grown and processed agricultural commodities and their economic impact on producers, processors, and rural communities.

4. Specialty Crop Research Initiative - Reauthorized by Section 7306 of the Agricultural Act of 2014 which amends Section 412 of AREERA of 1998 (7 U.S.C. 7632). Section 412 of the AREERA of 1998 established a specialty crop research and extension initiative to address the critical needs of the specialty crop industry by developing and disseminating science-based tools to address needs of specific crops and their regions. The Specialty Crop Research Initiative (SCRI) competitive grants program was established to solve critical industry issues through research and extension activities. Specialty crops are defined as fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops including floriculture. SCRI will give priority to projects that are multistate, multi-institutional, or trans-disciplinary; and include explicit mechanisms to communicate results to producers and the public. Projects must address at least one of the following five focus areas:

- A) Research in plant breeding, genetics, and genomics to improve crop characteristics;
- B) Efforts to identify and address threats from pests and diseases, including threats to pollinators;
- C) Efforts to improve production efficiency, productivity, and profitability over the long term;
- D) New innovations and technology, including improved mechanization and technologies that delay or inhibit ripening; and
- E) Methods to prevent, detect, monitor control, and respond to potential food safety hazards in the production and processing of specialty crops.

Eligible applicants for grants under this authority include Federal agencies, national laboratories, colleges and universities, research institutions and organizations, private organizations or corporations, State agricultural experiment stations, individuals, and groups consisting of two or more entities defined in this sentence. Mandatory

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funding in the enacted amount of \$80 million is to be made available for FY 2014 and each year thereafter to carry out SCRI.

Of the monies available to the SCRI, \$25 million is reserved and available until expended, for each of the FYs 2014 through 2018, to carry out the Emergency Citrus Disease Research and Extension Program. Section 7306 of the Agricultural Act of 2014 establishes a competitive research and extension grant program to combat diseases of citrus by:

- 1) Conducting scientific research and extension activities, technical assistance and development activities to combat citrus diseases and pests, both domestic and invasive, which pose imminent harm to the U.S. citrus production and threaten industry viability; and
- 2) Providing support for the dissemination and commercialization of relevant information, techniques, and technologies.

In carrying out the Emergency Citrus Disease Research and Extension Program, priority will be given to projects that address the research and extension priorities established pursuant to subsection (g)(4) of section 1408A of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S. C. 3123a).

Section 7306 of the Agricultural Act of 2014 added a requirement that, in addition to the scientific peer review NIFA regularly conducts, a panel of specialty crop industry representatives' review and rank SCRI applications for merit, relevance, and impact. In addition, Section 7306 requires increased consultation between NIFA and the Specialty Crops Committee of the National Agricultural Research, Extension, Education and Economics Advisory Board.

Biomass Research and Development Initiative

The purpose of this initiative, authorized under Section 9008 of FSRIA, is to competitively award grants, contracts, and financial assistance to eligible entities to carry out research and development and demonstration of: (1) Biofuels and biobased products; and (2) the methods, practices, and technologies, for the production of biofuels and biobased products. This program was transferred on October 1, 2008, from Rural Development to NIFA. Awardees are required to cost share at 20 percent for research and development activities and 50 percent for demonstration and commercial. Waiver authority for the research and development cost share requirement is provided to the Secretary. To be eligible for an award, an applicant must be an institution of higher education, a National Laboratory, a Federal research agency, a State research agency, a private sector entity, a nonprofit organization, or a consortium of two or more of the entities defined in this sentence.

This initiative requires the Secretary of Agriculture and the Secretary of Energy, in consultation with the Environmental Protection Agency and heads of other appropriate departments and agencies to direct the initiative in the following three areas: A) Feedstocks development; B) Biofuels and biobased products development; and C) Biofuels development analysis.

Biodiesel Fuel Education Program

The goals of this program as established in Section 9006 of FSRIA were to stimulate biodiesel consumption and the development of a biodiesel infrastructure. Congressionally mandated funding will support competitively awarded grants to address the need to balance the positive environmental, social, and human health impacts of biodiesel utilization with the increased per gallon cost to the user. Biodiesel Education projects will focus on the development of practical indicators or milestones to measure their progress towards achieving the following objectives:

- A) Enhance current efforts to collect and disseminate biodiesel information;
- B) Coordinate with other biodiesel educational or promotional programs, and with Federal, State, and local programs aimed at encouraging biodiesel use, including the Energy Policy Act of 2005 program;
- C) Create a nationwide networking system that delivers biodiesel information to targeted audiences, including users, distributors, and other infrastructure-related personnel;
- D) Identify and document the benefits of biodiesel (e.g., lifecycle costing); and
- E) Gather data pertaining to information gaps and develop strategies to address the gaps.

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Mandatory funding in the enacted amount of \$1 million is to be made available for each of FY 2014 through FY 2018 to carry out this program.

Community Food Projects

Section 25 of the Food Stamp Act of 1977 (7 U.S.C. 2034), as amended by the Agricultural Act of 2014 and the Food and Nutrition Act of 2008, authorized funding in support of competitively awarded Community Food Projects (CFP). The objectives of the CFP program are to increase the food self-reliance of communities; promote comprehensive responses to local food, farm, and nutrition issues; develop innovative linkages between the public, for-profit, and nonprofit food sectors; and encourage long-term planning activities and comprehensive multi-agency approaches. Projects are intended to bring together stakeholders from the distinct parts of the food system and to foster understanding of national food security trends and how they might improve local food systems. Mandatory funding is made available in the enacted amount of \$9 million for FY 2018.

For NIFA program coordination and planning are carried out by staff located entirely in the Washington, D.C. area. As of September 30, 2016, there were 349 permanent full-time employees.

Agency Audit Reports

OMB Circular A-133 Audits

A-133 audit reviews for the grantees listed below were completed during fiscal year 2016.

Audit Report No.	Institution	Year Ending	Closed Date
202	Maine Medical Center And Subsidiaries	2014	11/30/15
895	Southern New Hampshire Services, Inc.	2014	11/30/15
8827	Cold Spring Harbor Laboratory	2014	11/30/15
10689	Teachers College, Columbia University	2014	11/30/15
15491	International Rescue Committee, Inc.	2014	11/30/15
15516	Public Health Solutions	2014	11/30/15
17258	Trudeau Institute, Inc.	2014	11/30/15
35683	American Institutes For Research In The Behavioral Sciences	2014	11/30/15
57384	Michigan Family Resources	2014	11/30/15
76799	J. Craig Venter Institute	2014	11/30/15
88125	Mote Marine Laboratory, Inc. And Subsidiaries	2014	11/30/15
98107	Winrock International Institute For Agricultural Development	2014	11/30/15
99813	The Samuel Roberts Noble Foundation, Inc.	2014	11/30/15
108177	Chief Dull Knife College	2014	11/30/15
129020	The University Of Alabama	2014	11/30/15
137152	City Of Albany, Georgia	2014	11/30/15
180267	University Of The Virgin Islands	2014	11/30/15
181427	Brigham Young University	2014	11/30/15
193776	Fort Peck Community College	2014	11/30/15
197375	College Of Micronesia	2014	11/30/15
198864	Asheville Buncombe Community Christian Ministry, Inc.	2014	11/30/15

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Audit Report No.	Institution	Year Ending	Closed Date
202805	New York University Langone Medical Center	2014	11/30/15
208539	Arkansas Land And Farm Development Corporation	2014	11/30/15
226066	Visiting Nurse Health Services & Affiliates	2014	11/30/15
233786	Cornell Cooperative Extension Association Of Oneida County	2014	11/30/15
236903	The Xerces Society, Inc.	2014	11/30/15
238645	Youngstown Neighborhood Development Corporation	2014	11/30/15
81635	Research Triangle Institute	2014	12/01/15
128842	Auburn University	2014	12/01/15
128979	The University Of Alabama In Huntsville	2014	12/01/15
170349	State Of South Carolina	2014	12/01/15
177452	State Of West Virginia	2014	12/01/15
180108	Northern Marianas College	2014	12/01/15
213962	Little Priest Tribal College	2014	12/01/15
31090	Oglala Lakota College	2014	12/10/15
55288	American Society For Microbiology & Subsidiary	2014	12/10/15
68916	Sinte Gleska University	2014	12/10/15
96890	Sistema Universitario Ana G. Mendez, Incorporado	2014	12/10/15
123473	California Institute Of Technology	2014	12/10/15
152717	Mississippi Band Of Choctaw Indians	2014	12/10/15
180242	College Of Micronesia-FSM	2014	12/10/15
181658	State Of Connecticut	2014	12/10/15
187145	Republic Of Palau	2014	12/10/15
188469	College Of The Marshall Islands	2014	12/10/15
192115	The Navajo Nation	2014	12/10/15
193075	Federated States Of Micronesia National Government	2014	12/10/15
196078	Alabama State University	2014	12/10/15
197537	Emory University	2014	12/10/15
204571	Government Of The District Of Columbia	2014	12/10/15
221794	Rocky Mountain Bird Observatory	2014	12/10/15
2667	Worcester Polytechnic Institute	2015	01/05/16
3122	Community Teamwork, Inc.	2015	01/05/16
10969	Boyce Thompson Institute For Plant Research, Inc.	2014	01/05/16
11478	The Research Foundation Of The City University Of New York	2015	01/05/16
17262	Health Research, Inc.	2015	01/05/16
21715	Prevent Child Abuse - New Jersey Chapter, Inc.	2015	01/05/16
25517	Franklin & Marshall College	2015	01/05/16
25536	Delaware Valley University Fka Delaware Valley College Of Science And	2015	01/05/16
25544	Swarthmore College	2015	01/05/16

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Audit Report No.	Institution	Year Ending	Closed Date
33779	Decca, Inc.	2015	01/05/16
43791	CIFT	2015	01/05/16
45995	Hoosier Uplands Economic Development Corporation	2014	01/05/16
80320	Old Dominion University Research Foundation	2015	01/05/16
80947	Marshall University Research Corporation	2015	01/05/16
88388	St. Thomas University, Inc.	2015	01/05/16
88532	Nova Southeastern University, Inc.	2015	01/05/16
92979	Vanderbilt University	2015	01/05/16
97664	Arkansas Children's Hospital	2015	01/05/16
107889	University Corporation At Monterey Bay	2015	01/05/16
108418	Jannus, Inc.	2015	01/05/16
110473	Keystone Symposia On Molecular And Cellular Biology	2015	01/05/16
114631	Community Action Of Skagit County	2014	01/05/16
118364	Santa Clara University	2014	01/05/16
122370	California State University, Fresno Foundation	2015	01/05/16
123573	Cal Poly Corporation	2015	01/05/16
124493	Cal Poly Pomona Foundation, Inc.	2015	01/05/16
124737	California State University, Bakersfield, Aux For Sponsored Program Administration	2015	01/05/16
127595	San Diego State University Research Foundation	2015	01/05/16
127716	University Enterprises Corporation At Csub	2015	01/05/16
130749	University Of Arkansas For Medical Sciences	2015	01/05/16
142018	Georgetown Ridge Farm Community Unit School District #4	2015	01/05/16
145869	Western Kentucky University	2015	01/05/16
146612	Fivco Area Development District, Inc.	2015	01/05/16
147751	Board Of Education Of Worcester County	2015	01/05/16
148661	Michigan State University	2014	01/05/16
148662	Michigan Technological University	2015	01/05/16
150621	Bay Mills Community College	2015	01/05/16
150676	Regents Of The University Of Minnesota	2015	01/05/16
158417	County Of Wayne	2014	01/05/16
161023	Durham County	2015	01/05/16
174864	Austin Community College	2015	01/05/16
175033	San Juan County	2014	01/05/16
175878	Chittenden County Regional Planning Commission	2015	01/05/16
176059	Fauquier County Government And Public Schools	2015	01/05/16
176292	City Of Salem, Virginia	2015	01/05/16
177876	Buffalo County	2014	01/05/16
180907	Southwest Wisconsin Technical College	2015	01/05/16

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Audit Report No.	Institution	Year Ending	Closed Date
181090	South Texas College District	2015	01/05/16
181658	State Of Connecticut	2014	01/05/16
187507	Kenosha County	2014	01/05/16
187721	Cornell Cooperative Extension Of Albany County	2014	01/05/16
188836	Eastern Iowa Community College District	2015	01/05/16
189616	Illinois State University	2015	01/05/16
192207	COIC	2014	01/05/16
197070	Oklahoma State University	2015	01/05/16
197634	Elizabethton City Schools	2015	01/05/16
198236	Ilisagvik College	2015	01/05/16
206661	Cen-Tex Certified Development Corp And Affiliates	2015	01/05/16
211781	South Carolina Research Foundation	2015	01/05/16
218814	Easter Seals Ucp North Carolina & Virginia, Inc.	2015	01/05/16
220604	San Antonio Food Bank, Inc. & Safb Real Estate, Inc.,	2015	01/05/16
222332	Cornell Cooperative Extension Association Of Jefferson County	2014	01/05/16
230937	Food Bank Coalition Of San Luis Obispo County	2014	01/05/16
231014	Journey's End Refugee Services, Inc.	2014	01/05/16
231358	The Broad Institute, Inc.	2015	01/05/16
234403	The Translational Genomics Research Institute	2014	01/05/16
240478	Greater Lansing Food Bank	2015	01/05/16
241630	Montefiore Health System, Inc.	2014	01/05/16
243517	Licar, LLC	2015	01/05/16
243589	Mid Klamath Watershed Council	2014	01/05/16
5982	Roger Williams University	2015	01/07/16
6735	Yale University	2015	01/07/16
101106	William Marsh Rice University	2015	01/07/16
122394	Humboldt State University Sponsored Programs Foundation	2015	01/07/16
141358	City Colleges Of Chicago Community College District No. 508	2015	01/07/16
142099	Joliet Junior College Community College District 525	2015	01/07/16
175301	Vermont State Colleges	2015	01/07/16
181025	Cankdeska Cikana Community College	2015	01/07/16
199681	Kashia Band Of Pomo Indians Of The Stewarts Point Rancheria	2014	01/07/16
204427	Ajo Community Health Center DbA Desert Senita Community Health Center	2015	01/07/16
127	University Of New England	2015	08/01/16
282	Goodwill Industries Of Northern New England	2015	08/01/16
356	Coastal Enterprises, Inc. & Subsidiaries	2015	08/01/16
895	Southern New Hampshire Services, Inc.	2015	08/01/16
1535	Vermont Center For Independent Living, Inc.	2015	08/01/16

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Audit Report No.	Institution	Year Ending	Closed Date
2956	Third Sector New England And Affiliate	2015	08/01/16
3877	Franklin County Community Development Corporation	2015	08/01/16
6005	Gordon Research Conferences And Subsidiary	2015	08/01/16
7478	Hispanic Health Council, Inc. & Subsidiary	2015	08/01/16
9545	Cypress Hills Local Development Corporation	2015	08/01/16
10654	National Audubon Society, Inc.	2015	08/01/16
10689	Teachers College, Columbia University	2015	08/01/16
15175	New York University	2015	08/01/16
15491	International Rescue Committee, Inc.	2015	08/01/16
17157	Rensselaer Polytechnic Institute	2015	08/01/16
18063	Syracuse University	2015	08/01/16
20066	Princeton University	2015	08/01/16
24340	Cary Institute Of Ecosystem Studies, Inc.	2015	08/01/16
25212	Ursinus College	2015	08/01/16
25438	The Pennsylvania Horticultural Society	2015	08/01/16
25526	Thomas Jefferson University	2015	08/01/16
25540	Saint Joseph's University	2015	08/01/16
25631	Dickinson College	2015	08/01/16
25638	Temple University	2015	08/01/16
27062	Health Promotion Council Of Southeastern Pennsylvania, Inc.	2015	08/01/16
29233	College Of The Atlantic	2015	08/01/16
29323	Community Action Agency Of St. Louis County, Inc.	2015	08/01/16
32124	Public Health Management Corporation	2015	08/01/16
33435	Janus Youth Programs, Inc.	2015	08/01/16
34298	Council Of State And Territorial Epidemiologists, Inc.	2015	08/01/16
41431	Torrey Pines Institute For Molecular Studies, Inc.	2015	08/01/16
42364	The College Of Wooster	2015	08/01/16
47882	Loyola University Of Chicago	2015	08/01/16
48323	International City/County Management Association	2015	08/01/16
48368	Dominican University	2015	08/01/16
48480	Rush University Medical Center Obligated Group	2015	08/01/16
49169	Illinois Migrant Council	2015	08/01/16
58139	Eightcap, Inc.	2015	08/01/16
59870	Lac Courte Oreilles Ojibwa Community College	2015	08/01/16
65853	Washington University	2015	08/01/16
68499	Turtle Mountain Community College	2015	08/01/16
69537	The Center For Rural Affairs & Controlled Organizations	2015	08/01/16
70282	University Of Kansas Center For Research, Inc	2015	08/01/16
77803	Carnegie Institution Of Washington	2015	08/01/16

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Audit Report No.	Institution	Year Ending	Closed Date
77976	Resources For The Future, Inc.	2015	08/01/16
80920	West Virginia University Research Corporation	2015	08/01/16
80988	West Virginia State University Research And Development Corporation	2015	08/01/16
81366	Wake Forest University	2015	08/01/16
87167	National Foundation For The Centers For Disease Control And Prevention	2015	08/01/16
93019	Meharry Medical College	2015	08/01/16
98491	The Administrators Of The Tulane Educational Fund	2015	08/01/16
99746	Oklahoma City University	2015	08/01/16
99813	The Samuel Roberts Noble Foundation, Inc.	2015	08/01/16
101129	University Of The Incarnate Word	2015	08/01/16
101517	Houston Baptist University	2015	08/01/16
101742	Baylor College Of Medicine	2015	08/01/16
106521	Rolling Plains Management Corporation	2015	08/01/16
107312	Fresno Area Workforce Investment Corporation	2015	08/01/16
108177	Chief Dull Knife College	2015	08/01/16
108191	National Center For Appropriate Technology	2015	08/01/16
109269	University Corporation For Atmospheric Research	2015	08/01/16
109624	American Indian Higher Education Consortium	2015	08/01/16
111110	Navajo Technical University	2015	08/01/16
111249	Biomedical Research Institute Of New Mexico	2015	08/01/16
114648	Mercy Corps And Affiliates	2015	08/01/16
116396	Reed Institute	2015	08/01/16
118672	University Enterprises, Inc.	2015	08/01/16
119054	Fresno Economic Opportunities Commission	2015	08/01/16
119196	North Coast Opportunities, Inc.	2015	08/01/16
122401	The Health Trust And Subsidiary	2015	08/01/16
124104	The University Corporation	2015	08/01/16
124177	California State University Fullerton Auxiliary Services Corp.	2015	08/01/16
124397	Hubbs-Sea World Research Institute	2015	08/01/16
125745	Inyo Mono Advocates For Community Action	2015	08/01/16
127000	Community Partners	2015	08/01/16
127914	California State University Long Beach, Research Foundation	2015	08/01/16
129020	The University Of Alabama	2015	08/01/16
131856	County Of Mono	2015	08/01/16
132305	City Of Santa Maria	2015	08/01/16
134046	Rancho Santiago Community College District	2015	08/01/16
134345	Cabrillo Community College District	2015	08/01/16
134437	Sonoma County Junior College District	2015	08/01/16

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134460	Yosemite Community College District	2015	08/01/16
137901	Boise State University	2015	08/01/16
137921	Idaho State University	2015	08/01/16
138010	City Of Boise	2015	08/01/16
142235	Indiana University	2015	08/01/16
142300	Ivy Tech Community College	2015	08/01/16
144622	Iowa Valley Community College District	2015	08/01/16
144734	Indian Hills Community College	2015	08/01/16
145682	Northwest Kansas Educational Service Center Interlocal Dist. 602	2015	08/01/16
146452	Boyle County School District	2015	08/01/16
147750	Worcester County Maryland	2015	08/01/16
147921	County Of Barnstable	2015	08/01/16
148074	Town Of Greenfield	2015	08/01/16
148660	Lake Superior State University	2015	08/01/16
148661	Michigan State University	2015	08/01/16
148665	Oakland University	2015	08/01/16
148753	County Of Ogemaw	2015	08/01/16
150326	L'Anse Creuse Public Schools	2015	08/01/16
150568	Saline Area Schools	2015	08/01/16
154762	Aaniiih Nakoda College, Inc.	2015	08/01/16
154881	University Of Nebraska	2015	08/01/16
155938	Lyon County	2015	08/01/16
158010	Eastern New Mexico University	2015	08/01/16
158041	University Of New Mexico	2015	08/01/16
158219	Central New Mexico Community College	2015	08/01/16
160404	South Jefferson Central School District	2015	08/01/16
161038	Graham County	2015	08/01/16
161050	Harnett County, North Carolina	2015	08/01/16
161190	Wake County, North Carolina	2015	08/01/16
162393	Ohio University	2015	08/01/16
162412	The University Of Toledo	2015	08/01/16
164273	Wauseon Exempted Village School District	2015	08/01/16
166683	Chemeketa Community College	2015	08/01/16
166795	The Pennsylvania State University	2015	08/01/16
170381	Tri-County Technical College	2015	08/01/16
170383	York Technical College	2015	08/01/16
170768	Horry County Schools	2015	08/01/16
171190	Mitchell School District No. 17-2	2015	08/01/16
171698	City Of Johnson City	2015	08/01/16

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Audit Report No.	Institution	Year Ending	Closed Date
171937	Upper Cumberland Development District	2015	08/01/16
174919	Laredo Community College	2015	08/01/16
175033	San Juan County	2015	08/01/16
176055	County Of Dickenson, VA	2015	08/01/16
177417	Northwest Indian College	2015	08/01/16
177522	Municipality Of Huntington	2015	08/01/16
179495	Milwaukee Public Schools	2015	08/01/16
180863	Camden County College	2015	08/01/16
180985	Purdue University	2015	08/01/16
181269	Catholic Charities Of Louisville, Inc.	2015	08/01/16
181377	Montclair State University	2015	08/01/16
181758	Boston Medical Center	2015	08/01/16
181877	Children's Hospital Medical Center	2015	08/01/16
182235	Karuk Tribe	2015	08/01/16
182723	Northeast Texas Public Health District	2015	08/01/16
182765	Butte Local Development Corporation	2015	08/01/16
182945	Saginaw Chippewa Indian Tribe Of Michigan	2015	08/01/16
184256	The County Commissioners Of Caroline County	2015	08/01/16
185455	The Csu,Chico Research Foundation	2015	08/01/16
187338	Del Mar College	2015	08/01/16
193634	Oregon Health & Science University	2015	08/01/16
193776	Fort Peck Community College	2015	08/01/16
197375	College Of Micronesia	2015	08/01/16
197499	Riverside Community College District	2015	08/01/16
198517	Contra Costa Community College District	2015	08/01/16
199127	Community Action Agency Of Jackson, Lenawee, And Hillsdale	2015	08/01/16
200449	Alabama A&M University	2015	08/01/16
200554	Red Cliff Band Of Lake Superior Chippewa's	2015	08/01/16
202015	Little Big Horn College	2015	08/01/16
202805	New York University Langone Medical Center	2015	08/01/16
203258	The Food Trust	2015	08/01/16
204527	National 4-H Council And Controlled Affiliates	2015	08/01/16
204563	Tohono O'Odham Community College	2015	08/01/16
207909	Maui Economic Development Board, Inc.	2015	08/01/16
211695	University Of South Carolina	2015	08/01/16
212059	Ascentria Community Services, Inc. Fka Lutheran Community Services	2015	08/01/16
214083	St. Labre Indian School Educational Association	2015	08/01/16
218327	Edward Via Virginia College Of Osteopathic Medicine	2015	08/01/16

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Audit Report No.	Institution	Year Ending	Closed Date
220192	College Of Southern Idaho	2015	08/01/16
221794	Rocky Mountain Bird Observatory DbA Bird Conservancy Of The Rockies	2015	08/01/16
223375	Gsu Research And Service Foundation, Inc.	2015	08/01/16
224154	Delta Health Alliance, Inc.	2015	08/01/16
225360	Michigan Physical Fitness Health And Sports Foundation	2015	08/01/16
227188	Food Bank Of Delaware, Inc.	2015	08/01/16
232433	Tri-County Council For Southern Maryland	2015	08/01/16
235969	The Food Bank Of Northeast Georgia, Inc.	2015	08/01/16
239596	The American Planning Association	2015	08/01/16
240462	Southern Appalachian Highlands Conservancy	2015	08/01/16
240689	Healthy Acadia	2015	08/01/16
240925	Drake University	2015	08/01/16
243857	Asian Services In Action, Inc.	2015	08/01/16
244592	University Of Oregon	2015	08/01/16
244698	Youngstown Neighborhood Development Corporation	2015	08/01/16
2626	Clark University	2015	08/05/16
4611	The Woods Hole Research Center, Inc.	2015	08/05/16
18167	Clarkson University	2015	08/05/16
35229	Lafayette College	2015	08/05/16
60472	College Of Menominee Nation	2015	08/05/16
145832	Colby Community College	2015	08/05/16
162415	Bowling Green State University	2015	08/05/16
188469	College Of The Marshall Islands	2015	08/05/16
191678	City Of Houston	2015	08/05/16
211692	Clemson University	2015	08/05/16
212768	White Earth Tribal And Community College	2015	08/05/16
233688	Urban Ventures Leadership Foundation 6-30-2015 & 6-Months End 12-31-14	2015	08/05/16
5865	Brown University	2015	08/08/16
15322	Columbia University	2015	08/08/16
33816	Sitting Bull College	2015	08/08/16
35809	Carnegie Mellon University	2015	08/08/16
35942	Duquesne University Of The Holy Spirit	2015	08/08/16
101232	Baylor University	2015	08/08/16
108238	Blackfeet Community College	2014	08/08/16
108238	Blackfeet Community College	2015	08/08/16
123473	California Institute Of Technology	2015	08/08/16
128842	Auburn University	2015	08/08/16
131804	University Of California	2015	08/08/16

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Audit Report No.	Institution	Year Ending	Closed Date
131807	California State University	2015	08/08/16
142179	Ball State University	2015	08/08/16
147913	Commonwealth Of Massachusetts	2015	08/08/16
173946	Alamo Community College District	2015	08/08/16
175887	Commonwealth Of Virginia	2015	08/08/16
180108	Northern Marianas College	2015	08/08/16
180242	College Of Micronesia-FSM	2015	08/08/16
188201	Allan Hancock Joint Community College District	2015	08/08/16
193608	Community College District Of Newton And McDonald Counties, Missouri	2015	08/08/16
194401	American Samoa Community College	2015	08/08/16
195416	Pueblo Of Jemez	2015	08/08/16
18064	Cornell University	2015	08/09/16
25515	Drexel University	2015	08/09/16
81362	Duke University	2015	08/09/16
123517	Chapman University And Affiliates	2015	08/09/16
148653	Central Michigan University	2015	08/09/16
148655	Eastern Michigan University	2015	08/09/16
161202	County Of Wayne	2015	08/09/16
162382	Central State University	2015	08/09/16
174197	El Paso County Community College District	2015	08/09/16
191889	Fairleigh Dickinson University	2015	08/09/16
193075	Federated States Of Micronesia National Government	2015	08/09/16
197537	Emory University	2015	08/09/16
219643	Delaware State University	2015	08/09/16
2155	Harvard University	2015	08/10/16
18506	Hobart And William Smith Colleges	2015	08/10/16
48426	Illinois Institute Of Technology	2015	08/10/16
68497	Fort Berthold Community College Dba Nueta Hidatsa Sahnish College	2015	08/10/16
96882	Inter-American University Of Puerto Rico, Inc.	2015	08/10/16
128363	Hawaii Pacific University	2015	08/10/16
133999	Hartnell Community College District	2015	08/10/16
145868	Kentucky State University	2015	08/10/16
148657	Grand Valley State University	2015	08/10/16
150629	Hannahville Indian Community	2015	08/10/16
162411	Kent State University	2015	08/10/16
174338	Houston Community College	2015	08/10/16
193066	Institute Of American Indian And Alaska Native Culture And Arts Development	2015	08/10/16

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Audit Report No.	Institution	Year Ending	Closed Date
204571	Government Of The District Of Columbia	2015	08/10/16
238068	Greenfield Community College	2015	08/10/16
202	Maine Medical Center And Subsidiaries	2015	08/11/16
1344	Middlebury College	2015	08/11/16
1942	Northeastern University	2015	08/11/16
130463	Maricopa County Community College District	2015	08/11/16
138560	Northern Illinois University	2015	08/11/16
145871	Murray State University	2015	08/11/16
152717	Mississippi Band Of Choctaw Indians	2015	08/11/16
152736	Lincoln University	2015	08/11/16
152737	Missouri State University	2015	08/11/16
158024	New Mexico State University	2015	08/11/16
164828	Langston University	2015	08/11/16
179717	Menominee Tribal Enterprise	2015	08/11/16
180900	Nevada System Of Higher Education	2015	08/11/16
182312	New Jersey Institute Of Technology	2015	08/11/16
193596	Northeastern Illinois University	2015	08/11/16
194414	New Mexico Highlands University	2015	08/11/16
205751	Klamath Community College District	2015	08/11/16
217183	Leech Lake Tribal College, Inc.	2015	08/11/16
236728	Latino Economic Development Corporation	2014	08/11/16
31090	Oglala Lakota College	2015	08/15/16
68916	Sinte Gleska University	2015	08/15/16
81635	Research Triangle Institute	2015	08/15/16
108237	Salish Kootenai College	2015	08/15/16
122380	San Jose State University Research Foundation	2015	08/15/16
130503	Pima County Community College District	2015	08/15/16
177397	Quinault Indian Nation	2015	08/15/16
182926	Rutgers, The State University Of New Jersey	2015	08/15/16
187145	Republic Of Palau	2015	08/15/16
192840	Regents Of The University Of Michigan	2015	08/15/16
233569	Partners Healthcare System, Inc. And Affiliates	2015	08/15/16
244593	Portland State University	2015	08/15/16
54157	Southern Illinois University	2015	08/16/16
96890	Sistema Universitario Ana G. Mendez, Incorporado	2015	08/16/16
101117	St. Edwards University, Inc.	2015	08/16/16
129783	State Of Alaska	2015	08/16/16
134720	State Of Colorado	2015	08/16/16
136063	State Of Florida	2015	08/16/16

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Audit Report No.	Institution	Year Ending	Closed Date
136829	State Of Georgia/State Accounting Office	2015	08/16/16
137965	State Of Idaho	2015	08/16/16
143605	State Of Iowa	2015	08/16/16
144797	State Of Kansas	2015	08/16/16
152746	Southeast Missouri State University	2015	08/16/16
171339	Sisseton Wahpeton Oyate	2015	08/16/16
181658	State Of Connecticut	2015	08/16/16
181664	State Of Arizona	2015	08/16/16
202042	State Center Community College District	2015	08/16/16
203015	State Of Illinois Governor's Office Of Management And Budget	2015	08/16/16
212629	South Carolina State University	2014	08/16/16
212629	South Carolina State University	2015	08/16/16
212942	State Of Arkansas	2015	08/16/16
147719	State Of Maryland	2015	08/17/16
150662	State Of Minnesota	2015	08/17/16
154226	State Of Montana	2015	08/17/16
155928	State Of Nevada	2015	08/17/16
162380	State Of Ohio	2015	08/17/16
166019	State Of Oregon	2015	08/17/16
170255	State Of Rhode Island And Providence Plantations	2015	08/17/16
170349	State Of South Carolina	2015	08/17/16
170831	State Of South Dakota	2015	08/17/16
171359	State Of Tennessee	2015	08/17/16
181661	State Of North Carolina	2015	08/17/16
181667	State Of New Jersey	2015	08/17/16
193043	State Of Mississippi Institutions Of Higher Learning	2015	08/17/16
244560	Oregon State University	2015	08/17/16
74455	The American Farmland Trust	2015	08/18/16
77824	The George Washington University	2015	08/18/16
78063	The Nature Conservancy	2015	08/18/16
101351	Texas A&M Research Foundation	2015	08/18/16
108311	Stone Child College	2015	08/18/16
166791	Commonwealth Of Pennsylvania	2015	08/18/16
176362	State Of Washington C/O Office Of Financial Management	2015	08/18/16
177452	State Of West Virginia	2015	08/18/16
177867	State Of Wisconsin	2015	08/18/16
192115	The Navajo Nation	2015	08/18/16
738	Trustees Of Dartmouth College	2015	08/22/16
2190	Tufts University	2015	08/22/16

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Audit Report No.	Institution	Year Ending	Closed Date
17225	The Research Foundation For The State University Of New York	2015	08/22/16
17258	Trudeau Institute, Inc.	2015	08/22/16
48485	The University Of Chicago	2015	08/22/16
68471	United Tribes Technical College	2015	08/22/16
95688	Tougaloo College	2015	08/22/16
128979	The University Of Alabama In Huntsville	2015	08/22/16
128980	The University Of Alabama At Birmingham	2015	08/22/16
180102	University Of Guam	2015	08/22/16
45510	University Of Notre Dame Du Lac	2015	08/23/16
87899	University Of Miami	2015	08/23/16
123525	University Of La Verne	2015	08/23/16
137874	University Of Hawaii	2015	08/23/16
145872	University Of Kentucky	2015	08/23/16
147114	University Of Maine System	2015	08/23/16
152738	University Of Missouri System	2015	08/23/16
186541	University Of Idaho	2015	08/23/16
192446	University Of Massachusetts	2015	08/23/16
192565	University Of Oklahoma Norman Campus	2015	08/23/16
220190	University Of Louisville	2015	08/23/16
25545	University Of Pennsylvania	2015	08/24/16
35765	University Of Pittsburgh Of The Commonwealth System Of Higher Ed	2015	08/24/16
1366	University Of Vermont And State Agricultural College	2015	08/25/16
10698	Yeshiva University	2015	08/25/16
25538	University Of The Sciences In Philadelphia	2015	08/25/16
32445	Vermont Law School, Inc.	2015	08/25/16
78369	University Of Richmond & Its Affiliates	2015	08/25/16
123466	University Of Southern California	2015	08/25/16
125231	Western University Of Health Sciences	2015	08/25/16
138595	Western Illinois University	2015	08/25/16
179453	Western Technical College District	2015	08/25/16
180267	University Of The Virgin Islands	2015	08/25/16
181178	Wayne State University	2015	08/25/16
198496	University Of Delaware	2015	08/25/16
242736	University System Of New Hampshire	2015	08/25/16
204050	Nebraska Indian Community College	2015	08/29/16
179738	State Of Wyoming	2015	08/30/16
2550	Woods Hole Oceanographic Institution	2015	09/01/16
10969	Boyce Thompson Institute	2015	09/01/16

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Audit Report No.	Institution	Year Ending	Closed Date
35683	American Institutes For Research In The Behavioral Sciences	2015	09/01/16
45995	Hoosier Uplands Economic Development Corporation	2015	09/01/16
55288	American Society For Microbiology	2015	09/01/16
57384	Michigan Family Resources	2015	09/01/16
69446	Legal Aid Of Nebraska	2015	09/01/16
73151	Federation Of American Societies For Experimental Biology	2015	09/01/16
76799	J. Craig Venter Institute	2015	09/01/16
84668	Young Men's Christian Association Of Metropolitan Atlanta, Inc.	2015	09/01/16
119146	Public Health Institute	2015	09/01/16
182151	Cornell Cooperative Extension Association Of Madison County	2015	09/01/16
183783	Cornell Cooperative Extension Of Suffolk County	2015	09/01/16
187512	Chelan County	2015	09/01/16
187721	Cornell Cooperative Extension Of Albany County	2015	09/01/16
196502	Sacramento Food Bank And Family Services	2015	09/01/16
203312	Donald Danforth Plant Science Center	2015	09/01/16
207799	Chicago Horticultural Society	2015	09/01/16
213151	Rural Community Development Resources	2015	09/01/16
226066	Visiting Nurse Health Services & Affiliates	2015	09/01/16
226781	Texas Health Institute	2015	09/01/16
228511	Covenant Health, Inc.	2015	09/01/16
236903	The Xerces Society, Inc.	2015	09/01/16
243589	Mid Klamath Watershed Council	2015	09/01/16
2437	Marine Biological Laboratory 6 Month Audit	2015	09/06/16
129783	State Of Alaska	2014	09/06/16

A-133 audit reviews for the grantees listed below were in progress for 2017.

Audit Report No.	Institution	Year Ending
225299	Growing Power, Inc.	2013
128562	Pacific Gateway Center *	2013
94539	Tuskegee University	2015
138590	University Of Illinois	2015
146632	State Of Louisiana	2015
162392	The Ohio State University *	2015
175013	State Of Utah	2015
179770	University Of Wyoming	2015
138493	Chicago State University *	2015

(* Completed in 2017)

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OIG Reports

There were no audits completed during fiscal year 2016.

The audits below are ongoing in fiscal year 2017.

OIG Audit Report Number	Audit Report Name
13601-0001-22	NIFA Formula Grant Program Controls Over Fund Allocations to States

GAO Studies

The reports below were completed during fiscal year 2016.

GAO Report Number	Report Name
GAO Job Code 100149	Agencies Compliance with SBIR & STTR Spending Requirements for FY 2014.
GAO Job Code 441286	Federal Disaster Assistance Expenditures
GAO Job Code 131333	Women in Federal STEM Research
GAO Job Code 240741	Consumer Product Safety Duplication, Overlap and Fragmentation
GAO Job Code 361628	Federal Research Requirements

The reports below ongoing in fiscal year 2017.

GAO Report Number	Report Name
GAO Job Code 101004	Agencies Compliance with SBIR & STTR Spending Requirements.
GAO Job Code 100182	Advanced Biofuels Research and Development
GAO Job Code 100244	Merit-based Pre-award Grant Process
GAO Job Code 100340	Federal Funding for Harmful Algal Blooms Research
GAO Job Code 100781	Agencies' Vulnerability to Fraud, Waste, and Abuse in SBIR & STTR programs
GAO Job Code 100398	Sustainable Chemistry Technology Assessment
GAO Job Code 101068	Reducing Nutrient Pollution

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Available Funds and Staff Years (SYs) (Dollars in thousands)

Item	2015 Actual		2016 Actual		2017 Estimate		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Research and Education Activities:								
Discretionary Appropriations.....	\$786,874	221	\$819,685	217	\$818,128	217	\$769,613	217
Native American Endowment Fund (Interest Earned):								
Discretionary Appropriations.....	5,079		4,706		4,823		4,660	
Extension Activities:								
Discretionary Appropriations.....	471,691	145	475,891	143	474,987	138	462,890	144
Mandatory Appropriations.....	25,000	-	45,000	-	45,000	-	50,000	-
Integrated Activities:								
Discretionary Appropriations.....	30,900	5	30,900	5	30,841	4	20,276	4
Mandatory Appropriations.....	100,000	-	100,000	-	100,000	-	100,000	-
Biomass Research and Development Initiative:								
Mandatory Appropriations.....	3,000	-	3,000	-	3,000	-	-	-
Sequestration.....	-9,344	-	-10,064	-	-10,212	-	-	-
Transfers In.....	102	-	102	-	-	-	-	-
Adjusted Appropriation.....	1,413,302	371	1,469,220	365	1,466,567	359	1,407,439	365
Balance Available, SOY.....	393,958	-	394,128	-	490,377	-	-	-
Recoveries.....	29,422	-	31,732	-	-	-	-	-
Total Available.....	1,836,682	371	1,895,080	365	1,956,944	359	1,407,439	365
Lapsing Balances.....	-814	-	-928	-	-	-	-	-
Balance Available, EOY.....	-394,128	-	-490,377	-	-	-	-	-
Obligations.....	1,441,740	371	1,403,775	365	1,956,944	359	1,407,439	365
Other Appropriations:								
Biodiesel Fuel Education Program.....	927	-	932	-	931	-	1,000	-
Community Food Projects Program.....	9,000	-	9,000	-	9,000	-	9,000	-
Total, Other Appropriations.....	9,927	-	9,932	-	9,931	-	10,000	-
Total, Appropriations.....	1,441,740	371	1,403,775	365	1,956,944	359	1,417,439	365
Obligations under other USDA appropriations:								
Research and Education Activities:								
Agricultural Research Service:								
Biotechnology Risk Assessment.....	1,560	-	1,519	-	1,500	-	1,500	-
National Atmospheric Deposition Program.....	7	-	7	-	-	-	-	-
Agricultural Marketing Service:								
Salary, Benefits and Operating Expenses for Detailees.....	18	-	-	-	-	-	-	-
Civil Rights:								
Salary, Benefits and Operating Expenses for Detailees.....	-	-	40	-	-	-	-	-
Forest Service:								
National Atmospheric Deposition Program.....	223	-	197	-	197	-	197	-
Biotechnology Risk Assessment.....	108	-	95	-	95	-	95	-
Salary, Benefits and Operating Expenses for Detailees.....	-	-	15	-	-	-	-	-
Foreign Agricultural Service:								
Salary, Benefits and Operating Expenses for Detailees.....	8	-	53	-	-	-	-	-
Office of the Chief Scientist:								
Salary, Benefits and Operating Expenses for Detailees.....	133	-	206	-	-	-	-	-
Various agencies sharing cost of the USDA Small Business Innovation Research Program (SBIR).....								
Business Innovation Research Program (SBIR).....	2,765	-	2,771	-	2,771	-	2,771	-
Various research agencies sharing cost of the Current Research Information System (CRIS).....								
Research Information System (CRIS).....	640	-	640	-	640	-	640	-
Other Anticipated Reimbursable Agreements.....	-	-	-	-	5,543	-	5,543	-
Subtotal, Research and Education.....	5,462	-	5,543	-	10,746	-	10,746	-

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Item	2015 Actual		2016 Actual		2017 Estimate		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Extension Activities:								
Local Food Resource Mapping.....	880	-	-	-	-	-	-	-
Food and Nutrition Service:								
Study SNAP-Ed Activities.....	2,000	-	-	-	-	-	-	-
Food Safety and Inspection Service:								
Study SNAP-Ed Activities.....	18	-	-	-	-	-	-	-
Rural Development:								
AAPI/Hmong Resource Center.....	100	-	-	-	-	-	-	-
Subtotal, Extension.....	2,998	-	-	-	-	-	-	-
Total, Other USDA Appropriations.....	5,462	-	5,543	-	10,746	-	10,746	-
Other Federal Funds:								
Research and Education Activities:								
US Air Force:								
KSU-USAF 2014 FAP Research Project.....	1,965	-	-	-	-	-	-	-
US Air Force AFMMOA/SGHW								
Family Advocacy Program.....	-	-	350	-	-	-	-	-
Reduce Victims Risk of Repeat Sexual Assault/Assault.....	2,640	-	-	-	-	-	-	-
US Air Force Traumatic Brain Injury.....	1,498	-	-	-	-	-	-	-
Air Force Mental Health Research.....	-	-	971	-	-	-	-	-
Sexual Assault Research.....	-	-	1,519	-	-	-	-	-
Department of Commerce:								
NOAA National Atmospheric Deposition Program.....	235	-	235	-	235	-	235	-
Department of Defense:								
Professional Development Delivery Model.....	-	-	1,347	-	-	-	-	-
School Staff to Support Students Military Members.....	-	-	600	-	-	-	-	-
Military Community and Family Policy.....	-	-	1,361	-	-	-	-	-
Navy/4-H Military Partnership and Outreach and Support.....	550	-	-	-	-	-	-	-
Environmental Protection Agency:								
National Atmospheric Deposition Program.....	639	-	536	-	536	-	536	-
Department of Interior:								
Geological Survey,								
National Atmospheric Deposition Program.....	604	-	608	-	608	-	608	-
National Park Service,								
National Atmospheric Deposition Program.....	409	-	391	-	391	-	391	-
Bureau of Land Management,								
National Trends Network.....	54	-	52	-	52	-	52	-
Other Anticipated Reimbursable Agreements.....	-	-	-	-	1,500	-	1,500	-
Subtotal, NIFA Research.....	8,594	-	7,970	-	3,322	-	3,322	-

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Item	2015 Actual		2016 Actual		2017 Estimate		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Other Federal Funds:								
Extension Activities:								
Department of Defense:								
Army Evaluation Program.....	-	-	318	-	-	-	-	-
Army Substance Abuse Program, Ft-Sam.....	-	-	419	-	-	-	-	-
Army/4-H Military Partnership.....	1,100	-	600	-	-	-	-	-
Army Youth Development Program.....	-	-	-	-	600	-	600	-
Air Force 4-H Programs.....	-	-	-	-	400	-	400	-
Air Force Family Advocacy Program (Kansas State).....	-	-	-	-	1,000	-	1,000	-
Air Force Partnership & Outreach and Support.....	1,800	-	400	-	-	-	-	-
Air Force Mental Health Risk Management.....	-	-	311	-	-	-	-	-
Air Force Psychological Health (Kansas State).....	-	-	-	-	1,500	-	1,500	-
Autism Phase II Study.....	-	-	-	-	-	-	200	-
Clearinghouse for Military Family Readiness.....	3,160	-	1,870	-	2,000	-	2,000	-
Cost Benefit/Effectiveness Analysis of								
Army Community Services.....	548	-	-	-	-	-	-	-
Development of Math Curriculum Model Units.....	400	-	-	-	-	-	-	-
DOD K-8 Gifted Education Program.....	-	-	229	-	-	-	-	-
DOD K-8 Health Education.....	-	-	176	-	-	-	-	-
Family Life Skills, Fort Sam Houston (TX AgriLife Extension Services).....	1,222	-	-	-	383	-	-	-
Family Life Skills, Fort Sam Houston.....	-	-	-	-	-	-	400	-
Family Advocacy Program Incident Determination Committee.....	2,000	-	2,365	-	1,800	-	1,800	-
Family Advocacy Program.....	-	-	449	-	-	-	-	-
Family Advocacy Program and New Parent Support, Fort Hood.....	1,371	-	-	-	-	-	-	-
Family Advocacy Victim Advocacy Tutorial.....	158	-	-	-	-	-	-	-
Mental Health Risk Management Zero Suicide Framework.....	-	-	1,240	-	-	-	-	-
Military Family Learning Network eXtension.....	2,439	-	-	-	1,800	-	1,800	-
Military Family Learning Networks Leadership & Core Support.....	-	-	777	-	-	-	-	-
Military Family Learning Networks Concentration.....	-	-	1,215	-	-	-	-	-
Military Family Learning Virtual Learning Events.....	-	-	194	-	-	-	-	-
Military Spouse License.....	-	-	400	-	-	-	-	-
Professional Development Delivery Model for DoDEA.....	-	-	-	-	1,000	-	1,000	-
Project Youth Extension Services.....	-	-	1,200	-	-	-	-	-
Project Military REACH.....	660	-	660	-	500	-	500	-
Teen Adventure Camps.....	880	-	770	-	700	-	700	-
Relocation Assistance Program, Ft. Hood.....	160	-	-	-	-	-	-	-
Substance Abuse Program Joint Base San Antonio, TX.....	409	-	-	-	-	-	-	-
Substance Abuse Program Ft. Hood.....	430	-	-	-	-	-	-	-
Suicide Prevention Professional Development.....	-	-	159	-	-	-	-	-
Virtual Lab School.....	-	-	500	-	500	-	500	-
Department of Housing and Urban Development:								
IPM Training to Public Housing Authorities.....	300	-	400	-	400	-	400	-
Healthy Homes.....	250	-	250	-	325	-	325	-
U.S. Department of Navy:								
Extension System-Military Partnership Virtual Lab School.....	1,350	-	-	-	-	-	-	-
Navy/4-H Military Partnership and Outreach and Support.....	1,282	-	1,190	-	1,000	-	1,000	-
Navy Youth Sports and Fitness Project.....	-	-	451	-	451	-	451	-
Other Anticipated Reimbursements.....	-	-	-	-	1,500	-	1,500	-
Subtotal, Extension Other Federal Funds.....	19,919	-	16,543	-	15,859	-	16,076	-
Total, NIFA Other Federal Funds.....	28,513	-	24,513	-	19,181	-	19,398	-
Total, NIFA Available Funds.....	1,475,715	371	1,433,831	365	1,986,871	359	1,447,583	365

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Permanent Positions by Grade and Staff Year Summary

Item	<u>2015 Actual</u>	<u>2016 Actual</u>	<u>2017</u>	<u>2018 President's</u>
	Wash. D.C.	Wash. D.C.	Estimate Wash. D.C.	Budget Wash. D.C.
Senior Executive Service.....	8	8	8	8
GS-15.....	72	75	75	77
GS-14.....	52	57	57	57
GS-13.....	63	68	68	64
GS-12.....	75	83	83	86
GS-11.....	29	33	33	30
GS-10.....	6	7	7	7
GS-9.....	21	23	23	23
GS-8.....	13	14	14	14
GS-7.....	36	28	28	30
GS-6.....	7	8	8	9
GS-5.....	5	4	4	3
GS-4.....	3	3	3	3
GS-3.....	1	1	1	1
Total Perm. Positions.....	391	412	412	412
Unfilled, EOY	-38	-63	-57	-30
Total, Perm. Full-Time Employment, EOY	353	349	355	382
Staff Year Est.....	371	365	359	365

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Research and Education Activities

The estimates include appropriation language for this item as follows (new language underscored; deleted matter enclosed in brackets):

Research and Education Activities

- 1 For payments to agricultural experiment stations, for cooperative forestry and other research, for facilities, and for other expenses, [~~\$819,685,000~~]\$769,613,000], which shall be for the purposes, and in the amounts, specified in the table titled "National Institute of Food and Agriculture, Research and Education Activities" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act): *Provided*, That funds for research grants for 1994 institutions, education grants for 1890
- 2 institutions, [~~capacity building for non-land-grant colleges of agriculture,~~] the agriculture and food research initiative, veterinary medicine loan repayment, [~~multicultural scholars, graduate fellowship and institution challenge grants,~~] and grants management systems shall remain available until expended: *Provided further*, That each institution eligible to receive funds under the Evans-Allen program receives no less than \$1,000,000: *Provided further*, That funds for education grants for Alaska Native and Native Hawaiian-serving institutions be made available to individual eligible institutions or consortia of eligible institutions with funds awarded equally to each of the States of Alaska and Hawaii: *Provided further*, That funds for education grants for 1890 institutions shall be made available to institutions eligible to receive funds under 7 U.S.C. 3221 and 3222: *Provided further*, That not more than 5 percent of the amounts made available by this or any other Act to carry out the Agriculture and Food Research Initiative under 7 U.S.C. 450i(b) may be retained by the Secretary of Agriculture to pay administrative costs incurred by the Secretary in carrying out that authority.

Explanation of Change

The first change eliminates reference to the explanatory statement.

The second change eliminates language for several line items that are not proposed for 2018, including capacity building for non-land-grant colleges of agriculture, multicultural scholars, graduate fellowship, and institution challenge grants.

Native American Institutions Endowment Fund

For the Native American Institutions Endowment Fund authorized by Public Law 103-382 (7 U.S.C. 301 note), [~~\$11,880,000,~~]\$11,857,000, to remain available until expended.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Lead-Off Tabular Statement
Research and Education Activities

Budget Estimate, 2018.....	\$769,613,000
2017 Annualized Continuing Resolution	818,128,000
Change in Appropriation.....	<u>-48,515,000</u>

Summary of Increases and Decreases
(Dollars in thousands)

	2015 Actual	2016 Change	2017 Change	2018 Change	2018 President's Budget
Discretionary Appropriations:					
Hatch Act.....	\$243,701	-	-\$463	-	\$243,238
McIntire-Stennis Cooperative Forestry Research Program.....	33,961	-	-64	-5,030	28,867
Evans-Allen Payments to 1890 Colleges and Tuskegee University.....	52,485	\$1,700	-103	-	54,082
Animal Health and Disease Research, Section 1433.....	4,000	-	-8	-3,992	-
Special Research Grants.....					
Other Special Research Grants.....	2,700	+650	-6	-3,344	-
Agroclimatology (Global Change).....	1,405	-	-3	-1,402	-
Minor Crop Pest Mgmt, IR-4.....	11,913	-	-23	-	11,890
Alfalfa Forage and Research Program.....	1,350	+650	-4	-1,996	-
Aquaculture Centers, Section 1475.....	4,000	-	-8	-3,992	-
Supplemental and Alternative Crops, Section 1473D.....	825	-	-1	-824	-
Farm Business Management and Benchmarking Program.....	1,450	-	-3	-1,447	-
Sun Grant Program.....	2,500	-	-5	-2,495	-
Sustainable Agriculture.....	22,667	+2,000	-47	-5,611	19,009
1994 Institutions Research Program.....	1,801	-	-3	-	1,798
Capacity Building for Non-Land Grant Colleges of Agriculture.....	4,500	+500	-9	-4,991	-
Agriculture and Food Research Initiative.....	325,000	+25,000	-665	-	349,335
Federal Administration (direct appropriation):					
Grants Management Systems.....	7,830	-	-15	-391	7,424
GSA Rent and DHS Security Expenses.....	6,311	-351	-11	-5,949	a/
General Administration.....	6,387	+162	-12	+5,325	11,862
Subtotal Research.....	<u>734,786</u>	<u>+30,311</u>	<u>-1,453</u>	<u>-36,139</u>	<u>727,505</u>
Higher Education:					
Inst. Challenge, Multicultural Scholars, and Graduate Fellowship Grants.....	9,000	-	-17	-8,983	-
1890 Institution Capacity Building Grants.....	19,336	-	-37	-	19,299
Hispanic Serving Institutions Education Grants Program.....	9,219	-	-17	-	9,202
Tribal Colleges Education Equity Grants Program.....	3,439	-	-7	-	3,432
Secondary/2-Year Post Secondary.....	900	-	-2	-898	-
Veterinary Medical Services Act.....	5,000	-	-9	-	4,991
Veterinary Services Grant Program.....	-	+2,500	-5	-2,495	-
Alaska Native-serving and Native Hawaiian-Serving Institutions.....	3,194	-	-6	-	3,188
Grants for Insular Areas.....	2,000	-	-4	-	1,996
Subtotal Education.....	<u>52,088</u>	<u>+2,500</u>	<u>-104</u>	<u>-12,376</u>	<u>42,108</u>
Total Research and Education.....	<u>786,874</u>	<u>+32,811</u>	<u>-1,557</u>	<u>-48,515</u>	<u>769,613</u>
Endowment Funds:					
Native American Institutions Endowment Fund.....	11,880	-	-23	-	11,857
Native American Institutions Endowment - Interest Earned.....	(5,079)	(+373)	(-117)	(+163)	(4,660)
Total Endowment Funds.....	<u>11,880</u>	<u>-</u>	<u>-23</u>	<u>-</u>	<u>11,857</u>
Total Funds.....	<u>798,754</u>	<u>+32,811</u>	<u>-1,580</u>	<u>-48,515</u>	<u>781,470</u>

a/ Funds for rent and security costs are shifted to the General Administration funding line in 2018.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

RESEARCH AND EDUCATION ACTIVITIES
Project Statement
 Adjusted Appropriations Detail and Staff Years (SYs)
 (Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Appropriations:										
McIntire-Stennis Cooperative										
Forestry Research Program.....	\$33,961	-	\$33,961	-	\$33,897	-	-\$5,030 (a)	-	\$28,867	-
Capacity Building for Non-Land										
Grant Colleges of Agriculture.....	4,500	-	5,000	-	4,991	-	-4,991 (b)	-	-	-
Animal Health and Disease										
Research, Section 1433.....	4,000	-	4,000	-	3,992	-	-3,992 (c)	-	-	-
Supplemental and Alternative Crops,										
Section 1473D.....	825	-	825	-	824	-	-824 (d)	-	-	-
Aquaculture Centers, Section 1475.....	4,000	-	4,000	-	3,992	-	-3,992 (e)	-	-	-
Sustainable Agriculture (SARE).....	22,667	-	24,667	-	24,620	-	-5,611 (f)	-	19,009	-
Farm Business Management and										
Benchmarking Program.....	1,450	-	1,450	-	1,447	-	-1,447 (g)	-	-	-
Sun Grant Program.....	2,500	-	2,500	-	2,495	-	-2,495 (h)	-	-	-
Alfalfa Forage and Research Program.....	1,350	-	2,000	-	1,996	-	-1,996 (i)	-	-	-
Hatch Act.....	243,701	-	243,701	-	243,238	-	-	-	243,238	-
Evans-Allen Payments to 1890										
Colleges and Tuskegee University.....	52,485	-	54,185	-	54,082	-	-	-	54,082	-
Minor Crop Pest Mgmt, IR-4.....	11,913	-	11,913	-	11,890	-	-	-	11,890	-
1994 Institutions Research Program.....	1,801	-	1,801	-	1,798	-	-	-	1,798	-
Agriculture and Food Research Initiative.....	325,000	-	350,000	-	349,335	-	-	-	349,335	-
Special Research Grants										
Agroclimatology (Global Change).....	1,405	-	1,405	-	1,402	-	-1,402 (j)	-	-	-
Other Special Research Grants.....	2,700	-	3,350	-	3,344	-	-3,344 (k)	-	-	-
Total Special Research Grants.....	4,105	-	4,755	-	4,746	-	-4,746	-	-	-
Federal Administration (direct appropriation):										
Grants Management Systems.....	7,830	-	7,830	-	7,815	-	-391 (l)	-	7,424	-
GSA Rent and DHS Security Expenses.....	6,311	-	5,960	-	5,949	-	-5,949 (m)	-	0	-
Other General Administration.....	6,387	-	6,549	-	6,537	-	5,325 (n)	-	11,862	-
Increased Pay Costs.....	-	-	-	-	-	-	495 (o)	-	495	-
Delay planned new hires.....	-	-	-	-	-	-	-495 (p)	-	-495	-
Total Federal Administration.....	20,528	-	20,339	-	20,301	-	-1,015	-	19,286	-
Subtotal Research.....	734,786	-	765,097	-	763,644	-	-36,139	-	727,505	-
Higher Education:										
Veterinary Services Grant Program.....	-	-	2,500	-	2,495	-	-2,495 (q)	-	-	-
Inst. Challenge, Multicultural Scholars,										
and Graduate Fellowship Grants.....	9,000	-	9,000	-	8,983	-	-8,983 (r)	-	-	-
Secondary/2-Year Post Secondary.....	900	-	900	-	898	-	-898 (s)	-	-	-
Veterinary Medical Services Act.....	5,000	-	5,000	-	4,991	-	-	-	4,991	-
1890 Institution Capacity Building Grants.....	19,336	-	19,336	-	19,299	-	-	-	19,299	-
Hispanic Serving Institutions										
Education Grants Program.....	9,219	-	9,219	-	9,202	-	-	-	9,202	-
Tribal Colleges Education Equity										
Grants Program.....	3,439	-	3,439	-	3,432	-	-	-	3,432	-
Alaska Native-serving and Native										
Hawaiian-Serving Institutions.....	3,194	-	3,194	-	3,188	-	-	-	3,188	-
Grants for Insular Areas.....	2,000	-	2,000	-	1,996	-	-	-	1,996	-
Subtotal Education.....	52,088	-	54,588	-	54,484	-	-12,376	-	42,108	-
Total Adjusted Appropriation.....	786,874	-	819,685	-	818,128	-	-48,515	-	769,613	-

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Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Endowment Funds:										
Native American Institutions										
Endowment Fund.....	(11,880)	-	(11,880)	-	(11,857)	-	-	-	(11,857)	-
Native American Institutions										
Endowment - Interest Earned.....	5,079	-	4,706	-	4,823	-	-163 (t)	-	4,660	-
Endowment Subtotal.....	5,079	-	4,706	-	4,823	-	-163	-	4,660	-
Total Appropriation.....	791,953	-	824,391	-	822,951	-	-48,677	-	774,273	-
Congressional Relations.....										
Total	54	-	54	-	-	-	-	-	-	-
Balance Available, SOY.....										
Recoveries, Other (Net).....	28,521	-	22,919	-	-	-	-	-	-	-
Total Available.....	1,098,819	-	1,176,096	-	1,266,788	-	-492,514	-	774,273	-
Lapsing Balances.....										
Balance Available, EOY.....	-328,732	-	-443,837	-	-	-	-	-	-	-
Total Obligations.....	769,297	221	731,450	217	1,266,788	217	-492,514	-	774,273	217

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RESEARCH AND EDUCATION ACTIVITIES Project Statement Obligations Detail and Staff Years (SYs) (Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Obligations:										
McIntire-Stennis Cooperative										
Forestry Research Program.....	\$33,961	-	\$33,916	-	\$33,897	-	-\$5,030	-	\$28,867	-
Capacity Building for Non-Land										
Grant Colleges of Agriculture.....	4,490	-	4,526	-	9,781	-	-9,781	-	-	-
Animal Health and Disease										
Research, Section 1433.....	4,000	-	3,991	-	3,992	-	-3,992	-	-	-
Supplemental and Alternative Crops,										
Section 1473D.....	825	-	825	-	824	-	-824	-	-	-
Aquaculture Centers, Section 1475.....	4,000	-	4,000	-	3,992	-	-3,992	-	-	-
Sustainable Agriculture (SARE).....	22,667	-	24,667	-	24,620	-	-5,611	-	19,009	-
Farm Business Management and										
Benchmarking Program.....	1,450	-	1,450	-	1,447	-	-1,447	-	-	-
Sun Grant Program.....	2,500	-	2,500	-	2,495	-	-2,495	-	-	-
Alfalfa Forage and Research Program.....	1,350	-	2,000	-	1,996	-	-1,996	-	-	-
Hatch Act.....	243,421	-	243,681	-	243,238	-	-	-	243,238	-
Evans-Allen Payments to 1890										
Colleges and Tuskegee University.....	52,485	-	54,185	-	54,082	-	-	-	54,082	-
Minor Crop Pest Mgmt, IR-4.....	11,913	-	11,913	-	11,890	-	-	-	11,890	-
1994 Institutions Research Program.....	3,106	-	1,698	-	1,857	-	-59	-	1,798	-
Agriculture and Food Research Initiative.....	305,597	-	279,454	-	752,596	-	-311,222	-	349,335	-
Special Research Grants										
Other Special Research Grants.....	2,700	-	3,350	-	3,344	-	-3,344	-	-	-
Agroclimatology (Global Change).....	1,405	-	1,405	-	1,402	-	-1,402	-	-	-
Total Special Research Grants.....	4,105	-	4,755	-	4,746	-	-4,746	-	-	-
Federal Administration (direct appropriation):										
Grants Management Systems.....	7,830	-	4,782	-	10,998	-	-3,574	-	7,424	-
GSA Rent and DHS Security Expenses.....	5,801	-	5,960	-	5,949	-	-5,949	-	-	-
Other General Administration.....	6,439	-	6,603	-	6,537	-	5,325	-	11,862	-
Increased Pay Costs.....	-	-	-	-	-	-	495	-	495	-
Delay planned new hires.....	-	-	-	-	-	-	-495	-	-495	-
Total Federal Administration.....	20,070	-	17,345	-	23,484	-	-4,198	-	19,286	-
Subtotal Research.....	715,940	-	690,906	-	1,174,937	-	-355,393	-	727,505	-
Higher Education:										
Veterinary Services Grant Program.....	-	-	2,500	-	2,495	-	-2,495	-	-	-
Inst. Challenge, Multicultural Scholars,										
and Graduate Fellowship Grants.....	3,865	-	9,251	-	17,488	-	-17,488	-	-	-
Secondary/2-Year Post Secondary.....	900	-	900	-	898	-	-898	-	-	-
Veterinary Medical Services Act.....	4,888	-	2,149	-	9,413	-	-4,422	-	4,991	-
1890 Institution Capacity Building Grants.....	19,336	-	1,235	-	37,400	-	-18,101	-	19,299	-
Hispanic Serving Institutions										
Education Grants Program.....	9,219	-	9,219	-	9,202	-	-	-	9,202	-
Tribal Colleges Education Equity										
Grants Program.....	3,439	-	3,439	-	3,432	-	-	-	3,432	-
Alaska Native-serving and Native										
Hawaiian-Serving Institutions.....	3,194	-	3,194	-	3,188	-	-	-	3,188	-
Grants for Insular Areas.....	2,000	-	2,000	-	1,996	-	-	-	1,996	-
Subtotal Education.....	46,841	-	33,887	-	85,512	-	-43,404	-	42,108	-
Subtotal Research and Education.....	762,781	-	724,793	-	1,260,449	-	-398,797	-	769,613	-

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Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Endowment Funds:										
Native American Institutions										
Endowment Fund.....	(11,880)	-	(11,880)	-	(11,857)	-	-	-	(11,857)	-
Native American Institutions										
Endowment - Interest Earned.....	6,516	-	6,657	-	6,339	-	-1,679	-	4,660	-
Endowment Subtotal.....	6,516	-	6,657	-	6,339	-	-1,679	-	4,660	-
Subtotal, Discretionary Obligations.....	769,297	-	731,450	-	1,266,788	-	-400,475	-	774,273	-
Lapsing Balances.....	790	-	809	-	-	-	-	-	-	-
Balance Available, EOY.....	328,732	-	443,837	-	-	-	-	-	-	-
Total Available.....	1,098,819	-	1,176,096	-	1,266,788	-	-400,475	-	774,273	-
Congressional Relations.....	-54	-	-54	-	-	-	-	-	-	-
Balance Available, SOY.....	-278,291	-	-328,732	-	-443,837	-	443,837	-	-	-
Recoveries, Other (Net).....	-28,521	-	-22,919	-	-	-	-	-	-	-
Total Appropriations.....	791,953	221	824,391	217	822,951	217	43,362	-	774,273	217

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Justification of Increases and Decreases

RESEARCH AND EDUCATION ACTIVITIES

- (1) A net decrease of \$48,515,000 for Research and Education Activities (\$818,128,000 and 217 staff years available in 2017) as follows:

- (a) A decrease of \$5,030,000 for McIntire-Stennis Cooperative Forestry (\$33,897,000 available in 2017) as follows:

An independent evaluation of NIFA's six major capacity programs by TEconomy (<https://go.usa.gov/xXGyJ>) released on March 17, 2017, examined the impacts and outcomes, function and structure, and the role of the partnership between NIFA and the land-grant universities towards achieving goals. Among the report's key findings, capacity funding remains a relevant program that offers multiple benefits. Investments respond to the specific needs of local, regional, and state agricultural producers. Capacity funds offer an essential funding stream for research and extension programs of relevance to producers that are unlikely to receive national-scale attention. Each dollar of capacity funding leverages \$1.86 in additional investments from state, local, and private sector sources. This study will allow the Agency to make evidence-based program and budget decisions on the capacity grant programs.

McIntire-Stennis base funds are used to assist grantees in carrying out a program of State forestry research at schools and colleges and developing a trained pool of forest scientists capable of conducting needed forestry research, which includes: ecological restoration; catastrophe management; valuing and trading ecological services; energy conservation, biomass energy, and bio-based materials development; forest fragmentation; and ways of fostering healthy forests; and a globally competitive forest resources sector. Much of the research supported with McIntire-Stennis funding is not amenable to support from the private sector or competitive grants. McIntire-Stennis base funds are used to support the eight legislated goals and funds are distributed to States based on legislated formula.

The reduction in McIntire-Stennis funds may be offset by other capacity and competitive grant programs of the agency.

- (b) A decrease of \$4,991,000 to eliminate Capacity Building at Non-Land Grant Colleges (\$4,991,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

Non-Land Grant College of Agriculture as defined in section 1404 of the National Agricultural Research, Extension, Teach Policy Act of 1977 (the list of eligible institutions certified by NLGCA is available at <https://nifa.usda.gov/resource/nlgca-list>.)

- (c) A decrease of \$3,992,000 to eliminate Animal Health and Disease, Section 1433 (\$3,992,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other

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science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(d) A decrease of \$824,000 to eliminate Supplemental and Alternative Crops (\$824,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(e) A decrease of \$3,992,000 to eliminate Aquaculture Centers (\$3,992,000 available in 2017) as follows:

The elimination of the Aquaculture Centers Program will provide an opportunity to target major species important to the U.S. Aquaculture industry through the AFRI program. This will improve administrative efficiency and ensure maximum amount of funding that would support grants by leveraging the existing AFRI competitive process. With the current five regional centers, an average of about 30 to 40 percent of funds are used for administrative costs of the centers; the research and extension portion is about 60 to 70 percent. Efficiencies may be realized in terms of size of awards and administrative costs to support grants in this area, by combining efforts through AFRI and targeting major species through medium to large size grants. Additionally, under the regional funding distribution mechanism, the amount of funds are not distributed based on regional capacity within the aquaculture industry. Elimination of the program will allow USDA to strategize and target research and extension needs to benefit the U.S. industry. Multi-state or regional needs may be covered through AFRI Foundational and Applied Science program priorities and sub-priorities. NIFA will include priorities within specific program priorities of AFRI RFAs for aquatic species.

(f) A decrease of \$5,611,000 for Sustainable Agriculture Research and Education (SARE) Program (\$24,620,000 available in 2017) as follows:

Base funding will be used to increase knowledge of and help farmers and ranchers adopt practices that are profitable, environmentally sound, and beneficial for communities. Grants awarded by the four regional administrative councils support projects that address crop and livestock production and marketing, stewardship of soil and other natural resources, economics, and quality of life. The SARE program has a 25-year track record of success and stakeholder support from farmers and ranchers, the agricultural science community, and among federal agencies that benefit from the research and education activities that the program supports. The program will continue to focus on the high priority solutions for farmers and ranchers across all U.S. regions by maintaining the number of grants provided to farmers and ranchers to develop innovative sustainable practices. The funding decrease may be offset through capacity funding to experiment stations and extension and through other programs such as Organic Research and Extension Initiative and Specialty Crops Research Initiative.

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- (g) A decrease of \$1,447,000 to eliminate Farm Business Management and Benchmarking Program (\$1,447,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (h) A decrease of \$2,495,000 to eliminate Sun Grants (\$2,495,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (i) A decrease of \$1,996,000 to eliminate Alfalfa Forage and Research Program (\$1,996,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (j) A decrease of \$1,402,000 to eliminate Global Change, UV-B Monitoring (\$1,402,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (k) A decrease of \$3,344,000 to eliminate Other Special Research Grants (\$3,344,000 available in 2017) as follows:

A decrease of \$1,996,000 for Potato Research and \$1,348,000 for Aquaculture Research is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. These programs may be supported by other funding sources, including other NIFA programs.

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The broad research goals of these relatively small programs may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (1) A decrease of \$391,000 under Federal Administration to modernize the Grants Management Systems (\$7,815,000 available in 2017) as follows:

By leveraging a Departmental solution for grants management, NIFA is using a standard solution set that reduces unnecessary duplication of IT contracts. The NIFA Strategic Plan calls to “Institutionalize streamlined, effective technologies, policies, and processes.” A modernized grants management system is the key deliverable to meet the goal. The agency has five goals for grants modernization: 1) provide transparency for grantees, 2) allow for grantee “self-service” capabilities, 3) promote a paperless environment, 4) modernize NIFA’s systems, and 5) improve management, accountability, and reporting of results.

The goal of this effort is to enhance automation, thereby reducing errors, downtime, and the cost of doing business and allowing more time to invest in grants that will find solutions to agricultural problems of high national priority. The current systems and processes used to announce, review, process, and award grants rely on antiquated legacy systems that do not fully support the entire grant administration life cycle. NIFA seeks to replace the current system with a paperless, automated technology solution that improves workflow, reduces error rates, and improves grantee customer satisfaction. This solution will allow NIFA staff, applicants, and grantees to track grant proposals and awards throughout the grant life cycle.

NIFA’s applicants and recipients currently handle most communication outside of Grants.gov, the Treasury system and our reporting systems over email. Applicants and recipients do not currently have 1) the ability to initiate corrections or changes to the data associated with an award from a centralized location, 2) the ability to confirm the changes were completed correctly, and 3) the visibility to all information associated with an award in a single location. The solution will provide applicants and recipients a single USDA dashboard from which to view the status of multiple proposals and awards. The timely submission of documentation and post-award action requests will be handled through this dashboard. Once fully implemented, the functionality available on the USDA grants platform will support NIFA’s goals to increase transparency, simplify processes, and provide self-service functionality to applicants, recipients, and peer reviewers.

NIFA is leveraging departmental and Federal solutions to meet existing needs to acquire the best price for IT services. As of FY 2017, all capacity funded applications (“formula”) are made through the USDA Grants system. This solution is fully integrated with the Department’s Federal Financial Management System, thereby increasing accountability. NIFA also is leveraging departmental services for cloud hosting of all NIFA-managed business applications. As NIFA moves forward, it will continue to work with its departmental and Federal partners to ensure its technology solutions support common enterprise goals. For FY 2018, changes are needed in the USDA Grants system to support NIFA competitive grants and to enhance capacity grant processing functionality. NIFA has identified nearly 250 backlogged items that must be completed to support NIFA business practices associated with grants processing. These backlogged items represent business requirements that must be included in the USDA Grants system. At a high level these include changes needed to support Peer Review, Federal Financial reporting, Project reporting, enhancements to the Grantee Portal, improved integration with Treasury’s payment system, and a document management solution for paperless processing.

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- (m) A decrease of \$5,949,000 under Federal Administration for GSA Rent and DHS Security Payments (\$5,949,000 available in 2017) as follows:

A decrease is proposed to move the GSA rent and DHS security payments to Federal Administration-Other Necessary Expenses. This consolidation will result in better administration of Federal Administration costs.

- (n) An increase of \$5,325,000 under Federal Administration for other necessary expenses (\$6,537,000 available in 2017) as follows:

The increase includes funding for GSA rental and DHS security payments. By incorporating the GSA rental and DHS security payments into the Other Necessary Expenses line, the agency will be able to redirect resources to support the rising costs associated with the current location, which is housed in a rapidly growing section of Washington, D.C.

- (o) An increase of \$495,000 under Federal Administration for pay costs (\$0 available in 2017) as follows:

The pay cost increase is \$495,000, which includes \$387,000 for annualization of the fiscal year 2017 pay raise and \$108,000 for the anticipated FY 2018 pay raise. NIFA's programs are managed at the national level with a staff that represents 377 total employment at the end of FY 2016. Grants management included developing program regulations, establishing broad program goals, reviewing proposals, preparing grant documents, post-award review of progress, and similar activities necessary to achieve program goals. Between 0 and 5 percent of funds provided from programs may be used to support administration of the programs as established by law. In order to offset the additional costs, NIFA continuously looks for ways to better manage administrative functions. These efficiencies, including prioritization of the recruitment efforts to fill behind current vacancies, will put the agency in a better position to meet future needs.

- (p) A decrease of \$495,000 under Federal Administration for delay in new hires (\$0 available in 2017) as follows:

There is a savings of \$495,000 for the delay of planned new hires. These savings will be used to offset the increase in pay costs, which results in no net increase for Other Necessary Expenses.

- (q) A decrease of \$2,495,000 to eliminate Veterinary Services Grant Program (\$2,495,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (r) A decrease of \$8,983,000 to eliminate Institute Challenge, Multicultural Scholars, and Graduate Fellowship Grants (\$8,983,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

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The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (s) A decrease of \$898,000 to eliminate Secondary/2-year Post-Secondary Education Program (\$898,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- Sustained support for Hatch Act (\$243,238,000 available in 2017) as follows:

Base funds provided through the Hatch Act are used to support continuing agricultural research at 1862 land-grant institutions and State Agricultural Experiment Stations (SAES). Funds appropriated under this section are used to conduct original research, investigations, and experiments bearing directly on and contributing to the establishment and maintenance of a permanent and effective agricultural industry in the U.S. It includes research on the problems of agriculture in its broadest aspects, which serve to develop and improve rural communities and maximize contributions of agriculture to the welfare of the consumer. Much of the research supported with Hatch funds at the State level is not amenable to support by competitive grants or funding from private/corporate interests. For example, plant and animal breeding and genetics research needs long-term support provided by Hatch funds and cannot be sustained by single 3-5 year competitive grants. The innovations supported by Hatch funds help increase farm incomes, improve health, and enhance the quality of life in local communities. In many cases, these funds provide seed money that enables researchers to become competitive for other sources of funding. Funding is requested to address state-level, regional, and national challenges in agriculture, including local and regional issues related to water availability and quality.

NIFA's capacity programs are an integral part of its funding portfolio and enable competitiveness of land-grant universities (LGUs) in the food, agricultural, natural resource, and human sciences. Continued investments in the formula grants will ensure that rural communities remain competitive and produce and deliver new knowledge focused on the food, water, energy, and climate nexus to achieve healthy environments and ecosystems, plants and animals, humans and communities, and economies and trade, both domestically and internationally.

- Sustained support for Evans-Allen (\$54,082,000 available in 2017) as follows:

Evans-Allen capacity funds are authorized under section 1445 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) and support the Presidential Executive Order on the White House Initiative to Promote Excellence and Innovation at Historically Black Colleges and Universities (HBCUs) by funding agricultural research at 1890 land-grant universities and Tuskegee University.

For nearly 40 years, the Evans-Allen program has enabled the 1890 universities to continue to support innovation by funding applied research and the education of thousands of minority, first-generation college students they serve. However, wide disparities continue to persist in educational attainment and quality of life among the different communities. Base funds will continue to be used for conducting agricultural

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research; disseminating the results of such research; administrative planning and direction; and purchase and rental of land and the construction, acquisition, alteration, or repair of buildings necessary for conducting agricultural research.

- Sustained support for Tribal Colleges Education Equity Grants Program (Payments to the 1994 Institutions) (\$3,432,000 available in 2017) as follows:

Base funding for this program provides competitive funding to enhance educational opportunities for Native Americans in the food and agricultural sciences and strengthens institutional capacity to deliver relevant formal education opportunities. To the extent practicable, priority is given to work that supports NIFA's critical challenge areas: develop sustainable energy, increase global food security, adapt/mitigate agriculture and natural resources to the climate, reduce childhood and adolescent obesity, and improve food safety. In 2016, approximately 4,102 American Indian Students benefitted from new curriculum, lab facilities and other classroom improvements supported through this program. In addition, 88 Tribal College Faculty were able to continue their education so they could offer their students more science and mathematics programming. By building the capacity of Tribal College faculty and recruiting and training students for careers in Science, Technology, Engineering, and Mathematics, this program enables the Nation to achieve greater diversity in its workforce and increase the competitiveness of U.S. agriculture. The 2014 Farm Bill increased the number of eligible institutions by two (College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College). The 1994 land-grant institutions are essential for healthy and sustainable individuals, Indian communities, and Tribal Reservations.

- Sustained support for 1890 Institution Capacity Building Grants (\$19,299,000 available in 2017) as follows:

Base funding supports the President's Executive Order on the White House Initiative to Promote Excellence and Innovation at HBCUs by strengthening teaching, research and extension programs in the food and agricultural sciences by building the institutional capacities of the eligible 1890 Land-Grant Institutions. The 1890 Institution Capacity Building Grants (CBG) supports competitive funding of projects that strengthen teaching in the food and agricultural sciences in the need areas of curricula design and materials development, faculty preparation and enhancement for education, student recruitment and retention, and others. CBG supports projects that strengthen research and extension programs in need areas of studies and experimentation, research support systems, extension program development support systems, and others. CBG also supports integrated project grants to increase and strengthen food and agriculture sciences at the 1890 Institutions through integration of education, research and extension activities. The 53 grants awarded in 2015, will benefit approximately 15,000 students through curricula design and materials development, faculty preparation and enhancement for education, and student recruitment and retention. This program also will help build the capacity of the 1890 Land-Grant Universities to conduct cutting edge research to generate new knowledge and solutions to global challenges in food, agriculture, natural resources and human sciences.

- Sustained support for Hispanic Serving Institutions Education Grants Program (\$9,202,000 available in 2017) as follows:

Base funding for this program promotes and strengthens the ability of Hispanic-Serving Institutions, through competitive funding of food and agriculture science curriculum design and materials development, faculty development, and others, to attract outstanding students and produce graduates capable of enhancing the Nation's food and agricultural scientific and professional work force. Approximately 92 college and universities have participated in this program with the potential of producing Hispanic students for food and agriculture science careers, many of which are at USDA. The HSI program facilitated cooperative initiatives between Texas State University, San Marcos and three 2-year institutions, resulting in a 98-percent student transfer rate and a 92-percent student graduation rate within a 4-year period. The recently introduced pilot Consortium Grants have been successful and will be expanded to a larger number of institutions.

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- Sustained support for Alaska Native-serving and Native Hawaiian-serving Institutions (\$3,188,000 available in 2017) as follows:

Base funding promotes and strengthens the ability of Alaska Native-Serving Institutions and Native Hawaiian-Serving Institutions to carry out education, applied research, and related community development programs through competitive funding of projects. Projects are funded within the broadly defined arena of food and agricultural sciences-related disciplines, but with priority given to those projects that enhance educational equity for underrepresented students, strengthen institutional educational capacities, prepare students for careers related to the food, agricultural, and natural resources industries, and human sciences systems of the U.S., and maximize the development and use of resources to improve food and agricultural security. This successful program awards equal amounts to each of the states of Alaska and Hawaii. To date, six new degree/certificate programs and over 21 new courses have been developed and offered. This program has made it possible for the Alaska and Hawaii educational systems to devote considerable attention to providing advising, tutoring and other student support to their distant students in remote and rural areas.

- Sustained support for 1994 Research Grants (\$1,798,000 available in 2017) as follows:

Base funding for this program assists 1994 land-grant institutions (tribal colleges) in building institutional research capacity through competitive funding of applied projects that address student educational needs and solve community, reservation, or regional problems. Priority research areas are reservation and tribal water issues, agricultural adaptation to the climate, and tribal food security issues. Collaboration with 1862 or 1890 land-grant institutions, USDA Agricultural Research Service (ARS), non-land-grant colleges of agriculture, and the McIntire-Stennis Cooperative Forestry Research program is a requirement. These partnerships are developed to increase research activity at 1994 Institutions in order to build the human capacity necessary for establishing more advanced research programs.

- Sustained support for Grants for Insular Areas (\$1,996,000 available in 2017) as follows:

Base funding for this program promotes and strengthens the ability of Insular Area Institutions to carry out education, applied research, and related community development programs through competitive funding of projects within a broadly defined arena of food and agricultural sciences. The program promotes and strengthens the ability of Insular Area Institutions to acquire the equipment, instrumentation, networking capability, hardware and software, digital network technology, and infrastructure necessary to teach students and teachers about technology in the classroom. By strengthening institutional educational capacities in instruction and curriculum, and enhancing the quality of teaching and learning, this program assists Insular Area Institutions to meet their unique needs. In 2015, approximately 2,126 Insular Area Students benefitted from new curriculum, lab facilities and other classroom improvements supported through this program. The Insular Area program provides access to STEM education for a broad spectrum of students, especially to first generation college students and those who have limited opportunities.

- Sustained support for Agriculture and Food Research Initiative (AFRI) (\$349,335,000 available in 2017) as follows:

In a seminal report on America's research enterprise, the American Academy of Arts & Science stated the continued loss of public funding for research is a contributing factor in causing America's "highly successful system to atrophy." While the Organization for Economic Cooperation and Development (OECD) confirms that, the U.S. is the world leader in food and agricultural research and innovation in its report "Innovation, Agricultural Productivity and Sustainability in the U.S." However, OECD also concludes that increases in private expenditures on agricultural research and development are not a substitute for recent declines in publicly funded research, because "the latter focuses at earlier stages of research and covers a broader set of social issues (e.g. environmental protection, food safety) that are generally not addressed by the private sector."

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Strategic investment in agricultural science ensures our nation's nutritional security while protecting national security and promoting economic opportunities for communities. A major global challenge for humanity is the need to significantly increase food production to sustain a population that will approach 10 billion by 2050. America has the potential to lead in tackling this challenge of producing and providing affordable, abundant, safe, and nutritious food for the increasing population, while overcoming the existential threats of changing climate and extreme weather events, diminishing land and water resources, pest and infectious disease outbreaks, and the need to ensure positive health outcomes.

Recent discoveries, new technologies, burgeoning data, increasing knowledge infrastructure, and holistic approaches to complex challenges provide unprecedented opportunities to meet the demands of a growing population and ensure food security for the American people. Innovation is the lifeblood of America's high-tech food and agricultural system, playing a critical role in the economic and personal well-being of people. Continued transformative innovations to ensure sufficient food supply, economic prosperity, nutritional security, and positive health outcomes require sustained public funding investments in the agricultural sciences.

To support the transformative innovations needed to achieve nutritional security, NIFA proposes a \$349.3 million investment for America's flagship competitive grants program, the Agriculture and Food Research Initiative (AFRI). This investment is essential for the foundational research and agricultural workforce development that complements and underpins large systems-level research, education, and extension activities needed to maintain America's global preeminence in food and agricultural production.

To achieve this transformation of U.S. agricultural systems, NIFA proposes the AFRI program to include investments on three major foci: 1) Sustainable Agricultural Systems, 2) Foundational and Applied Science, and 3) Education and Workforce Development. These complementary foci will support the creation, delivery, and application of the knowledge, tools, and innovations needed to tackle the broad range of global agricultural challenges impacting America.

NIFA proposes to invest \$65.8 million in the Sustainable Agricultural Systems programs to support large integrative projects that address major outcomes of agricultural systems. In addition, NIFA will provide continued support for grants made through the AFRI Challenge Areas from previous years at a level of \$38.8 million. The agency proposes to invest \$221 million in the fundamental and discrete Foundational and Applied Science programs (\$174.8 million) and in support of interagency partnerships (\$46.2 million). The agency also proposes to invest \$23.7 million in Education and Workforce Development programs.

Sustainable Agricultural Systems

NIFA proposes to invest \$65.8 million in the Sustainable Agricultural Systems programs to support large integrative projects that address major outcomes of agricultural systems. This component of AFRI will build on the advances made in research, education, and extension priority outcomes through the former AFRI Challenge Areas such as water, resiliency, and adaptation to climate variability, food safety, childhood obesity prevention, bioenergy, and food security. Sustainable Agricultural Systems will address these challenge topics comprehensively and collectively, rather than in isolation. This integration will enable NIFA's goal of advancing the convergence of agricultural sciences with engineering, nutritional and food sciences, social sciences, and other disciplines, including nanotechnology, computational sciences, and advanced manufacturing, to generate new scientific discoveries, new products, new markets, and consequently new high-skilled jobs.

These systems-level projects will collectively marshal the many facets of the agricultural system, from farms to supply chain businesses to consumers, to transform the way we produce, process, transport and consume food, and address interrelated challenges of food security, water availability, environmental resilience, feedstock needs of the bioeconomy, and nutritional security.

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Through these investments, NIFA will catalyze transformational changes throughout U.S. agricultural systems and contribute to the following goals to be achieved within the next 25 years:

- Increase agricultural total factor productivity growth from the current 1.5 percent to 2 percent per year and agricultural production by 2 percent annually in all U.S. regions, providing models for similar agro-ecological niches;
- Improve water and nitrogen use efficiency by 50 percent;
- Reduce crop losses due to environmental stress and pests, or diseases by 20 percent;
- Produce 50 billion gallons of biofuels and 50 billion pounds of biobased chemicals and bioproducts; and
- Reduce food-borne illnesses down to 8.5 cases per 100,000.

Investments in systems-level projects will require larger support, up to \$10 million per project, to generate transformative new scientific discoveries, new products, and new markets that will provide high-skilled jobs and ensure America's global leadership in agriculture.

Foundational and Applied Science

The investments in Foundational and Applied Science, aligned with the six Farm Bill priorities, will support foundational, basic, and applied sciences needed to support the transdisciplinary systems level science described in the Sustainable Agricultural Systems programs. At \$221 million, the investment in the Foundational and Applied Science program is required for continued support and advancement of national priorities critical to solving major challenges and exploiting emerging opportunities, such as treatment of emerging zoonotic diseases, synthetic biology, robotics, and other innovations, increased food safety and nutrition for health, improved pest detection and management systems, biofuel and bioproducts development, natural resources and environmental management, and the role of the microbiome in agriculture. The Foundational and Applied Science focus includes the Critical Agricultural Research and Extension (CARE) program, which funds development of implementable solutions to critical problems faced by farmers and livestock producers. Also included is the Exploratory Research Program, which supports research projects that need to develop proof of concept for untested ideas that will lead to creative and positive disruption of the agricultural norm. Furthermore, an investment of \$46.2 million in the synergies realized through interagency partnerships targeting robotic and cyber physical systems for agriculture, plant feedstock genomics, ecology and evolution of infectious diseases of crops and animals, and other high priority areas complement and advance NIFA initiatives.

Increased investments in the Foundational and Applied Science Program will allow enhanced and focused investments in promising new areas in agricultural sciences. NIFA proposes \$10 million for increased investments in the plant and animal breeding program areas that support classical breeding efforts to improve crop and animal productivity, efficiency, quality, performance, local adaptation of cultivars and breeds, and development of public cultivars. An additional \$11 million will be invested in emerging research opportunities in the microbiome of foods, food animals, plants, and soils. NIFA will invest \$11 million on a new program focused on maximizing the value of data-driven research in specific foundational domains of agricultural science as a part of the Food and Agriculture Cyberinformatics and Tools (FACT) initiative.

Education and Workforce Development

America's ability to increase agricultural production is constrained by the availability of a workforce with the requisite knowledge, skills, and training. Recent studies project significant shortfalls in the availability of qualified agricultural workers. Therefore, in addition to supporting educational opportunities integrated with research and extension activities within Sustainable Agricultural Systems and Foundational and Applied Science programs described above, NIFA proposes to invest \$23.7 million in the Education and Workforce Development programs to support educational opportunities through a strategic pipeline-based approach. Since FY 2015, NIFA's Education and Literacy Initiative (ELI) has focused on building institutional capacity and enhancing the pipeline for producing more STEM graduates to meet the projected

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shortfall in agriculture-related fields. In FY 2018, ELI will focus on further enhancing the three distinct parts of the agricultural pipeline that is used to prepare the next generation of scientists in food, agriculture, natural resource, and human sciences. Outcomes from these programs are to enhance agricultural literacy in schools and to bridge the current 40 percent annual gap in available workforce with more graduates in agriculture or allied disciplines with skills and/or expertise needed for entering employment or higher education or both.

- ***Enhancing Agricultural Literacy*** will provide institutional grants for in-service training that will provide K-14 teachers and administrators with increased knowledge of food, agricultural, natural resource and human sciences disciplines and career opportunities and help them to develop improved curricula that will enhance agricultural literacy.
- ***Developing Pathways*** will provide undergraduates in agriculture or allied disciplines with the applied technical and leadership skills required for employment in the agricultural sectors and farming enterprises or in graduate programs. NIFA will award institutional grants that offer internships, externships, practicums, global leadership, study abroad and/or experiential learning opportunities in research and extension that will help students develop the critical thinking, problem solving, digital competency, international experiences, and communication skills needed for future employment and/or higher education.
- ***Advancing Science*** will support graduate and post-graduate education in agriculture and related disciplines. NIFA Graduate and Post Graduate Fellowships programs will continue to support pre-and post-doctoral trainees. These Fellowships awards will also enable interested pre and post-doctoral trainees to obtain training in international research on issues relevant to U.S. agriculture.

- Sustained support for Veterinary Medicine Loan Repayment Program (\$4,991,000 available in 2017) as follows:

Base funding will help to defray qualifying educational loans of veterinarians in geographical areas that have a shortage of veterinarians; or who are in an area of veterinary practice that the Secretary determines has a shortage of veterinarians, such as food animal medicine, public health, epidemiology, and food safety.

- Sustained support for Minor Crop Pest Management, IR-4 (\$11,890,000 available in 2017) as follows:

Base funding will support and enhance the capacity of the IR-4 program to assist growers in obtaining registrations of pesticides for use on specialty food crops (fruits, vegetables, nuts, and herbs/spices), ornamental horticulture crops and minor uses on major crops, particularly in light of continued loss of effective pesticides and methods of pest control. The program will invest in efforts to register pesticides that are lower risk but effective and economical and to demonstrate this efficacy to potential users. Among the areas for program growth are biopesticides and organics, public health, and global initiatives to harmonize Maximum Residue Levels. The impact of not funding this program would be a decline and/or loss of effective pest control materials on specialty crops. This program provides an important component in integrated pest management strategies to control economically important pests.

- Sustained support for the Tribal Colleges Endowment Fund (\$11,857,000 available in 2017) as follows:

The Native American Institutions Endowment Fund, authorized by the 1994 Act provides for the establishment of an endowment for the 1994 Institutions (eligible Tribally-controlled colleges). Base funding for this program enhances educational opportunities for Native Americans by building educational capacity at these institutions. The institutions also may use the funding for facility renovation and construction. The \$11.86 million will remain at Treasury and be invested in Treasury securities, with the cumulative interest provided to the program.

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TABLE 1 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

<u>STATE</u>	<u>HATCH ACT AS AMENDED</u>		<u>TOTAL</u>	<u>COOP</u>	<u>1890 UNIV</u>	<u>ANIMAL</u>	<u>SPECIAL</u>	<u>COMPETITIVE</u>	<u>HIGHER</u>	<u>NATIVE</u>	<u>FED ADMIN</u>	<u>TOTAL</u>
	<u>HATCH</u>	<u>REGIONAL</u>		<u>FORESTRY</u>	<u>& TUSK</u>	<u>HEALTH &</u>	<u>AND OTHER</u>	<u>RESEARCH</u>	<u>EDUCATION</u>	<u>AMERICAN</u>	<u>DIRECT</u>	<u>FEDERAL</u>
	<u>FORMULA</u>	<u>RESEARCH</u>		<u>RSH (MS)</u>	<u>UNIV (EA)</u>	<u>DIS RSCH</u>	<u>GRANTS</u>	<u>GRANTS</u>	<u>GRANTS</u>	<u>GRANTS</u>	<u>APPROP</u>	<u>FUNDS</u>
ALABAMA	\$3,890,428	\$1,184,631	\$5,075,059	\$1,072,017	\$5,390,226	\$56,122	\$326,250	\$4,956,206	\$359,212	-	-	\$17,235,092
ALASKA	1,069,454	193,100	1,262,554	578,949	-	-	-	-	1,675,082	-	-	3,516,585
AMER SAMOA	1,181,658	29,314	1,210,972	-	-	-	-	-	325,000	-	-	1,535,972
ARIZONA	1,508,272	1,021,006	2,529,278	332,415	-	71,170	246,000	3,034,942	202,294	-	-	6,416,099
ARKANSAS	3,311,087	981,250	4,292,337	989,840	2,331,779	83,896	-	942,925	-	-	-	8,640,777
CALIFORNIA	4,660,867	2,272,570	6,933,437	866,573	-	268,901	3,561,750	15,079,551	2,099,722	-	-	28,809,934
COLORADO	2,123,892	1,415,309	3,539,201	352,959	-	309,011	1,517,897	11,554,246	500,751	-	-	17,774,065
CONNECTICUT	1,590,354	664,509	2,254,863	435,137	-	23,683	-	5,461,690	-	-	-	8,175,373
DELAWARE	1,135,332	497,084	1,632,416	188,603	1,249,750	18,648	-	2,337,406	134,546	-	-	5,561,369
DISTRICT OF COLUMBIA	755,733	143,510	899,243	-	-	-	-	50,000	-	-	-	949,243
FLORIDA	2,995,215	971,293	3,966,508	804,939	2,164,036	60,371	2,296,885	4,477,863	2,223,819	-	-	15,994,421
GEORGIA	4,420,179	1,701,560	6,121,739	1,133,652	3,094,871	95,810	5,500,925	5,346,030	484,500	-	-	21,777,527
GUAM	1,220,424	165,342	1,385,766	106,425	-	-	-	-	280,000	-	-	1,772,191
HAWAII	1,118,971	517,743	1,636,714	291,326	-	10,292	739,960	574,713	1,528,439	-	-	4,781,444
IDAHO	1,929,279	804,978	2,734,257	599,494	-	54,024	189,185	2,303,053	-	-	-	5,880,013
ILLINOIS	5,457,311	1,422,204	6,879,515	537,861	-	36,225	250,000	9,320,417	243,253	-	-	17,267,271
INDIANA	5,220,854	1,156,491	6,377,345	640,583	-	46,995	-	4,874,967	-	-	-	11,939,890
IOWA	5,415,643	2,247,458	7,663,101	476,227	-	208,875	739,960	7,831,933	262,500	-	-	17,182,596
KANSAS	3,311,394	1,063,247	4,374,641	311,871	-	140,091	896,072	6,081,334	683,849	-	-	12,487,858
KENTUCKY	5,183,051	1,391,201	6,574,252	743,306	3,694,138	65,261	250,000	3,859,040	134,672	-	-	15,320,669
LOUISIANA	2,989,349	926,209	3,915,558	1,010,384	2,050,647	50,838	-	629,880	-	-	-	7,657,307
MAINE	1,697,816	692,591	2,390,407	887,118	-	23,328	336,216	2,456,499	-	-	-	6,093,568
MARYLAND	2,220,692	871,453	3,092,145	373,504	1,565,868	14,723	1,812,752	10,966,130	-	-	-	17,825,122
MASSACHUSETTS	1,860,183	850,658	2,710,841	455,682	-	63,145	-	6,692,722	-	-	-	9,922,390
MICHIGAN	5,241,882	1,242,724	6,484,606	928,207	-	89,445	3,167,341	8,886,632	572,990	-	-	20,129,221
MICRONESIA	1,257,796	-	1,257,796	-	-	-	-	-	236,004	-	-	1,493,800
MINNESOTA	5,130,888	1,213,552	6,344,440	866,573	-	148,922	6,201,983	7,206,361	1,433,797	-	-	22,202,076
MISSISSIPPI	3,783,034	1,132,209	4,915,243	1,051,474	2,544,945	56,189	989,094	1,539,909	238,346	-	-	11,335,200
MISSOURI	5,085,221	1,084,126	6,169,347	702,217	3,718,460	60,926	846,995	6,925,775	135,309	-	-	18,559,029
MONTANA	1,862,871	901,526	2,764,397	681,672	-	40,558	709,696	1,329,979	948,527	-	-	6,474,829
NEBRASKA	3,058,816	1,240,252	4,299,068	250,237	-	111,909	443,561	10,676,537	565,554	-	-	16,346,866
NEVADA	1,064,546	493,608	1,558,154	126,970	-	20,062	-	1,190,305	-	-	-	2,895,491
NEW HAMPSHIRE	1,368,767	498,120	1,866,887	496,771	-	15,703	-	865,682	-	-	-	3,245,043
NEW JERSEY	1,854,168	1,487,829	3,341,997	414,593	-	19,892	3,513,376	198,090	-	-	-	7,487,948
NEW MEXICO	1,538,724	543,088	2,081,812	270,781	-	48,511	-	145,205	1,103,441	-	-	3,649,750
NEW YORK	4,857,510	2,194,497	7,052,007	928,207	-	105,962	326,963	12,925,369	688,281	-	-	22,026,789

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STATE	<u>HATCH ACT AS AMENDED</u>			COOP FORESTRY RSH (MS)	1890 UNIV & TUSK UNIV (EA)	ANIMAL HEALTH & DIS RSCH	SPECIAL AND OTHER GRANTS	COMPETITIVE RESEARCH GRANTS	HIGHER EDUCATION GRANTS	NATIVE AMERICAN	FED ADMIN DIRECT APPROP	TOTAL FEDERAL FUNDS
	HATCH FORMULA	REGIONAL RESEARCH	TOTAL									
NORTH CAROLINA	6,383,035	1,620,539	8,003,574	1,092,562	4,250,701	106,519	-	9,230,264	238,500	-	-	22,922,120
NORTH DAKOTA	2,169,110	816,922	2,986,032	209,147	-	42,793	480,500	3,483,550	505,737	-	-	7,707,759
NORTHERN MARIANAS	1,172,828	-	1,172,828	-	-	-	-	-	-	-	-	1,172,828
OHIO	6,307,686	1,315,145	7,622,831	620,038	1,117,200	69,297	-	5,987,336	862,395	-	-	16,279,097
OKLAHOMA	3,283,215	805,127	4,088,342	558,404	2,428,356	80,228	193,105	1,049,200	676,919	-	-	9,074,554
OREGON	2,511,732	1,276,862	3,788,594	1,113,108	-	67,408	-	1,903,780	412,221	-	-	7,285,111
PALAU	-	-	-	-	-	-	-	-	115,000	-	-	115,000
PENNSYLVANIA	5,974,806	1,678,666	7,653,472	763,850	-	123,463	-	7,710,518	-	-	-	16,251,303
PUERTO RICO	3,703,902	996,973	4,700,875	85,881	-	18,648	-	200,000	1,913,722	-	-	6,919,126
RHODE ISLAND	1,028,342	515,800	1,544,142	147,513	-	12,885	-	680,908	-	-	-	2,385,448
SOUTH CAROLINA	3,325,667	1,053,142	4,378,809	846,028	2,290,646	18,649	-	1,579,900	541,941	-	-	9,655,973
SOUTH DAKOTA	2,327,446	823,879	3,151,325	229,692	-	71,497	2,328,000	5,156,963	-	-	-	10,937,477
TENNESSEE	4,911,103	1,146,362	6,057,465	804,939	3,412,660	66,877	1,070,848	3,489,984	207,055	-	-	15,109,828
TEXAS	7,041,173	1,630,699	8,671,872	969,295	5,170,651	286,765	444,032	10,733,844	4,325,473	-	-	30,601,932
UTAH	1,339,598	995,489	2,335,087	168,058	-	21,416	5,821,946	1,941,919	340,619	-	-	10,629,045
VERMONT	1,420,304	436,768	1,857,072	517,316	-	17,988	5,500,925	2,346,264	-	-	-	10,239,565
VIRGIN ISLANDS	1,196,237	160,397	1,356,634	44,791	-	-	-	-	257,000	-	-	1,658,425
VIRGINIA	4,178,355	1,058,867	5,237,222	948,751	2,892,706	29,815	275,887	4,491,421	355,560	-	-	14,231,362
WASHINGTON	2,743,313	1,965,339	4,708,652	1,030,928	-	131,349	1,735,360	8,529,280	768,970	-	-	16,904,539
WEST VIRGINIA	2,563,362	725,862	3,289,224	661,128	1,542,946	9,612	-	1,362,890	-	-	-	6,865,800
WISCONSIN	5,186,476	1,305,102	6,491,578	784,394	-	72,580	1,623,440	8,703,154	678,050	-	-	18,353,196
WYOMING	1,284,393	719,288	2,003,681	373,504	-	30,192	250,000	1,000,000	-	-	-	3,657,377
OTHER	-	-	-	-	-	-	27,940	22,197,155	240,885	-	-	22,465,980
SBIR	5,191,855	1,693,949	6,885,804	958,617	1,529,480	111,744	1,337,239	8,946,122	180,057	-	-	19,949,063
FEDERAL ADMIN OBLIGATIONS	5,537,891	1,750,491	7,268,382	1,048,478	1,672,854	163,456	2,343,374	14,485,586	2,393,264	-	\$20,339,000	49,714,394
BAL. AVAILABLE, EOY	183,153,490	59,707,910	242,841,400	33,882,989	54,112,920	3,972,669	58,295,457	285,931,429	32,073,256	-	20,339,000	731,449,120
SUBTOTAL	-	-	-	-	-	-	15,000	313,940,116	1,811,575	-	-	315,766,691
TRIBAL ENDOWMENT	183,153,490	59,707,910	242,841,400	33,882,989	54,112,920	3,972,669	58,310,457	599,871,545	33,884,831	-	20,339,000	1,047,215,811
BIOTECH RISK ASSESSMENT	-	-	-	-	-	-	-	-	-	\$11,880,000	-	11,880,000
TOTAL, AVAILABLE	638,096	201,504	839,600	33,220	72,080	18,480	23,655	1,261,380	2,000	-	-	2,250,415
TOTAL, AVAILABLE	183,791,586	59,909,414	243,681,000	33,916,209	54,185,000	3,991,149	58,334,112	601,132,925	33,886,831	11,880,000	20,339,000	1,061,346,226

*Program and admin funds lapsed for Hatch Act, Cooperative Forestry and Animal Health in FY 2016.
Data may include 2016 obligations posted in 2017*

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**TABLE 2 - FISCAL YEAR 2017
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH**

<u>STATE</u>	<u>HATCH ACT</u>	<u>COOP FORESTRY RSH (MS)</u>	<u>1890 UNIV & TUSK UNIV (EA)</u>	<u>ANIMAL HEALTH & DIS RSCH</u>	<u>SPECIAL AND OTHER GRANTS</u>	<u>COMPETITIVE RESEARCH GRANTS</u>	<u>HIGHER EDUCATION GRANTS</u>	<u>FED ADMIN DIRECT APPROP</u>	<u>TOTAL FEDERAL FUNDS</u>
FEDERAL ADMIN	\$7,062,000	\$1,017,000	\$1,622,000	\$160,000	\$2,352,000	\$17,467,000	\$2,341,000	\$23,484,000	\$55,505,000
UNDISTRIBUTED BALANCE	236,176,000	32,880,000	52,460,000	3,832,000	79,542,000	735,129,000	71,263,000	-	1,211,282,000
TOTAL OBLIGATIONS	243,238,000	33,897,000	54,082,000	3,992,000	81,894,000	752,596,000	73,604,000	23,484,000	1,266,787,000

**TABLE 3 - FISCAL YEAR 2018
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH**

<u>STATE</u>	<u>HATCH ACT</u>	<u>COOP FORESTRY RSH (MS)</u>	<u>1890 UNIV & TUSK UNIV (EA)</u>	<u>SPECIAL AND OTHER GRANTS</u>	<u>COMPETITIVE RESEARCH GRANTS</u>	<u>HIGHER EDUCATION GRANTS</u>	<u>FED ADMIN DIRECT APPROP</u>	<u>TOTAL FEDERAL FUNDS</u>
FEDERAL ADMIN	\$7,062,000	\$866,000	\$1,622,000	\$1,507,520	\$17,467,000	\$1,347,400	\$19,286,000	\$49,157,920
UNDISTRIBUTED BALANCE	236,176,000	28,001,000	52,460,000	40,840,480	331,868,000	35,769,600	-	725,115,080
TOTAL OBLIGATIONS	243,238,000	28,867,000	54,082,000	42,348,000	349,335,000	37,117,000	19,286,000	774,273,000

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RESEARCH AND EDUCATION ACTIVITIES

Classification by Objects
(Dollars in thousands)

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Personnel Compensation:				
Washington D.C.	\$21,324	\$20,760	\$22,630	\$22,956
11.1 - Full-time employees.....	21,324	20,760	22,630	22,956
12.0 - Personnel Benefits.....	8,153	7,488	6,689	6,781
Total, personnel comp. and benefits.....	29,477	28,248	29,319	29,737
Other Objects:				
21.0 - Travel & Transportation of Persons.....	1,608	1,026	1,531	1,343
22.0 - Transportation of Things.....	12	-	10	6
23.1 - Rent to GSA.....	5,114	5,253	5,636	5,853
23.3 - Comm., Util., Misc. Charges.....	1,144	2,273	3,359	2,021
24.0 - Printing and Reproduction.....	224	119	294	177
25.1 - Advisory and Assistance Services.....	1,144	1,773	5,756	1,001
25.2 - Other Services from non-Federal sources.....	259	255	441	265
25.3 - Purchases of Goods and Services.....	1,055	1,186	1,593	1,198
25.5 - Research & Development Contracts.....	8,217	5,864	12,575	6,965
26.0 - Supplies and Materials.....	122	193	271	163
31.0 - Equipment.....	97	112	280	108
41.0 - Grants, Subsidies & Contributions.....	720,824	685,148	1,205,723	725,436
Total, Other Objects.....	739,820	703,202	1,237,469	744,536
99.9 Total, new obligations.....	769,297	731,450	1,266,788	774,273
DHS Building Security Payments (included in 25.3)....	\$687	\$714	\$887	\$1,044
Position Data:				
Average Salary (dollars), ES positions.....	192,350	183,628	187,484	191,046
Average Salary (dollars), GS positions.....	102,600	106,377	108,611	110,675
Average Grade, GS positions.....	13.5	13.5	13.5	13.5

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BIOMASS RESEARCH AND DEVELOPMENT INITIATIVE

Classification by Objects

(Dollars in thousands)

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Other Objects:				
21.0 - Travel & Transportation of Persons.....	\$2	\$97	\$101	-
22.0 - Transportation of Things.....	-	1	1	-
25.2 - Other Services from non-Federal sources.....	1	22	24	-
25.4 - Oper & Maintenance of Facilities.....	2	114	119	-
41.0 - Grants, Subsidies & Contributions.....	162	7,321	7,668	-
99.9 - Total, new obligations.....	167	7,555	7,913	-

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Shared Funding Projects

(Dollars in thousands)

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Working Capital Fund:				
Administration:				
HR Enterprise System Management.....	-	\$6	\$6	\$6
Material Management Service Center.....	\$55	52	67	57
Mail and Reproduction Management.....	255	263	313	304
Integrated Procurement System.....	33	37	36	35
Procurement Operations.....	7	-	-	-
Subtotal.....	350	358	422	402
Communications:				
Creative Media & Broadcast Center.....	54	24	66	37
Finance and Management:				
NFC/USDA.....	102	108	104	94
Financial Management Services.....	3,102	606	625	573
Internal Control Support Services.....	139	120	132	127
Subtotal.....	3,343	834	861	794
Information Technology:				
NITC/USDA.....	590	610	523	583
Enterprise Network Services.....	174	218	197	208
Client Technology Service.....	431	375	585	542
Subtotal.....	1,195	1,203	1,305	1,333
Correspondence Management.....	50	42	37	33
Total, Working Capital Fund.....	4,991	2,461	2,691	2,600
Department Shared Cost Programs:				
1890's USDA Initiatives.....	11	12	14	13
Advisory Committee Liaison Services.....	2	2	2	2
Classified National Security Inforamtion.....	4	3	3	3
Continuity of Operations Planning.....	8	8	8	7
Emergency Operations Center.....	9	9	9	8
Facility and Infrastructure Review and Assessment.....	2	2	2	2
Faith-Based Initiatives and Neighborhood Partnerships.....	2	1	2	1
Honor Awards a/.....	0	0	0	0
Hispanic-Serving Institutions National Program.....	7	7	8	7
Human Resources Transformation (inc. Diversity Council).....	7	6	7	6
Identity & Access Management (HSPD-12).....	27	26	25	23
Intertribal Technical Assistance Network.....	12	12	12	10
Medical Services.....	31	31	35	32
People's Garden.....	3	3	2	2

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Personnel and Document Security.....	5	4	4	4
Pre-authorizing Funding.....	15	15	14	13
Retirement Processor/Web Application.....	2	2	2	2
TARGET Center.....	6	6	5	5
USDA 1994 Program.....	3	3	3	3
Virtual University.....	8	8	8	7
Total, Department Shared Cost Programs.....	163	160	165	149
E-Gov:				
Budget Formulation & Execution Line of Business.....	-	3	3	3
Enterprise Human Resources Integration.....	8	8	7	7
E-Rulemaking.....	3	7	13	17
E-Training.....	11	10	-	-
Financial Management Line of Business.....	1	1	1	1
Geospatial Line of Business	-	7	13	13
Grants.gov.....	2	166	375	359
Human Resources Line of Business.....	1	1	1	1
Integrated Acquisition Environment - Loans and Grants.....	8	-	-	-
Integrated Acquisition Environment.....	3	23	54	55
Total, E-Gov.....	37	226	468	456
Agency Total.....	5,192	2,847	3,324	3,205

Status of Programs

RESEARCH AND EDUCATION ACTIVITIES:

Current Activities:

- Hatch Act. The Hatch Act provides formula funds to support research at the State Agricultural Experiment Stations, which improves production, marketing, distribution, and utilization of crops and livestock for the food supply, health, and welfare of the American people, while conserving resources, enhancing nutrition and sustaining rural living conditions. Students are provided training opportunities to assist in scientific research projects conducted at the stations. Hatch Act formula funds are matched by non-Federal funds and are used to support research in forest and natural resources; crop resources; animal resources; people, communities, and institutions; competition, trade adjustment, price, and income policy; and food science and human nutrition. As a result of provisions contained in the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA), at least 25 percent of available Hatch funding must be used to support multi-State research; States must expend 25 percent, or two times the level spent in fiscal year (FY) 1997 (whichever is less), on integrated research and extension activities.
- McIntire-Stennis Cooperative Forestry Research. The McIntire-Stennis Cooperative Forestry Research program provides formula funds to support research related to use of the Nation's forest resources. Timber production, forest land management, wood utilization, and the associated development of new products and distribution systems are some of the topics of this research. Additional areas of investigation include wildlife, recreation, water, range, and environmental quality, which are essential to the long-term productivity and profitability of the integrated system of forest resources.
- Evans-Allen Program. The Evans-Allen formula funds research programs for the 1890 Colleges and Tuskegee University and was established in the Food and Agriculture Act of 1977, as amended. Beginning in FY 1979, annual appropriations have been used to support continuing agricultural research at the 1890 Colleges and Tuskegee University. The general provisions section 753 of Public Law 107-76 makes West Virginia State University eligible to receive funds under this program. Section 7129 of Public Law 113-79 makes Central State University eligible to receive funds under this program. Appropriations under this authority are the primary source of support for the food and agricultural research programs at the 1890 Colleges, Tuskegee University, West Virginia State University, and Central State University. Section 1445(a)(2) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) (7 U.S.C. 3222(a)(2)), as amended by section 7122 of the Food, Conservation, and Energy Act of 2008 (FCEA or 2008 Farm Bill), requires that funds appropriated for this program be not less than 30 percent of the Hatch Act appropriation. Evans-Allen funds require a 100 percent non-Federal match. These programs place emphasis on small-scale agriculture, human nutrition, rural development, and quality of living, crop resources, and animal resources. In addition, this program supports the development of agricultural expertise by providing training opportunities for students to assist in the research projects being conducted at these institutions.
- Animal Health and Disease Research. The Animal Health and Disease Research formula program provides funding to accredited schools or colleges of veterinary medicine and/or State Agricultural Experiment Stations that conduct animal health and disease research. State Comprehensive Plans for animal health research, approved by NIFA, are being followed by the eligible institutions. Provisions of Section 1433 of NARETPA permit selection of studies within each State based on the highest-priority needs and the capabilities of the institutions to conduct the needed research.
- Special Grants. The Special Grants Program concentrates on problems of national, regional, and local interest beyond the normal emphasis in the formula programs. Program objectives are to facilitate or expand promising breakthroughs of importance to the Nation in areas of food and agricultural sciences and to facilitate or expand ongoing State-Federal food and agricultural research programs. Generally, funding is for projects that have regional and/or national impact, such as those projects addressing global change/UV-B monitoring, pest control

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issues, aquaculture centers and research, sustainable agriculture, potato, alfalfa forage and research, and supplemental and alternative crops.

- **Agriculture and Food Research Initiative (AFRI).** AFRI supports fundamental and applied research, extension, and education to address food and agricultural sciences (as defined under section 1404 of NARETPA). Competitive awards are made to eligible recipients to address critical issues in U.S. agriculture in the areas of food security, climate variability, sustainable bioenergy, childhood obesity, food safety, and water resources. Addressing these critical issues will engage scientists and educators with expertise in plant health and production and plant products; animal health and production and animal products; food safety, nutrition, and health; renewable energy, natural resources, and environment; agriculture systems and technology; and agriculture economics and rural communities. Of the amount of funds made available for research, not less than 60 percent is used for fundamental research and not less than 40 percent is used for applied research. No less than 30 percent of the amount allocated for fundamental research is available for research conducted by multidisciplinary teams and no more than 2 percent to be used for equipment grants. In addition, no less than 30 percent of AFRI funding may be used to carry out integrated research, education, and extension activities such as those provided for in section 406 of AREERA (7 U.S.C. 7626).
- **Small Business Innovation Research (SBIR) Program.** The Small Business Innovation Development Act was designed to strengthen the role of small, innovative firms in federally funded research and development. Under the SBIR program, 3.2 percent of appropriations for extramural research and development are set aside for awards to eligible small firms. The SBIR Program is a three-phased effort, but only Phase I and Phase II, the feasibility and follow-on research and development phases respectively, are eligible for support with USDA funds. Firms are encouraged to secure Phase III funding for the commercialization phase from other public or private sources. The research areas supported under the SBIR program address critical issues in U.S. agriculture in the areas of global food security and hunger, climate, sustainable bioenergy, childhood obesity, and food safety. Addressing these critical issues will engage small businesses with expertise in a number of areas including plant and animal production and protection; forests and related resource sciences; air, soil and water resources; food and nutrition sciences; rural development; biofuels and biobased products; aquaculture; and small and mid-sized farms. NIFA administers the SBIR program for USDA, including the funds set aside for SBIR from other USDA agencies.
- **Biotechnology Risk Assessment Research Grants Program (BRAG).** BRAG is a competitive program for research grants to identify and develop appropriate management practices to minimize physical and biological risks associated with genetically engineered animals, plants, and microorganisms.
- **Tribal Colleges Research Grants Program.** The Tribal Colleges Research Grants Program (authorized under the Equity in Educational Land-Grant Status Act of 1994, Public Law 103-382, as amended) is a competitive program for conducting agricultural research activities that address tribal, National, or multi-State priorities.
- **Farm Business Management and Benchmarking Program.** The Farm Business Management and Benchmarking Program provides support to improve the farm management knowledge and skills of agricultural producers, and establish and maintain a national, publicly available farm financial management database to support improved farm management. Funds are awarded on a competitive basis under the program.
- **Sun Grant Program.** The Sun Grant Program funds six sun grant centers that competitively award subgrants to enhance national energy through the development, distribution, and implementation of biobased energy technologies. Through biobased energy and product technologies, activities are supported that promote diversification, and the environmental sustainability of, agricultural production in the U.S., and economic diversification in rural areas of the U.S. Funds are also used to enhance the efficiency of bioenergy and biomass research and development programs through improved coordination and collaboration among USDA, Department of Energy, and land-grant colleges and universities.
- **Capacity Building for Non-Land Grant Colleges of Agriculture.** The Capacity Building for Non-Land Grant Colleges of Agriculture (NLGCA) Program competitively awards grants to assist the institutions in maintaining

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and expanding the capacity of the NLGCA Institutions to conduct education, research, and outreach activities relating to agriculture, renewable resources, and other similar disciplines.

- Higher Education Programs. The competitive Institution Challenge, Multicultural Scholars, and Graduate Fellowship Grants Program supports challenge grants to stimulate and enable colleges and universities to provide the quality of education necessary to produce graduates capable of strengthening the Nation's food and agricultural scientific and professional workforce. Institution challenge grants match USDA funds on a dollar-for-dollar basis. The program provides funding for multicultural scholars grants to institutions for scholarships to attract and educate more students from groups currently underrepresented in the food and agricultural sciences for careers in agriscience and agribusiness. Under multicultural scholars grants, institutions must provide 25 percent in matching funds. Also supported are fellowship grants to colleges and universities to stimulate the development of food and agricultural scientific expertise in targeted areas of national need specifically to the recruitment and training of doctoral students for critical food and agricultural scientific positions. The competitive Secondary Education, Two-year Postsecondary Education, and Agriculture in the K-12 Classroom Program promotes and strengthens the ability of public secondary schools' education in agribusiness and agriscience and increases the number and/or diversity of young Americans pursuing college degrees in the food and agricultural sciences. The competitive 1890 Institution Capacity Building Grants Program is one of the Department's high-priority initiatives to advance the teaching and research capacity, and expand the competitiveness of the 1890 Land-Grant Institutions and Tuskegee University. The competitive Hispanic-Serving Institutions Education Grants Program promotes and strengthens the ability of Hispanic-Serving Institutions to carry out higher education teaching programs in the food and agricultural sciences. The Tribal Colleges Endowment Fund distributes interest earned by an endowment established for the 1994 Land-Grant Institutions (legislatively 35 Tribally controlled colleges are eligible) as authorized in the Equity in Education Land-Grant Status Act of 1994, P.L. 103-382, as amended. The Endowment Fund enhances education in agricultural sciences and related areas for Native Americans by building education capacity at these institutions. The Tribal Colleges Education Equity Grants Program is a formula program designed to enhance educational opportunities for Native Americans by strengthening instructional programs in food and agriculture. The Alaska Native Serving and Native Hawaiian-Serving Institutions Education Grants Program is designed to recruit, support and educate minority scientists and professionals, and advance the educational capacity of these Native-serving institutions. Grants for Insular Areas Program supports activities at higher education institutions located in U.S. insular areas. Grants support enhancement of resident instruction programs that focus on agriculture, natural resources, forestry, veterinary medicine, home economics, and disciplines closely allied to food and agriculture production and delivery systems. The grants also fund distance education programs that strengthen the capability of the institutions to carry out collaborative distance food and agricultural education programs using digital network technologies. The Veterinary Medicine Loan Repayment Program provides for a loan repayment program for a specified payment amount of qualifying educational loans of veterinarians for geographical areas that have a shortage of veterinarians; and areas of veterinary practice that the Secretary determines have a shortage of veterinarians, such as food animal medicine, public health, epidemiology, and food safety. The Veterinary Services Grant Program, supports competitive grants to develop, implement, and sustain veterinary services.

Selected Examples of Recent Progress:

- Hatch Act. Researchers at the University of Nebraska-Lincoln and Ohio State University set up the Nebraska Agriculture Water Management Network to work with extension agents and help farmers put technologies and new information to work, enhancing the productivity of agriculture while minimizing the environmental impact of irrigation. Using technologies, such as sensors for monitoring crop water use, allows farmers to make more informed decisions regarding how much water to apply when, minimizing human error. Nebraska has more than 9 million acres of irrigated land. The Nebraska Agriculture Water Management Network, made up of more than 1,100 growers, has reduced the amount of irrigation water used by 114 billion gallons each year.
- McIntire-Stennis Cooperative Forestry. "Influences of forest to urban conversion on water related risks to human health" is a three year study at Auburn University (Alabama), of the environmental factors associated with West Nile virus risk that was conducted in Atlanta, Georgia. Since the time West Nile virus was introduced to the U.S. in 1999, approximately 3 million people have become infected, resulting in over 20,000

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reported West Nile Virus nervous system disorders and 11,783 deaths, as reported by the Centers for Disease Control, with an associated economic cost of \$832 million, according to the researcher estimates. In spite of the severity of West Nile Virus outbreaks, much remains unknown about the climatic, environmental, and social factors that elevate West Nile Virus risk. NIFA provided research funding to characterize vegetation, water quality, and socioeconomic conditions and examine climate records for areas surrounding infected mosquito sampling sites.

- **Evans-Allen.** As a result of high levels of return on investments and increased demand for organic foods, growers are converting to organic production. However, limited research has been conducted on the management of vegetable insects by using environmentally friendly methods such as biological controls. Alcorn State University (Mississippi) researchers have conducted field evaluations on commercial organic pepper varieties. Several of Alcorn's pepper lines have exhibited herbivore resistance and achieved higher yields, thus minimizing the need for insecticide applications. Research also was conducted on a number of other agronomic and horticultural pests, including eggplant flea beetle and green peach aphids. Research findings from this project have offered effective alternative bio-pesticides to replace conventional insecticides and manage insect pests.
- **Animal Health and Disease Research.** Ohio State University researchers are searching for antimicrobial alternatives to mitigate antimicrobial resistance by investigating how livestock pathogens move through the environment and infect animals. The project resulted in the development of a broad H1N1 vaccine to protect against swine influenza viruses and contributed critical information to develop a vaccine in poultry. It also resulted in an increased understanding of how antibiotic resistance occurs in food animal environments so researchers can take the next steps to develop strategies to control the spread of antimicrobial resistance. Targeted control efforts at critical points for pathogens including *Campylobacter*, shiga-toxin producing *E. coli*, and *Salmonella*, which are among the top four causes of food poisoning in the U.S. according to the U.S. Department of Health & Human Services, will provide industry with new tools to enhance animal production, food safety, and human health.
- **Special Grants. Global Change UV-B Monitoring Program.** Colorado State University is working to characterize and quantify the effects of UV-B radiation on agricultural crops. This project is involved in integrated climate-crop-economic modeling to develop a better understanding of how crops respond to extremes in weather, allowing farm managers to optimize profitability and simultaneously be good environmental stewards through sustainable practice. Crop modeling allows users to simulate the effects of a variety of crop management and weather scenarios on crop yield and forecasted profitability, enabling farm managers to make better management decisions in the face of weather extremes.

Minor Crop Pest Management-IR-4. The IR-4 program continues to deliver results for the nation's specialty and minor crop growers, which in turn improves consumer access to affordable, diverse, and nutritious diets rich in fruits and vegetables. The IR-4 program achieves this by working in partnership with multiple Federal agencies, academic institutions, specialty crop growers, the crop protection industry, and the U.S. Environmental Protection Agency (EPA). In 2015, the EPA used data from the IR-4 program to approve a record 1,175 chemical clearances for food crops. Two specific successes were achieved through the IR-4 Bio-pesticides and Organic support program. The first example is the registration of HopGuard II, a natural product derived from hops, which is used to protect honeybees from Varroa mites, one of the major factors contributing to Colony Collapse Disorder. The second example is the registration of AV-1011, a naturally derived bird repellent to protect rice seedlings from excessive bird damage. In this example of IR-4 facilitating registration of a minor use pesticide for a major crop, the original request for assistance came from Florida, California, and Louisiana, the initial efficacy studies were conducted in Missouri with later field trials performed in Louisiana, Texas, Arkansas, and California, and chemical analyses were conducted at Michigan State University. As a result of this multistate collaboration, rice growers in these states can now use a natural bio-pesticide to protect the Nation's 3 million acres of rice from excessive bird predation.

Aquaculture Centers. Scientists at the Southern Regional Aquaculture Center, Mississippi State University, partnered with researchers at the University of Arkansas at Pine Bluff (1890 land-grant university), Texas Tech University, Auburn University (Alabama), and the University of Florida to provide guidance on current retail

market trends based on retail supermarket scanner data from 52 cities across the U.S. The research team analyzed market trends and estimated market demand and market models for various seafood products. As a result 19 summary and seven customized reports were sent to catfish processing companies. Based on the report findings, several catfish farmers and processors expressed plans to develop market-specific strategies for catfish marketing. The catfish industry invited the research team to further assist with designing their marketing plans. Additionally, the Catfish Institute, an industry-managed organization responsible for raising consumer awareness of the positive qualities of U.S. farm-raised catfish, requested to partner with the team to organize region-specific advertisement messages for the industry.

Sustainable Agriculture Research and Education (SARE) is a regionally delivered program that is responsive to a wide array of current producer needs, which include advancing farming systems that are productive, profitable, and environmentally beneficial while contributing to the quality of life for producers and society as a whole. In the northeast region, recent SARE activities helped community based organizations in Baltimore, Maryland; Brooklyn, New York; and Philadelphia, Pennsylvania develop and teach effective urban farming techniques. In the western region, a project at Montana State University helped approximately half of the state's wheat producers refine their nitrogen applications to protect the environment while also improving profit by \$5 million per year. In the north central region, a Kansas farmer was able to experiment with locally adopted cover crop mixes that protect the soil and provide valuable forage his cattle. In the southern region, an extension entomologist in Alabama was able to reach nearly a thousand producers with organic production techniques that reduce pesticide use, increase yield, and improve profit.

- Agriculture and Food Research Initiative (AFRI). Researchers at the Baylor College of Medicine in Texas and North Carolina State University successfully cultivated human noroviruses in the laboratory. Norovirus is the most common cause of foodborne illness in the U.S. Prior to this point, scientists had been unsuccessful in trying to culture the virus for almost fifty years, a major stumbling block to norovirus research. This cultivation forms the foundation for future breakthroughs in norovirus research, which should lead to considerable public health improvements in the years to come. This research will enable the identification of new viral control strategies, such as effective disinfectants and food processes to prevent transmission, as well as vaccines and therapeutics. Ultimately, the work will lead to fewer cases of disease, hospitalizations, and deaths, and will reduce the associated economic expenditures.

The goal of the Research and Extension Experiences for Undergraduates (REEU) program within the Education and Literacy Initiative is to promote research and extension experiential learning that will equip undergraduates with exceptional skills for the agriculture workforce. In 2015, sixteen REEU awards were made supporting approximately 480 undergraduate students in the Pacific Island region. Thirty of these students will be trained through the Child Health Assessment in the Pacific (CHAP) Summer Fellowship Program that was created at the University of Hawaii at Mānoa in partnership with Chaminade University in Hawaii, Northern Marianas College, and the University of Guam. This program will build Pacific regional capacity in early childhood nutrition and health assessment training and develop and sustain the Pacific network of nutrition professionals, educators, researchers, and students. The network monitors and mitigates early childhood obesity and health disparities and offers a program that develops and evaluates sustained training in early childhood nutrition and health assessment.

The Pine Integrated Network: Education, Mitigation, and Adaptation Project (PINEMAP) Coordinated Agricultural Project, led by the University of Florida, is working to understand the effects and dynamics of loblolly pines under drought conditions. The project established 120 replicated active field experiments for monitoring carbon and nutrient dynamics and four additional experiments on the edges of the native loblolly pine range in the southeastern U.S. that will simulate drought to determine changes and reactions of tree growth, soil and water processes, carbon uptake and emissions. The PINEMAP Extension program has conducted four webinars involving 315 forestry consultants and state forestry agency personnel.

At Cornell University in New York, the Adapt-N project is developing climate-adaptive decision tools to reduce nutrient pollution from agricultural fields. Better tools are needed to equip producers to effectively apply fertilizer and manure nitrogen (N) to enhance crop productivity and farm profitability while decreasing farm operation costs and minimizing nutrient loss to the environment. The goal of this project is to research,

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develop, and facilitate the adoption of practical decision tools and solutions to improve water quality and buffer water quantity in the face of extreme weather events. The researchers worked closely with growers, consultants, and extension agents to implement Adapt-N field trials. Overall, Adapt-N treatments resulted in an average profit increase of \$28.68 per acre while minimizing gaseous loss by 41 percent and leaching (the loss of water-soluble plant nutrients from the soil) by 36 percent versus the grower rates.

The Integrated Pest Information Platform for Extension and Education (iPiPE) multiregional project, led by researchers at Pennsylvania State University, provides a national infrastructure for sharing information about incidents of pests and crop health issues, and recommendations for measures to limit crop loss. The infrastructure works to provide timely tools and information for management decisions of cropping systems, therefore incentivizing growers and consultants to submit observations. Resulting tools include computer resources, information products, and expert commentary to assist with detection and management of new, foreign, or emerging target pests, and endemic pests, that threaten U.S. crops. To date, iPiPE Crop-Pest Programs include: Alfalfa (California); Citrus (Florida); Cotton (California); Small Fruit (New England); Sorghum (Texas); Soybean (Missouri); Soybean (North Central); Stone and Tree Fruit (Oregon); Sunflower (North Dakota); Tree Fruit (Mid-Atlantic); Tree Fruit (Utah); and Vegetables (New York).

- **Small Business Innovation Research.** Altaeros Energies, located in Cambridge, Massachusetts, developed a Buoyant Airborne Turbine (BAT) for production of wind energy in remote locations. Wind speed is stronger and more uniform at 1,000 feet than at ground level. The BAT is filled with helium and maintained at 1,000 feet where the wind turbine produces electricity that can be fed into a micro-grid to provide clean and sustainable energy for remote isolated communities. There is considerable interest in this technology in Alaska, and the company received a \$7 million investment from SoftBank Group Corporation, for future deployment of the BAT system in Japan.
- **Biotechnology Risk Assessment Research Grants Program.** A big question relating to genetically modified organisms is whether they will move from lands managed for production to the surrounding environment. Scientists with the USDA's Agricultural Research Service in Washington evaluated the risk of genetically modified (transgenic) alfalfa spreading from crop fields to natural, unmanaged environments as feral individuals. Study sites of wild alfalfa populations in California, Idaho, and Washington were comprised of 8 to 33 percent transgenic alfalfa, confirming that genetically engineered alfalfa had dispersed into the environment. Clusters of feral alfalfa corresponded to areas where seeds were dropped during farming activities, suggesting that minimizing seed spillage along road sides would be an effective strategy to minimize genetically engineered alfalfa dispersal.
- **Tribal Colleges Research.** Navajo Technical University in New Mexico tested schools and community buildings on the Navajo Nation for radon gas in order to reduce the incidence of lung cancer among Navajo Indians. The evaluators used EPA-certified devices to provide constant readouts of radon levels, which were placed in each targeted location to monitor levels of radon gas over several days and identify where unhealthy radon levels need to be addressed. These activities are part of a community research grant that combines scientific inquiry with a concern or goal of the surrounding community.
- **Higher Education Programs.** 1890 Institutions Capacity Building Grants Program. Educators at Alcorn State University in Mississippi developed a project to teach extension agents, students, and farmers about sustainable crop production, market outlets, and small farm financial management. Six workshops, including three hands-on, on-farm training sessions about sustainable crop production practices, alternative market strategies, and effective management planning for sustainable farming operations, were conducted at the university and demonstration centers located in Mississippi communities of Mound Bayou, Preston, Marks, and Lorman. A total of 325 farmers and agriculture professionals attended training workshops.

Hispanic Serving Institutions Education Grants Program. California State University in Bakersfield is developing innovative experiential learning, research, and extension opportunities for underrepresented students in bio-systems and agricultural engineering (BAE) concentration. This program is the first step towards a comprehensive agriculture degree at the university. The program will offer extensive hands-on training to students and prepare them for a successful career in a transforming agricultural environment. The Shafter

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Research Station in the San Joaquin Valley in California, and local agricultural companies will participate in the training of the students. Through a hands-on approach to problem solving, the students will develop critical thinking and engineering skills. The project team anticipates 35 students to enroll in the program in a continuous basis, with ten seniors graduating per year.

Tribal Colleges Education Equity Grants Program. Southwestern Indian Polytechnic Institute (SIPI) is a Federally operated Bureau of Indian Affairs community college located in New Mexico that combines culinary and environmental science programs to leverage resources. A SIPI project funded eight scholarships and provided \$6,155 in upgrades to the culinary education program to ensure safe food preparation and improve classroom safety. The college has also begun negotiations for a transfer agreement with the four-year forestry program at Salish Kootenai College in Montana. In addition, students are preselected for internships with the USDA's Animal Plant Health Inspection Service (APHIS).

Alaska Native Serving and Native Hawaiian-Serving. The University of Alaska Southeast Sitka (referred to as Drumbeats Sitka) is recruiting rural Alaskans into science professions. Drumbeats Sitka developed a longitudinal K-12 pathway for rural Alaska students to enter post-secondary education and careers in fisheries, marine science, and other science, technology, engineering and mathematics (STEM) fields. The target audience is pre-school through undergraduate level students living remotely in six scattered villages across southern rural Southeast Alaska. During the 2015-2016 school year, the project expanded the breadth of scientific lessons delivered in elementary and secondary classrooms. The Scientists in the Schools (SIS) Program covered grades K-8 and multiple other classes across grades 9-12. More than 1,200 students across nine schools and 73 classrooms were involved in creative, relevant, and experiential lessons with scientists.

Grants for Insular Areas. The student population at Palau Community College is drawn from the 194,974 Pacific Islanders inhabiting more than 2,000 islands scattered throughout 3 million square miles of ocean known as Micronesia. Ninety-five percent of the students come from families with low income; 80 percent are first generation college students; 83 percent are not prepared upon graduation from high school to do college level work; and 95 percent speak English as a second or third language. The Developing Resident Instruction and Distance Education in Food and Agriculture Science project aspires to increase enrollment and the graduation rate of agriculture science students. During 2014-2015, the project was able to exceed its performance objectives as follows: a) 25 percent of all incoming students selected agriculture science as a major (goal was 5 percent); b) 79 percent of the agriculture students maintained a GPA of 2.0 and above (goal was 70 percent); c) 83 percent student retention rate in agriculture science (goal was 65 percent); and d) 83 percent of agriculture science students graduated (goal was 80 percent).

Veterinary Medicine Loan Repayment Program (VMLRP). In FY 2016, the VMLRP awarded more than \$4.3 million to 48 American veterinarians to repay a portion of their veterinary school loans in return for serving in areas lacking sufficient veterinary resources. The awards will fill shortage needs in 27 states. Veterinarians play a critical role in keeping our Nation's food supply safe and animals healthy. The need for veterinarians in designated shortage areas is urgent. This loan-repayment assistance program incentivizes students to take up rural veterinary practices and help take care of American livestock. Recipients are required to commit to three years of veterinary service in a designated veterinary shortage area. Since inception, the VMLRP has assisted over 300 veterinarians to fill veterinary workforce gaps across the country.

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Extension Activities

The estimates include appropriation language for this item as follows (new language underscored; deleted matter enclosed in brackets):

Extension Activities

- 1 For payments to States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, Micronesia, the Northern Marianas, and American Samoa, [~~\$475,891,000~~]\$462,890,000], which shall be for the purposes, and in the amounts, specified in the table titled "National Institute of Food and Agriculture, Extension Activities" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act)]: *Provided*, That funds for facility improvements at 1890 institutions shall remain available until expended: *Provided further*, That institutions eligible to receive funds under 7 U.S.C. 3221 for cooperative extension receive no less than \$1,000,000: *Provided further*, That funds for cooperative extension under sections 3(b) and (c) of the Smith-Lever Act (7 U.S.C. 343(b) and (c)) and section 208(c) of Public Law 93-471 shall be available for retirement and employees' compensation costs for extension agents.

Explanation of Change

The change eliminates reference to the explanatory statement.

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Lead-Off Tabular Statement
Extension Activities

Budget Estimate, 2018.....	\$462,890,000
2017 Annualized Continuing Resolution.....	474,987,000
Change in Appropriation.....	<u>-12,097,000</u>

Summary of Increases and Decreases
(Dollars in thousands)

	2015 Actual	2016 Change	2017 Change	2018 Change	2018 President's Budget
Discretionary Appropriations:					
Smith-Lever Sections 3(b) and 3(c).....	\$300,000	-	-\$570	-	\$299,430
1890 Colleges, Tuskegee Univ. & WV State Univ.....	43,920	+\$1700	-87	-	45,533
Smith-Lever, Section 3d Programs.....					
AgrAbility/Farm Safety.....	4,610	-	-9	-\$4,601	-
Expanded Food and Nutrition Education Program.....	67,934	-	-129	-	67,805
Federally Recognized Tribes Extension.....	3,039	-	-6	-	3,033
New Technologies for Ag Extension.....	1,550	-	-3	-1,547	-
Children, Youth, and Families at Risk.....	8,395	-	-16	-	8,379
Rural Health and Safety Education.....	1,500	-	-3	-1,497	-
1890 Facilities Grants (Sec. 1447).....	19,730	-	-37	-	19,693
Food Safety Outreach Program.....	2,500	+2,500	-10	-	4,990
Renewable Resources Extension Act (RREA).....	4,060	-	-8	-4,053	-
Extension Services at the 1994 Institutions.....	4,446	-	-8	-	4,438
Food Animal Residue Avoidance Database (FARAD).....	1,250	-	-2	-	1,248
Women and Minorities in STEM Fields.....	400	-	-1	-399	-
Federal Administration (direct appropriation):					
General Administration.....	7,805	-	-14	-	7,791
Eliminated New Hires.....	-	-	-	-439	-439
Pay Cost.....	-	-	-	439	439
Ag in the Classroom.....	552	-	-1	-	551
Total.....	<u>471,691</u>	<u>+4,200</u>	<u>-904</u>	<u>-12,097</u>	<u>462,890</u>

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EXTENSION ACTIVITIES

Project Statement

Adjusted Appropriations Detail and Staff Years (SYs)
(Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget		
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	
Discretionary Appropriations:											
Smith-Lever, Section 3d Programs:											
AgrAbility/Farm Safety.....	\$4,610	-	\$4,610	-	\$4,601	-	-\$4,601	(a)	-	-	
New Technologies for Ag Extension.....	1,550	-	1,550	-	1,547	-	-1,547	(b)	-	-	
Expanded Food & Nutrition Education Program.....	67,934	-	67,934	-	67,805	-	-	-	\$67,805	-	
Federally Recognized Tribes Extension.....	3,039	-	3,039	-	3,033	-	-	-	3,033	-	
Children, Youth, and Families at Risk.....	8,395	-	8,395	-	8,379	-	-	-	8,379	-	
Total Section 3d Programs.....	85,528	-	85,528	-	85,365	-	-6,148	-	79,217	-	
Rural Health and Safety Education.....	1,500	-	1,500	-	1,497	-	-1,497	(c)	-	-	
Renewable Resources Extension Act (RREA)....	4,060	-	4,060	-	4,053	-	-4,053	(d)	-	-	
Women and Minorities in STEM Fields.....	400	-	400	-	399	-	-399	(e)	-	-	
Smith-Lever Sections 3(b) and 3(c).....	300,000	-	300,000	-	299,430	-	-	-	299,430	-	
1890 Colleges, Tuskegee Univ. & WV State Univ.....	43,920	-	45,620	-	45,533	-	-	-	45,533	-	
1890 Facilities Grants (Sec. 1447).....	19,730	-	19,730	-	19,693	-	-	-	19,693	-	
Food Safety Outreach Program.....	2,500	-	5,000	-	4,990	-	-	-	4,990	-	
Extension Services at the 1994 Institutions.....	4,446	-	4,446	-	4,438	-	-	-	4,438	-	
Food Animal Residue Avoidance Database.....	1,250	-	1,250	-	1,248	-	-	-	1,248	-	
Federal Administration (Direct Approp.)											
Delay New Hires.....	-	-	-	-	-	-	-439	(f)	-	-439	
Pay Cost.....	-	-	-	-	-	-	+439	(g)	-	439	
General Administration.....	7,805	-	7,805	-	7,790	-	-	-	7,790	-	
Ag in the Classroom.....	552	-	552	-	551	-	-	-	551	-	
Total Federal Administration.....	8,357	-	8,357	-	8,341	-	-	-	8,341	-	
Total Discretionary Appropriations.....	471,691	145	475,891	143	474,987	138	-12,097		6	462,890	144
Mandatory Appropriations:											
Food Insecurity Nutrition Incentive Program.....	-	-	18,640	-	18,620	-	6,380	-	25,000	-	
Risk Management Education Program.....	4,635	-	4,660	-	4,655	-	345	-	5,000	-	
Beginning Farmers and Ranchers.....	18,540	-	18,640	-	18,620	-	1,380	-	20,000	-	
Total Adjusted Appropriation.....	494,866	-	517,831	-	516,882	-	-3,992	-	512,890	-	
Rescissions, Transfers, and Seq. (Net).....	1,825	-	3,060	-	3,105	-	-3,105	-	-	-	
Total Appropriation.....	496,691	145	520,891	143	519,987	138	-7,097		6	512,890	144
Congressional Relations.....	48	-	48	-	-	-	-	-	-	-	
Total	48	-	48	-	-	-	-	-	-	-	
Sequestration.....	-1,825	-	-3,060	-	-3,105	-	3,105	-	-	-	
Balance Available, SOY.....	84,346	-	32,837	-	15,796	-	-15,796	-	-	-	
Recoveries, Other (Net).....	289	-	7,366	-	-	-	-	-	-	-	
Total Available.....	579,549	-	558,082	-	532,678	-	-19,788	-	512,890	-	
Lapsing Balances.....	-25	-	-120	-	-	-	-	-	-	-	
Balance Available, EOY.....	-32,837	-	-15,796	-	-	-	-	-	-	-	
Total Obligations.....	546,687	145	542,166	143	532,678	138	-19,788		6	512,890	144

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EXTENSION ACTIVITIES
 Project Statement
 Obligations Detail and Staff Years (SYs)
 (Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Obligations:										
Smith-Lever, Section 3d Programs:										
AgrAbility/Farm Safety.....	\$4,610	-	\$4,610	-	\$4,601	-	-\$4,601	-	-	-
New Technologies for Ag Extension.....	1,550	-	1,550	-	1,547	-	-1,547	-	-	-
Expanded Food & Nutrition Education Program.....	67,934	-	67,934	-	67,805	-	-	-	\$67,805	-
Federally Recognized Tribes Extension.....	3,039	-	3,039	-	3,033	-	-	-	3,033	-
Children, Youth, and Families at Risk.....	8,395	-	8,395	-	8,379	-	-	-	8,379	-
Total Section 3d Programs.....	85,528	-	85,528	-	85,365	-	-6,148	-	79,217	-
Rural Health and Safety Education.....	1,500	-	1,500	-	1,497	-	-1,497	-	-	-
Renewable Resources Extension Act (RREA).....	4,060	-	4,060	-	4,053	-	-4,053	-	-	-
Women and Minorities in STEM Fields.....	400	-	400	-	399	-	-399	-	-	-
Smith-Lever Sections 3(b) and 3(c).....	300,000	-	299,976	-	299,430	-	-	-	299,430	-
1890 Colleges, Tuskegee Univ. & WV State Univ.....	43,920	-	45,620	-	45,533	-	-	-	45,533	-
1890 Facilities Grants (Sec. 1447).....	18,424	-	43,206	-	34,382	-	-14,689	-	19,693	-
Food Safety Outreach Program.....	2,500	-	5,000	-	4,990	-	-	-	4,990	-
Extension Services at the 1994 Institutions.....	4,446	-	4,446	-	4,438	-	-	-	4,438	-
Food Animal Residue Avoidance Database.....	1,250	-	1,250	-	1,248	-	-	-	1,248	-
Federal Administration (Direct Approp.)										
General Administration.....	7,853	-	7,757	-	7,790	-	-	-	7,790	-
Delay New Hires.....	-	-	-	-	-	-	-439	-	-439	-
Pay Cost.....	-	-	-	-	-	-	+439	-	439	-
Ag in the Classroom.....	552	-	552	-	551	-	-	-	551	-
Total Federal Administration.....	8,405	-	8,309	-	8,341	-	-	-	8,341	-
Total Discretionary Obligations.....	470,433	145	499,295	143	489,676	138	-26,786	6	462,890	144
Mandatory Obligations:										
Food Insecurity Nutrition Incentive Program.....	34,931	-	18,640	-	18,620	-	6,380	-	25,000	-
Risk Management Education Program.....	4,635	-	4,659	-	4,841	-	159	-	5,000	-
Beginning Farmers and Ranchers.....	36,688	-	19,572	-	19,541	-	459	-	20,000	-
Total Obligations.....	546,687	145	542,166	143	532,678	138	-19,788	6	512,890	144
Lapsing Balances.....	25	-	120	-	-	-	-	-	-	-
Balance Available, EOY.....	32,837	-	15,796	-	-	-	-	-	-	-
Total Available.....	579,549	-	558,082	-	532,678	-	-19,788	-	512,890	-
Transfers in (Congressional Relations).....	-48	-	-48	-	-	-	-	-	-	-
Sequestration.....	1,825	-	3,060	-	3,105	-	-3,105	-	-	-
Balance Available, SOY.....	-84,346	-	-32,837	-	-15,796	-	15,796	-	-	-
Recoveries, Other (Net).....	-289	-	-7,366	-	-	-	-	-	-	-
Total Appropriations.....	496,691	145	520,891	143	519,987	138	-7,097	6	512,890	144

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Justification of Increases and Decreases

EXTENSION ACTIVITIES

1. A net decrease of \$12,097,000 and increase of 6 staff years for Extension Activities (\$474,987,000 and 138 staff years available in 2017) as follows:

- (a) A decrease of \$4,601,000 to eliminate Farm Safety/AgrAbility and Youth Farm Safety Education and Certification (\$4,601,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad extension education goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (b) A decrease of \$1,547,000 to eliminate New Technologies for Agricultural Extension (\$1,547,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad extension education goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (c) A decrease of \$1,497,000 to eliminate Rural Health and Safety (\$1,497,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad extension education goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (d) A decrease of \$4,053,000 to eliminate Renewable Resources Extension Act (\$4,053,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad extension education goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

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- (e) A decrease of \$399,000 to eliminate Women and Minorities in Science, Technology, Engineering and Mathematics Fields (\$399,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad extension education goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (f) A decrease of \$439,000 under Federal Administration for delay in new hires (\$0 available in 2017) as follows:

There is a savings of \$439,000 for the delay of planned new hires. These savings will be used to offset the increase in pay costs, which results in no net increase for Other Necessary Expenses.

- (g) An increase of \$439,000 under Federal Administration for pay costs (\$0 available in 2017) as follows:

The pay cost increase is \$439,000, which includes \$342,000 for annualization of the fiscal year 2017 pay raise and \$97,000 for the anticipated FY 2018 pay raise. NIFA's programs are managed at the national level with a staff that represents 377 total employment at the end of FY 2016. Grants management included developing program regulations, establishing broad program goals, reviewing proposals, preparing grant documents, post-award review of progress, and similar activities necessary to achieve program goals. Between 0 and 5 percent of funds provided from programs may be used to support administration of the programs as established by law. The increased pay costs will be offset by the savings from the delay of planned hires, which will result in no net increase for Other Necessary Expenses.

- Sustained support for Smith-Lever 3(b) & (c) (\$299,430,000 available in 2017) as follows:

Smith-Lever 3(b) & (c) base capacity funds will continue to help the 1862 land-grant universities develop practical applications of existing or improved practices or technologies in agriculture; implement solar energy with respect to agriculture, home economics, and rural energy; and disseminate information to communities through demonstrations and publications. The translation of knowledge and delivery of the innovations as solutions to problems facing producers and others is the hallmark of the Cooperative Extension System, which is supported with funds through Smith-Lever 3(b)&(c), along with funding from state and local (county) sources.

- Sustained support for 1890 Institutions Extension (\$45,533,000 available in 2017) as follows:

Capacity base funds for 1890 Institutions Extension are authorized under section 1444 of NARETPA and are used to support continuing agricultural and forestry extension activities at 1890 LGUs. This program supports the Presidential Executive Order on the White House Initiative to Promote Excellence and Innovation at HBCUs by funding the 1890 Institutions to continue the 4-H and Youth Development programs and Leadership and Volunteer Development programs in order to reach a larger number of youth. This will ultimately recruit more students to science, technology, engineering, and mathematics fields related to food, agriculture, natural resources, and human sciences. Base funds also will continue to support one or more of the following extension base program areas: Agriculture; Community Resources and Economic Development; Family Development and Resource Management; 4-H and Youth Development; Leadership and Volunteer Development; Natural Resources and Environmental Management; and Small and Limited Resource Farming. In 2014, approximately 122,000 youth and adults participated in 1890 Extension programs designed to enhance the marketability, profitability, sustainability, and diversity in agricultural enterprise for small and limited resources operation. In addition, the minority populations served by the 1890 Institutions continue to have a high incidence rate of obesity and related diseases. In

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2014, the 1890 Extension worked with approximately 93,000 individuals to address the childhood obesity epidemic.

- Sustained support for Extension Services at 1994 Institutions (\$4,438,000 available in 2017) as follows:

This program provides base funding to increase extension program capacity at 1994 land-grant institutions to address special needs, including nutritional security and poverty, take advantage of important opportunities, and/or demonstrate long-term sustained benefits of extension projects. Awards support one or more of the following extension base program areas: Agriculture; Community Resources and Economic Development; Family Development and Resource Management; 4-H and Youth Development; Leadership and Volunteer Development; Natural Resources and Environmental Management; and Nutrition, Diet, and Health. Many residents of reservations, including Native Youth, live in abject poverty. Building the capacity of 1994 land-grants is essential for healthy and sustainable individuals, Indian communities, and tribal reservations.

- Sustain support for 1890 Facilities (\$19,693,000 available in 2017) as follows:

This program supports the President's Executive Order on the White House Initiative to Promote Excellence and Innovation at HBCUs by funding the acquisition and improvement of agricultural and food sciences facilities and equipment, including libraries, so that eligible 1890 land-grant institutions may participate fully in the development of human capital in the food and agricultural sciences. Annually, each institution receives one award.

- Sustained support for Food Animal Residue Avoidance Database (FARAD) Program (\$1,248,000 available in 2017) as follows:

Base funding supports a computer-based decision support system designed to provide livestock producers, extension specialists, and veterinarians with practical information on how to avoid drug, pesticide, and environmental contaminant residue problems. The drugs and pesticides used in modern animal agriculture improve animal health and thereby promote more efficient and humane production. FARAD is a repository of comprehensive residue avoidance information. FARAD also is sanctioned to provide these estimates to the U.S. Pharmacopeia-Drug Information Veterinary Medicine Advisory Committee. As a cooperative multistate program, FARAD is available nationwide to offer advice about residue avoidance.

- Sustained support for Food Safety Outreach Program (\$4,990,000 available in 2017) as follows:

The focus of the Food Safety Outreach Program is to help owners and operators of small to mid-sized farms, producers, and processors learn about and implement food safety guidelines, particularly those resulting from the Food Safety Modernization Act (FSMA). Base funding will continue to expand the program to build a network of partners and collaborators capable of providing technical assistance to farmers, producers, and processors seeking to implement the FSMA guidelines in their respective environments. The program also will emphasize outreach to farmers of all types, encompassing those working in a variety of agricultural production systems from conventional to organic farmers, among others. It will focus on sustainability, conservation, and environmental practices. Grants will be awarded on a competitive basis and will continue to improve the understanding and adoption of established food safety standards, guidance, and protocols. The assistance provided by these grant programs will be coordinated with, and delivered in cooperation with, other nongovernmental or community-based organizations serving small and mid-sized farmers, producers, and processors, and with other federal food safety agencies. This program is critically needed because of the continued pressures on small producers and processors as a result of the FSMA regulations. It also helps to ensure the safety and security of our Nation's food systems. It will further improve the availability of fresh fruits and vegetables for consumers, especially those living in communities where fresh produce is not readily available.

- Sustained support for Expanded Food and Nutrition Education Program (\$67,805,000 available in 2017) as follows:

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Since 1969, the Expanded Food and Nutrition Education Program (EFNEP) has successfully addressed critical societal concerns by employing paraprofessional staff to influence nutrition and physical activity behaviors of targeted populations; namely low income families, youth, and young children. USDA's Economic Research Service estimates that 17 million U.S. households are food-insecure, especially among underrepresented groups and minority populations; EFNEP base funding will continue to use a holistic nutrition educational approach to address the needs of these low-income and minority populations. NIFA is undertaking an analysis to update the current EFNEP formula to better reach targeted populations—particularly minorities and Native American populations—given changes in national demographics, poverty rates, and levels of obesity in these populations since the formula was developed in 1981.

- Sustained support for Children, Youth, and Families at Risk (CYFAR) (\$8,379,000 available in 2017) as follows:

This program is designed to marshal resources of the Land-Grant Universities and Cooperative Extension System to develop and deliver community based programs for at risk children and their families. Base funding supports programs that work in the family and community centers to meet critical needs such as access to educational resources and technological skills. CYFAR also supports building resiliency and protective factors in youth, family, and communities. Projects focus on early childhood, school age youth, teen, and family outcomes with emphasis on science and reading literacy, and building youth and family program and community capacity.

- Sustained support for Federally Recognized Tribes Extension Program (\$3,033,000 available in 2017) as follows:

The Federally Recognized Tribes Extension Program (FRTEP) builds capacity through 4-H youth development; agriculture and natural resource management; entrepreneurship; and business development to Indian Country communities across the nation. FRTEP extension offices have become a platform for state and federal agencies to provide additional resources and programming for Indian communities.

FRTEP educators bring a wealth of community-tested and science-based best practices from the 1862 and 1890 land-grants to provide informal learning to support positive native youth development. Currently, FRTEP supports 36 Extension offices in 19 states that serve 125 of the 567 Federally Recognized Indian Tribes. Base funding for the program will continue to support activities provided by the Extension educators.

- Sustained support for Agriculture in the Classroom (\$551,000 available in 2017) as follows:

Base funding will support advancing agricultural literacy through a grassroots network of State coordinators, school teachers, agribusiness leaders, and other educators by supporting initiatives that include expanding outreach to underrepresented populations; regional demonstration projects; integration of information technology to reduce program delivery costs; and outstanding teacher recognition initiatives.

- Sustained support under Federal Administration for other necessary expenses (\$7,790,000 available in 2017) as follows:

NIFA's programs are managed at the national level with a staff that represents 377 total employment at the end of FY 2016. Grants management included developing program regulations, establishing broad program goals, reviewing proposals, preparing grant documents, post-award review of progress, and similar activities necessary to achieve program goals. Between 0 and 5 percent of funds provided from programs may be used to support administration of the programs as established by law.

Table 1 for FY 2016
Distribution of Federal Payments for Extension Activities

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

STATE	SMITH-LEVER FORMULA	FARM SAFETY	YOUTH FARM SAFETY	1890's UNIV & TUSK UNIV	FEDERALLY-RECOGNIZED TRIBES	FOOD SAFETY EFNEP	FOOD SAFETY OUTREACH PROGRAM	YOUTH AT RISK	NEW	1890 FACILITIES	RENEWABLE RESOURCES	INDIAN	TOTAL FEDERAL FUNDS
									TECHNOLOGIES AT AG EXT			TRIBAL 1994 COLLEGES	
ALABAMA	\$7,152,228	-	-	\$4,380,568	-	\$2,206,362	-	\$140,000	-	\$3,811,966	\$121,248	-	\$17,812,372
ALASKA	1,234,838	-	-	-	\$159,800	262,925	-	140,000	-	-	81,212	\$184,000	2,062,775
AMERICAN SAMOA	1,267,749	-	-	-	-	103,049	-	-	-	-	-	-	1,370,798
ARIZONA	2,166,589	-	-	-	576,801	713,693	\$59,994	140,000	-	-	131,072	283,000	4,534,072
ARKANSAS	6,013,322	-	-	1,928,090	-	1,413,957	-	-	-	1,809,078	96,160	-	13,292,723
CALIFORNIA	8,020,314	\$180,000	-	-	83,400	3,599,909	223,500	-	-	-	97,145	-	17,048,431
COLORADO	3,315,360	180,000	-	-	-	662,348	-	420,000	-	-	60,933	-	5,376,417
CONNECTICUT	2,232,008	-	-	-	-	538,634	-	140,000	-	-	46,448	-	4,054,408
DELAWARE	1,348,396	-	-	1,186,766	-	412,258	-	140,000	-	1,402,602	59,948	-	5,400,194
DISTRICT OF COLUMBIA	1,196,560	-	-	-	-	110,302	-	-	-	-	13,500	-	1,470,362
FLORIDA	4,956,554	-	-	1,892,434	73,400	2,412,866	163,284	-	-	1,835,747	97,609	-	12,056,834
GEORGIA	8,152,463	180,000	-	2,614,965	-	2,371,510	179,962	140,000	-	2,006,897	189,196	-	16,194,480
GUAM	1,327,771	-	-	-	-	103,757	-	-	-	-	13,507	-	1,445,035
HAWAII	1,391,265	-	-	-	-	347,038	60,000	-	-	-	46,448	-	2,408,751
IDAHO	2,943,272	-	-	-	248,239	387,546	522,893	-	-	-	53,691	-	4,753,508
ILLINOIS	9,800,780	180,000	-	-	-	2,184,467	146,893	-	-	-	55,139	-	13,380,751
INDIANA	9,221,219	712,293	-	-	-	1,282,833	-	140,000	-	-	52,242	-	11,601,125
IOWA	9,660,762	-	-	-	-	958,104	-	140,000	-	-	46,448	-	11,394,262
KANSAS	5,714,032	180,000	-	-	-	763,135	150,773	417,053	-	-	46,448	99,000	8,467,131
KENTUCKY	9,418,148	180,000	-	3,261,840	-	1,808,045	-	420,000	-	2,171,346	81,675	-	17,413,414
LOUISIANA	5,255,670	-	-	1,710,473	-	1,991,387	-	140,000	-	1,678,226	93,263	-	10,869,019
MAINE	2,427,011	174,025	-	-	-	498,667	-	140,000	-	-	65,278	-	3,878,237
MARYLAND	3,443,722	-	-	1,371,434	-	1,025,005	57,991	-	-	1,613,374	59,948	-	8,521,168
MASSACHUSETTS	2,748,388	-	-	-	-	1,037,018	204,617	-	-	-	46,448	-	6,623,407
MICHIGAN	9,270,969	180,000	-	-	88,400	1,866,029	-	220,000	\$1,488,000	-	78,315	258,117	13,479,639
MICRONESIA	1,396,075	-	-	-	-	106,277	-	-	-	-	-	-	1,502,352
MINNESOTA	9,153,174	-	-	-	80,900	1,058,840	-	1,573,350	-	-	139,485	297,000	13,207,792
MISSISSIPPI	7,239,595	-	-	2,036,654	74,400	1,835,554	-	140,000	-	1,771,909	104,851	-	13,202,963
MISSOURI	9,151,604	180,000	-	3,354,495	-	1,717,636	-	140,000	-	2,370,958	83,124	-	19,886,796
MONTANA	2,838,103	-	-	-	399,000	381,792	-	140,000	-	-	62,382	1,027,000	6,040,266
NEBRASKA	5,168,315	180,000	-	-	-	610,150	-	140,000	-	-	46,448	99,000	7,331,449
NEVADA	1,293,394	-	-	-	82,400	292,712	-	140,000	-	-	47,897	747,000	2,603,403
NEW HAMPSHIRE	1,774,879	-	-	-	-	324,685	-	-	-	-	46,448	-	2,146,012
NEW JERSEY	2,746,208	-	-	-	-	1,138,404	-	140,000	-	-	46,448	-	4,071,060
NEW MEXICO	2,247,780	-	-	-	154,800	595,454	-	-	-	-	66,727	297,000	5,960,989
NEW YORK	8,525,428	-	-	-	-	3,402,660	522,348	140,000	-	-	89,902	-	18,221,188
NORTH CAROLINA	11,912,227	177,993	-	3,698,071	84,400	2,707,076	58,493	440,000	-	2,240,860	106,299	-	22,265,419
NORTH DAKOTA	3,529,883	-	-	-	86,400	420,124	-	-	-	-	46,448	-	4,596,814
NORTHERN MARIANAS	1,252,755	-	-	-	-	102,698	-	-	-	-	-	-	1,355,453
OHIO	11,315,915	180,000	-	1,151,046	-	2,396,817	-	440,000	-	2,598,493	77,330	-	19,425,457
OKLAHOMA	5,824,404	-	-	2,067,170	73,400	1,227,199	-	-	-	1,983,531	70,088	-	11,726,983
OREGON	3,966,765	-	-	-	80,900	599,222	-	140,000	-	-	88,454	-	4,875,341
PENNSYLVANIA	10,672,929	180,000	\$300,537	-	-	2,690,443	163,085	140,000	-	-	165,557	-	14,698,421
PUERTO RICO	6,664,256	-	-	-	-	1,431,208	-	-	-	-	13,500	-	8,208,964
RHODE ISLAND	1,138,886	-	-	-	-	385,645	-	135,000	-	-	46,448	-	2,302,496
SOUTH CAROLINA	5,862,776	-	-	1,870,988	-	1,872,974	-	140,000	-	1,747,075	86,021	-	12,174,967
SOUTH DAKOTA	3,734,218	-	-	-	243,200	462,886	-	-	-	-	46,448	297,000	4,783,752
TENNESSEE	9,043,653	180,000	-	2,938,031	-	2,134,897	582,781	140,000	-	2,179,060	87,469	-	17,755,974
TEXAS	13,417,980	180,000	-	4,462,126	-	4,555,596	435,714	140,000	-	3,021,796	112,093	-	26,925,305
UTAH	1,856,732	180,000	-	-	-	409,822	-	140,000	-	-	49,345	-	2,635,899
VERMONT	1,917,266	-	-	-	-	319,291	161,287	127,947	-	-	46,448	-	2,672,239
VIRGIN ISLANDS	1,294,083	-	-	-	-	102,434	-	140,000	-	-	13,500	-	1,550,017
VIRGINIA	7,448,629	179,626	-	2,465,602	-	1,846,178	585,536	-	-	1,986,541	100,505	-	14,612,617
WASHINGTON	6,191,177	-	-	-	255,200	1,068,888	163,416	-	-	-	127,660	266,000	10,314,424
WEST VIRGINIA	4,258,111	180,000	-	1,404,447	-	1,127,192	163,159	360,000	-	1,652,141	71,536	-	9,216,586
WISCONSIN	9,177,017	180,000	-	-	72,400	1,031,722	152,600	140,000	-	-	75,418	411,343	11,433,555
WYOMING	43,951	-	-	-	-	-	-	-	-	-	-	-	43,951
PEER PANEL/OTHER	1,125	563	563	-	-	-	41,674	5,850	-	4,439,740	-	2,700	4,495,815
SUBTOTAL	291,738,683	4,124,500	301,100	43,795,200	2,917,440	67,417,320	4,800,000	8,059,200	1,488,000	42,321,340	3,897,600	4,268,160	517,154,032
FEDERAL ADMINISTRATION	8,237,500	171,854	12,546	1,824,800	121,560	516,680	200,000	335,800	62,000	789,200	162,400	177,840	25,012,017
OBLIGATIONS BAL. AVAILABLE, EOY	299,976,183	4,296,354	313,646	45,620,000	3,039,000	67,934,000	5,000,000	8,395,000	1,550,000	43,110,540	4,060,000	4,446,000	542,166,049
TOTAL, AVAILABLE	299,976,183	4,296,354	313,646	45,620,000	3,039,000	67,934,000	5,000,000	8,395,000	1,550,000	43,899,740	4,060,000	4,446,000	544,029,760

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Table 2 for FY 2017
Distribution of Federal Payments for Extension Activities

<u>STATE</u>	<u>Smith-Lever Formula</u>	<u>Farm Safety Youth Farm Safety Education and Certification</u>	<u>1890's UNIV & TUSKEGEE UNIV</u>	<u>Federally- Recognized Tribes</u>	<u>Expanded Food & Nutrion Edu Prog</u>	<u>Youth at Risk</u>	<u>New Technologies at Ag Ext</u>	<u>1890 Facilities</u>	<u>Renewable Resources</u>
FEDERAL ADMINISTRATION	\$8,235	\$184	\$1,821	\$121	\$512	\$335	\$62	\$1,375	\$162
UNDISTRIBUTED	291,195	4,417	43,712	2,912	67,293	8,044	1,485	33,007	3,890
TOTAL OBLIGATIONS	299,430	4,601	45,533	3,033	67,805	8,379	1,547	34,382	4,052

	<u>Rural Health & Safety</u>	<u>Food Safety Outreach</u>	<u>Federal Adm-Special Projects</u>	<u>Extension Services at 1994 Institutions</u>	<u>Food Animal Residue Avoidance Database</u>	<u>Women and Minorities in STEM Fields</u>	<u>Mandatory Programs a/</u>	<u>Total Federal Funds</u>
FEDERAL ADMINISTRATION	\$60	\$200	\$8,342	\$178	\$50	\$16	\$2,867	\$24,521
UNDISTRIBUTED	1,437	4,790	-	4,260	1,198	383	40,135	508,158
TOTAL OBLIGATIONS	1,497	4,990	8,342	4,438	1,248	399	43,002	532,678

a/ Mandatory Programs includes: Food Insecurity Nutrition Incentive Program, Beginning Farmer and Ranchers Development & Risk Management

Table 3 for FY 2018
Distribution of Federal Payments for Extension Activities

<u>STATE</u>	<u>Smith-Lever Formula</u>	<u>1890's UNIV & TUSKEGEE UNIV</u>	<u>Federally- Recognized Tribes</u>	<u>Expanded Food & Nutrion Edu Prog</u>	<u>Youth at Risk</u>	<u>1890 Facilities</u>
FEDERAL ADMINISTRATION	\$8,235	\$1,821	\$121	\$512	\$335	\$788
UNDISTRIBUTED	291,195	43,712	2,912	67,293	8,044	18,905
TOTAL OBLIGATIONS	299,430	45,533	3,033	67,805	8,379	19,693

	<u>Food Animal Residue Avoidance Database</u>	<u>Food Safety Outreach</u>	<u>Federal Adm-Special Projects</u>	<u>Extension Services at 1994 Institutions</u>	<u>Mandatory Programs a/</u>	<u>Total Federal Funds</u>
FEDERAL ADMINISTRATION	\$50	\$200	\$551	\$178	\$3,500	\$16,292
UNDISTRIBUTED	1,198	4,790	7,790	4,260	46,500	496,600
TOTAL OBLIGATIONS	1,248	4,990	8,341	4,438	50,000	512,890

a/ Mandatory Programs includes: Food Insecurity Nutrition Incentive Program, Beginning Farmer and Ranchers Development & Risk Management

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EXTENSION ACTIVITIES

Classification by Objects
(Dollars in thousands)

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Personnel Compensation:				
Washington D.C.	\$12,116	\$10,349	\$11,062	\$11,425
11.1 - Full-time employees.....	12,116	10,349	11,062	11,425
12.0 - Personnel Benefits.....	2,483	2,007	3,697	3,799
Total, personnel comp. and benefits.....	14,599	12,356	14,759	15,224
Other Objects:				
21.0 - Travel & Transportation of Persons....	469	79	267	257
23.3 - Comm., Util., Misc. Charges.....	261	3,348	2,292	2,202
24.0 - Printing and Reproduction.....	1	94	46	45
25.1 - Advisory and Assistance Services.....	4,578	4,984	4,664	4,481
25.4 - Oper & Maintenance of Facilities.....	254	81	163	157
25.5 - Research & Development Contracts....	4,888	3,841	3,720	3,607
26.0 - Supplies and Materials.....	135	109	126	85
31.0 - Equipment.....	94	80	84	84
41.0 - Grants, Subsidies & Contributions.....	521,408	517,194	506,557	486,748
Total, Other Objects.....	532,088	529,810	517,919	497,666
99.9 - Total, new obligations.....	546,687	542,166	532,678	512,890
Position Data:				
Average Salary (dollars), ES positions.....	192,350	183,628	187,484	191,046
Average Salary (dollars), GS positions.....	102,600	106,377	108,611	110,675
Average Grade, GS positions.....	13.5	13.5	13.5	13.5

Status of Programs

EXTENSION ACTIVITIES:

Current Activities:

- Smith-Lever 3(b) and (c). Federal contributions for cooperative extension work are primarily derived from Section 3(b) and (c) formula funds appropriated under the Smith-Lever Act of 1914. These funds comprise about two-thirds of the total Federal funding for extension activities. Federal funds are matched by non-Federal sources, primarily States and counties, and support the major educational efforts that are central to the mission of the Cooperative Extension System and common to most extension units, such as agricultural production; nutrition, diet, and health; natural resources and environmental management; community resources and economic development; family development and resource management; 4-H and youth development; and leadership and volunteer development. As a result of provisions contained in AREERA, States must expend 25 percent, or two times the level spent in FY 1997 (whichever is less), on cooperative extension activities in which two or more States cooperate to solve problems that concern more than one State. This also applies to activities that integrate cooperative research and extension.
- Smith-Lever 3(d). Other sources of Federal funding for extension activities include the Smith-Lever section 3(d) or targeted funds, which are provided to the States to address special programs or concerns of regional and national importance and are distributed through administrative or non-statutory formulas and merit-reviewed projects. The following extension programs are funded under the Smith-Lever 3(d) funding mechanism: Expanded Food and Nutrition Education Program (EFNEP); Farm Safety and Youth Farm Safety Education and Certification; Children, Youth, and Families At Risk; Federally-Recognized Tribes Extension Program; and New Technologies for Agricultural Extension. EFNEP funds are distributed on a formula basis and are not required to be matched. Funds under other Smith-Lever 3(d) programs are distributed on a competitive process.
- Extension 1890 Institutions. Federal funding provides the primary support for the extension programs at the 1890 Land-Grant Institutions and Tuskegee University. The general provisions section 753 of Public Law 107-76 makes West Virginia State University eligible to receive funds under this program. Section 7129 of Public Law 113-79 makes Central State University eligible to receive funds under this program. This program primarily addresses the needs of small-scale and minority agricultural producers and other limited-resource audiences. Section 1444 of the 1977 Farm Bill provides that funds made available to the 1890's for extension programs be distributed on the basis of a formula identical to the Smith-Lever 3 (b) & (c) formula. Section 7121 of FCEA amended section 1444(a) (2) to require that funds appropriated for this program shall be not less than 20 percent of the Smith-Lever Act appropriation. The payment of funds under this program requires a 100 percent non-Federal match. These funds are used to maintain the extension infrastructure at the 1890 institutions and the partnership with the Cooperative Extension System.
- 1890 Facilities Program. Federal funds provide the primary support for enhanced extension, research, and teaching facilities at all of the 1890 Land-Grant Institutions. Some examples of the use of funds include the renovation of office space and laboratories; much needed computer and equipment purchases; the acquisition of satellite downlinking and distance learning capabilities; and the construction of joint research and extension multi-purpose/conference centers. The 1890 Facilities Program enables the 1890 Land-Grant Institutions to improve their capacity and better address the needs of students, farmers, and rural populations with limited resources.
- Renewable Resources Extension Act (RREA). RREA provides funding for expanded natural resource education programs. Funds are distributed primarily by an administratively derived formula to all States for educational programs and projects and a limited number of special emphasis national programs. The Cooperative Extension System provides research-based education about renewable natural resources. Extension education enables the management of renewable natural resources in a way that better serves individual land owners, local communities, and the Nation.

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- **Rural Health and Safety Education.** The program helps rural residents avoid the numerous obstacles (e.g. adverse environmental, occupational and familial risk factors that can lead to negative health and safety behaviors and chronic health conditions such as obesity, diabetes, heart disease, and vision/hearing impairments) to maintaining their health status. The program focuses on training health care professionals in rural areas.
- **Agriculture in the Classroom.** The program helps advance agricultural literacy through a grassroots network of State coordinators, school teachers, agribusiness leaders, and other educators by supporting initiatives that include expanding outreach to underrepresented populations; regional demonstration projects; integration of information technology to reduce program delivery costs; and outstanding teacher recognition initiatives.
- **Extension Services at 1994 Institutions.** The program provides funding for Native American communities and Tribal Colleges for extension activities as set forth in the Smith Lever Act. Funding is awarded on a competitive basis.
- **Food Animal Residue Avoidance Database Program.** The program is a computer-based decision support system designed to provide livestock producers, extension specialists, and veterinarians with practical information on how to avoid drug, pesticide, and environmental contaminant residue problems.
- **Women and Minorities in Science, Technology, Engineering, and Mathematics (STEM) Fields.** The program supports projects to increase the participation of women and underrepresented minorities from rural areas in STEM fields that are relevant to USDA. Priorities identified include: promotion of a safe, sufficient, and nutritious food supply for all Americans and for people around the world; sustainable agricultural policies that foster economic viability for small and mid-sized farms and rural businesses, protect natural resources, and promote value-added agriculture; national leadership in climate mitigation and adaptation; building a modern workplace with a modern workforce; and support for 21st century rural communities.
- **Food Safety Outreach Program.** The program is designed to develop food safety training, education and technical assistance for small farm owners and food processors affected by the Food Safety Modernization Act.

Selected Examples of Recent Progress:

- **Smith-Lever 3(b) and (c).** Follow a Researcher™ is an innovative University of Maine 4-H program that connects youth with graduate students conducting field research. Using technology and social media, K-12 classrooms stay connected with the graduate students as they conduct their research in a remote location. This gives students a glimpse into a scientist's world by providing live expedition updates, via weekly twitter chats, that may include questions generated by video, or anything else students want to know about the expedition. Information is provided to show educators how they may use the information in the classroom, including demonstrations and experiential learning activities. Last year, the program reached 1,825 students and 88 teachers at 40 different sites across 7 states.
- **Smith-Lever 3 (d).** The Expanded Food and Nutrition Education Program (EFNEP) addresses some of the most pervasive societal challenges including hunger, malnutrition, poverty, and obesity, by providing practical, hands-on nutrition education to the poor. Each year, EFNEP peer educators teach more than a half million low-income families and youth how to change their behavior toward food. In 2015, more than 85 percent of EFNEP families reported living at or below 100 percent of the poverty level. The most recent national review of EFNEP data showed that 95 percent of EFNEP graduates improved the quality of their diets, 89 percent improved their nutrition practices, 84 percent stretched their food dollars farther, 65 percent handled their food more safely, and 38 percent increased their physical activity by at least 30 minutes each day. In 2015, collectively EFNEP graduates saved more than \$1.3 million in food costs and 18 percent more participants reported not running out of food by the end of the month than before the program. Multiple cost-benefit studies in past years show that every dollar invested in EFNEP results in \$3.63 to \$10.64 in saved health care costs and \$2.48 saved in food expenditures. State success examples include: The California EFNEP program reported that of 7,038 adults participating, 95 percent showed a positive change in any one food group upon exiting the program; increasing fruits, vegetables, whole grains, protein foods, and dairy while decreasing oils, solid fats,

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and sugars to help guard against chronic diseases and encourage healthy food choices. Moreover, 40 percent of adult respondents showed an increase in physical activity. The average savings per month per household reported in Florida was \$36 which equals a total household cost savings of \$432 per year, while improving the quality of food consumed. The total cost savings for all graduate households in Florida was \$10,368 per month, for a total annual food cost savings of \$124,416.

Farm Safety and Youth Farm Safety Education and Certification. AgrAbility provides education, assistance, and support to farmers with disabilities engaged in production agriculture, helping them and their families maintain optimal production and experience enhanced quality of life. These services are provided through 20 state or Regional AgrAbility Projects (SRAPs) and one National AgrAbility Project. SRAPs offer direct assistance, non-formal education, and networking opportunities, using marketing to direct the public to initiatives, trainings, resources, and partnering opportunities in AgrAbility-related activities. Lead institutions receiving SRAP funding in 2016 were Colorado State University, Kansas State University, Michigan State University, Texas A&M AgriLife Extension, University of California, University of Georgia, University of Kentucky, University of Illinois, University of Maine, University of Missouri, University of Nebraska-Lincoln, University of Wisconsin-Madison, Utah State University, Virginia Polytechnic Institute & State University, West Virginia University, North Carolina Agricultural and Technical State University, Ohio State University, Pennsylvania State University, Purdue University (Indiana), and University of Tennessee – Knoxville.

Children, Youth and Families at Risk Program (CYFAR). CYFAR develops and delivers educational programs that equip limited resource families and youth who are at-risk with the skills needed to lead positive, productive, contributing lives. The program overall reaches an average of 80 percent of the youth ages newborn through 19 residing in poverty. Examples of the state reported outcomes included: the North Carolina Cooperative Extension, Very Important Parent program reporting teen parents increasing communication with their childcare providers contributing to conflict resolution, providing encouraging behaviors in emotionally difficult situations, and appropriate responses to child behavior issues; and the University of Minnesota Extension Partnering for School Success Program education parents to be more prepared to help their children prepare for college, by knowing where to find resources, how to pay for college, and how to search for colleges and career information.

Federally-Recognized Tribes Extension Program (FRTEP). The over-arching goals of the University of Arizona Indian Country FRTEP program are to strengthen youth through flexible and culturally appropriate 4-H programs, solve Tribal issues and expand economic opportunities, and strengthen tribal program and building capacity with the Arizona's 1994 Land Grant Universities. The program featured working to: create a bridge between Indian Tribes, Tribal communities, and university resources in solving Tribal issues; have a positive impact on the local economy; and provide experienced Extension Educators in Tribal communities to develop relationships critical to program success by providing a flexible and stable entity that reaches 5 percent of the Tribal population in Arizona. The University reported the program increased the economic output in Arizona by just over \$1 million per year.

New Technologies for Agricultural Extension (NTAE). The NTAE program enables eXtension to: (1) advance Cooperative Extension Service (CES) educators' use of technology; (2) enhance professional growth capacities; and (3) increase the capacity of the CES to adopt new and creative technology applications for delivering science-based education resources to the diverse general public. In addition to the technological improvements and launch of professional development tools including an Impact Reporting Course, eXtension has fostered two issues: pollinator habitat and climate literacy. The eXtension recruited, reviewed and accepted 126 individuals representing 69 individual or team projects. This group represented 33 states and 36 institutions within the Land Grant university system. In addition, the Innovation Lab was launched and two new communities of practice (Internationalizing Extension and Well-being of Vulnerable Populations) were added. The Educational Technology Learning Network, working with eXtension and private sector technology experts, is building the capacity to foster successful use of technology integration into Extension programming, grew by 21 percent, reaching 30,000 Twitter accounts, while the number of questions being asked and answered in "Ask an Expert" increased by more than 6,000 questions or 35 percent.

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- **Extension 1890 Institutions.** The Alabama A&M - Urban SNAP-Ed Outreach program recognizes that adults in Alabama are not meeting the required physical activity nor the fruit, vegetable, and whole grain consumption needed for a healthy lifestyle. Instead, adults are consuming excessive amounts of sodium, sugar and fat. These behaviors result in increased risk of chronic diseases such as obesity, diabetes, heart disease and some forms of cancer. The benefits of consuming a healthy diet and exercising will improve health status and health costs. Twelve SNAP-Ed Extension Agent Assistants at Alabama A&M University delivered programming in 20 counties using the Wise Eating Approaches for a Lifetime of Health (WEALTH) curriculum. Programming was conducted at 62 sites including Women, Infants, and Children (WIC) and Alabama Department of Human Resources offices, public housing, senior centers, and community centers. The percentage of adult participants with a positive response to making healthy food choices increased from 57 percent to 79 percent after the program, and continued to increase to 88 percent after delayed post-assessments were completed.
- **1890 Facilities.** Florida A&M University is working to improve the agricultural and food sciences facilities and equipment, including libraries, so the university can fully participate in the production of human capital in the food and agricultural sciences, and engineering. The College of Agriculture & Food Sciences will provide the state-of-the-art equipment critically needed for the college's newly constructed and renovated laboratories. These facilities include the Center for Viticulture and Small Fruit Research, Center for Water Quality, the Center for Biological Control, and the Biological and Agricultural Systems Engineering (BASE) laboratory. The BASE laboratory focuses on research in nanotechnology applications in food crops and bioproduct development from biomass such as algae and agricultural waste byproducts. The equipment purchases for these laboratories help the school attract and retain faculty, and allows them to deliver up-to-date instructional aides and hands-on experiential learning opportunities for students to prepare them for studies at the graduate and professional levels supporting agricultural needs in the region.
- **Renewable Resources Extension Act (RREA).** In Vermont, extension programs related to the urban forest resources and in combatting the spread of invasive species are being delivered. For example, the Vermont RREA Program supported the inventory of nearly 6,300 public trees and provide over \$500,000 in ecosystem services, such as cleaner air, filtered water, and wildlife habitat. The University of Vermont continues coordinating invasive species programs with state and Federal partners. As a result, educational displays about the emerald ash borer, an insect that kills most ash trees, reached 385,640 people with warnings about moving infected ash firewood outside of known insect infestation areas. Extension staff also invited 125 state and local conservation leaders to a day-long workshop with community volunteers engaged in planning and caring for natural resources and town forests.
- **Extension Services at 1994 Institutions.** Lac Courte Oreilles Ojibwa Community College in Wisconsin held a local food producers summit where participants had opportunities to network with fellow producers, show their gardens, and share with community members the importance of local food production. Numerous speakers presented workshops at the college's sustainable agriculture conference including University of Wisconsin extension specialists, a soil specialist from USDA's Natural Resources Conservation Service, representatives from USDA's Farm Service Agency, and an expert on Good Agricultural Practices from the University of Minnesota.
- **Food Safety Outreach Program.** NIFA in collaboration with the U.S. Food and Drug Administration, have established a National Coordination Center and four Regional Centers across the Nation to facilitate training and technical assistance for small, mid-sized and hard to reach producers and processors that are impacted by the Food Safety Modernization Act (FSMA). These regional centers, including University of Florida and Oregon State University, will reach out into local communities to work with FSMA audiences and stakeholders across the country. Regional centers also will coordinate with one another through the national coordination center. In 2016, NIFA expanded upon this infrastructure and funded 25 additional projects directly to entities that work closely with the target audience. Since its inception, the program has awarded over \$7 million to Community Based Organizations, Cooperative Extension at 1890 and 1862 Land Grant institutions, and local food hubs, establishing a total of 27 new Food Safety Education and Outreach Projects. Many of these projects provide training and technical assistance to small, mid-sized and hard to reach producers and processors at the local level, to address the new requirements associated with FSMA. For example, the Southern Center has trained a total of 108 produce safety alliance trainers who held five courses so far, training a total of 136

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individuals, most from industry groups. These participants indicated that their knowledge increased significantly from the training which they will use to develop food safety plans and guide compliance initiatives within their organizations. In addition, there are 52 food safety preventive controls alliance trainers, who held 42 classes resulting in 839 preventive controls qualified individuals in the Southern Region.

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Integrated Activities

The estimates include appropriation language for this item as follows (new language underscored; deleted matter enclosed in brackets):

Integrated Activities

- 1 For the integrated research, education, and extension grants programs, including necessary administrative expenses, [~~\$30,900,000~~] \$20,276,000 [which shall be for the purposes, and in the amounts, specified in the table titled "National Institute of Food and Agriculture, Integrated Activities" in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act)]: *Provided*, That funds for the Food and Agriculture Defense Initiative shall remain available until September 30, [~~2017~~]2019:
- 2 *Provided further*, That notwithstanding any other provision of law, indirect costs shall not be charged against any Extension Implementation Program Area grant awarded under the Crop Protection/Pest Management Program. (7 U.S.C. 7626).

Explanation of Change

The first change eliminates the explanatory statement.

The second change revises the fiscal year to allow for two year availability of the 2018/2019 funding for the Food and Agriculture Defense Initiative.

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Lead-Off Tabular Statement
Integrated Activities

Budget Estimate, 2018.....	\$20,276,000
2017 Annualized Continuing Resolution.....	30,841,000
Change in Appropriation.....	<u>-10,565,000</u>

Summary of Increases and Decreases
(Dollars in thousands)

	2015 Actual	2016 Change	2017 Change	2018 Change	2018 President's Budget
Discretionary Appropriations:					
Food and Agriculture Defense Initiative (Homeland Security).....	\$6,700	-	-\$13	-\$1,003	\$5,684
Crop Protection/Pest Management.....	17,200	-	-33	-2,575	14,592
Organic Transition Program.....	4,000	-	-7	-3,993	-
Methyl Bromide Transition Program.....	2,000	-	-4	-1,996	-
Regional Rural Development Centers Program.....	1,000	-	-2	-998	-
Total.....	<u>30,900</u>	-	-59	-10,565	<u>20,276</u>

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 INTEGRATED ACTIVITIES
Project Statement
 Adjusted Appropriations Detail and Staff Years (SYs)
 (Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Appropriations:										
Methyl Bromide Transition Program.....	\$2,000	-	\$2,000	-	\$1,996	-	-\$1,996 (a)	-	-	-
Organic Transition Program.....	4,000	-	4,000	-	3,993	-	-3,993 (b)	-	-	-
Regional Rural Development										
Centers Program.....	1,000	-	1,000	-	998	-	-998 (c)	-	-	-
Food and Agriculture Defense Initiative (Homeland Security).....	6,700	-	6,700	-	6,687	-	-1,003 (d)	-	\$5,684	-
Crop Protection/Pest Management.....	17,200	-	17,200	-	17,167	-	-2,575 (e)	-	14,592	-
Subtotal, Discretionary Appropriations.....	30,900	-	30,900	-	30,841	-	-10,565	-	20,276	-
Mandatory Appropriations.....										
Specialty Crop Grant Programs Sec. 7311.....	50,985	-	51,260	-	51,205	-	+3,795	-	55,000	-
Emergency Citrus	23,175	-	23,300	-	23,275	-	+1,725	-	25,000	-
Organic Research Initiative Sec. 7206.....	18,540	-	18,640	-	18,620	-	+1,380	-	20,000	-
Total Appropriations.....	123,600	-	124,100	-	123,941	-	-3,665	-	120,276	-
Rescissions, Transfers, and Seq. (Net).....	7,300	-	6,800	-	6,900	-	-6,900	-	-	-
Total Appropriation.....	130,900	-	130,900	-	130,841	-	-10,565	-	120,276	-
Sequestration.....	-7,300	-	-6,800	-	-6,900	-	+6,900	-	-	-
Balance Available, SOY.....	25,650	-	23,982	-	25,624	-	-25,624	-	-	-
Recoveries, Other (Net).....	320	-	146	-	-	-	-	-	-	-
Total Available.....	149,570	-	148,228	-	149,565	-	-29,289	-	120,276	-
Balance Available, EOY.....	-23,982	-	-25,624	-	-	-	-	-	-	-
Total Obligations.....	125,588	5	122,604	5	149,565	4	-29,289	-	120,276	4

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INTEGRATED ACTIVITIES
Project Statement
 Obligations Detail and Staff Years (SYs)
 (Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Obligations:										
Methyl Bromide Transition Program.....	\$2,000	-	\$2,000	-	\$1,996	-	-\$1,996	-	-	-
Organic Transition Program.....	4,000	-	4,000	-	3,993	-	-3,993	-	-	-
Regional Rural Development										
Centers Program.....	1,000	-	1,000	-	998	-	-998	-	-	-
Food and Agriculture Defense Initiative (Homeland Security).....	6,901	-	6,688	-	6,967	-	-1,283	-	\$5,684	-
Crop Protection/Pest Management.....	17,200	-	17,200	-	17,167	-	-2,575	-	14,592	-
Subtotal, Discretionary Obligations.....	31,101	-	30,888	-	31,121	-	-10,845	-	20,276	-
Mandatory Obligations:										
Specialty Crop Grant Programs Sec. 7311.....	50,985	-	51,260	-	51,205	-	+3,795	-	55,000	-
Emergency Citrus	24,962	-	21,816	-	48,619	-	-23,619	-	25,000	-
Organic Research Initiative Sec. 7206.....	18,540	-	18,640	-	18,620	-	+1,380	-	20,000	-
Total Obligations.....	125,588	-	122,604	-	149,565	-	-29,289	-	120,276	-
Balance Available, EOY.....	23,982	-	25,624	-	-	-	-	-	-	-
Total Available.....	149,570	-	148,228	-	149,565	-	-29,289	-	120,276	-
Sequestration.....	7,300	-	6,800	-	6,900	-	-6,900	-	-	-
Balance Available, SOY.....	-25,650	-	-23,982	-	-25,624	-	+25,624	-	-	-
Recoveries, Other (Net).....	-320	-	-146	-	-	-	-	-	-	-
Total Appropriation.....	130,900	5	130,900	5	130,841	4	-10,565	-	120,276	4

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Justification of Increases and Decreases

INTEGRATED ACTIVITIES

1. A net decrease of \$10,565,000 for Integrated Activities (\$30,841,000 and 4 staff years available in 2017) as follows:

- (a) A decrease of \$1,996,000 to eliminate Methyl Bromide Transition Program (\$1,996,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad integrated goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (b) A decrease of \$3,993,000 to eliminate Organic Transition Program (\$3,993,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad integrated goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (c) A decrease of \$998,000 to eliminate Regional Rural Development Centers Program (\$998,000 available in 2017) as follows:

A decrease is proposed to direct funding to higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs.

The broad integrated goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (d) A decrease of \$1,003,000 for Food and Agriculture Defense Initiative (\$6,687,000 available in 2017) as follows:

Base funding for the Food and Agriculture Defense Initiative (FADI) will enhance the tactical capabilities of three critical, complementary, tactical science networks: the National Plant Diagnostic Network (NPDN), National Animal Health Laboratory Network (NAHLN), and the Extension Disaster Education Network (EDEN). NPDN and NAHLN identify and respond to high-risk biological pathogens in the food and agricultural system, ultimately protecting the Nation from plant and animal disease threats through surveillance, early detection, mitigation, and recovery. In addition, EDEN is a national effort led by the state cooperative extension service that provides disaster education resources for extension educators. These tactically agile science networks are in urgent need of being bolstered to help the U.S. more effectively prepare for, prevent, respond to, and recover from devastating assaults on the integrity of our national food

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and agriculture infrastructures. The decrease in funding in this request will be addressed through reducing the number of diagnostic laboratories supported in the networks, focusing on a limited number of infectious diseases with high potential threat to the American food systems. Support to EDEN will be reduced by streamlining information dissemination. Some areas of FADI may be supported through the CARE program of AFRI.

- (e) A decrease of \$2,575,000 for Crop Protection/Pest Management (CP/PM) (\$17,167,000 available in 2017) as follows:

The CP/PM program develops new integrated pest management (IPM) tools and strategies that help farmers adopt and implement effective, affordable, and environmentally-sound pest management practices. Use of these practices will reduce economic losses caused by diseases, insects, weeds, and other pests that affect agricultural production systems. CP/PM will also provide support for projects that respond to pest management challenges with coordinated state-based, regional and national research, education and extension programs, ultimately catalyzing further development and use of IPM approaches. The decrease in base funding will be addressed by eliminating the Applied Research and Development program, which invests in projects for the development of new IPM tactics, technologies, practices, and strategies through research projects, as well as IPM adoption and implementation through integrated projects. The integrated projects focusing on critical urgent needs for pest management that are currently funded through Applied Research and Development program could potentially be supported through the Critical Agricultural Research and Extension program of AFRI, which supports integrated projects.

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TABLE 1 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED ACTIVITIES

STATE	HOMELAND SECURITY	METHYL BROMIDE	ORGANIC TRANSITION	CROP PROTECTION/ PEST MANAGEMENT	RURAL DEVELOPMENT CENTERS	SPECIALTY CROP RESEARCH INITIATIVE	EMERGENCY DISEASE AND EXTENSION PROGRAM	CITRUS RESEARCH AND EXTENSION INITIATIVE	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	TOTAL FEDERAL FUNDS
ALABAMA	-	-	-	\$160,000	-	-	-	\$2,000,000	\$2,160,000	
ALASKA	-	-	-	170,000	-	-	-	-	170,000	
ARIZONA	-	-	-	286,000	-	-	-	-	286,000	
ARKANSAS	\$31,000	-	-	106,000	-	\$50,000	-	-	187,000	
CALIFORNIA	865,983	\$497,965	-	1,285,000	-	50,000	\$3,990,772	1,999,848	8,689,568	
COLORADO	-	-	\$499,990	416,517	-	-	-	-	916,507	
CONNECTICUT	-	-	-	175,000	-	-	-	-	175,000	
DELAWARE	-	-	-	83,700	-	-	-	-	83,700	
DISTRICT OF COLUMBIA	-	-	-	-	-	-	-	50,000	50,000	
FLORIDA	539,983	472,506	-	50,000	-	1,584,695	8,774,508	49,983	11,471,675	
GEORGIA	326,000	-	-	459,615	-	-	-	-	785,615	
GUAM	-	-	-	32,500	-	-	-	-	32,500	
IDAHO	-	-	-	274,300	-	-	-	-	274,300	
ILLINOIS	-	-	-	1,134,600	-	3,694,012	-	1,999,979	6,828,591	
INDIANA	577,935	-	-	195,000	-	3,673,611	-	-	4,446,546	
IOWA	326,000	-	-	287,000	-	-	-	-	613,000	
KANSAS	539,983	499,999	369,853	278,000	-	-	-	-	1,687,835	
KENTUCKY	138,000	-	-	65,000	-	-	-	-	203,000	
LOUISIANA	-	-	-	122,000	-	-	-	-	122,000	
MAINE	-	-	-	124,000	-	-	-	-	124,000	
MARYLAND	-	-	-	210,000	-	3,683,590	1,951,763	-	5,845,353	
MASSACHUSETTS	-	-	-	194,000	-	-	-	-	194,000	
MICHIGAN	587,543	418,313	-	257,000	\$237,600	5,076,906	-	999,917	7,577,279	
MINNESOTA	-	-	-	519,380	-	-	-	2,924,648	3,444,028	
MISSISSIPPI	-	-	-	88,800	237,600	-	-	1,991,149	2,317,549	
MISSOURI	31,000	-	-	129,000	-	-	-	-	160,000	
MONTANA	-	-	-	465,000	-	-	-	-	465,000	
NEBRASKA	-	-	499,718	238,700	-	-	-	-	738,418	

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TABLE 1 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED ACTIVITIES

STATE	HOMELAND SECURITY	METHYL BROMIDE	ORGANIC TRANSITION	CROP PROTECTION/ PEST MANAGEMENT	RURAL DEVELOPMENT CENTERS	SPECIALTY CROP RESEARCH INITIATIVE	EMERGENCY DISEASE AND EXTENSION PROGRAM	CITRUS RESEARCH AND EXTENSION INITIATIVE	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	TOTAL FEDERAL FUNDS
NEVADA	-	-	-	128,300	-	-	-	-	-	128,300
NEW HAMPSHIRE	-	-	499,559	160,000	-	-	-	-	-	659,559
NEW JERSEY	31,000	-	-	85,250	-	2,899,975	-	-	-	3,016,225
NEW MEXICO	86,000	-	-	-	-	4,404,284	3,320,000	-	-	7,810,284
NEW YORK	616,033	-	-	1,714,129	-	8,041,913	-	1,000,000	-	11,372,075
NORTH CAROLINA	326,000	-	-	1,864,569	-	7,041,141	-	-	-	9,231,710
NORTH DAKOTA	-	-	-	62,500	-	-	-	-	-	62,500
OHIO	326,000	-	499,415	289,000	-	68,984	-	-	-	1,183,399
OKLAHOMA	-	-	-	114,000	-	-	-	-	-	114,000
OREGON	-	-	-	415,460	-	3,112,410	-	-	294,341	3,822,211
PENNSYLVANIA	-	-	463,947	520,000	237,600	-	-	-	1,192,110	2,413,657
RHODE ISLAND	-	-	-	161,000	-	-	-	-	-	161,000
SOUTH CAROLINA	-	-	-	168,000	-	1,771,126	-	-	999,770	2,938,896
SOUTH DAKOTA	-	-	-	97,700	-	-	-	-	-	97,700
TENNESSEE	31,000	-	-	94,000	-	2,794,251	-	-	-	2,919,251
TEXAS	326,000	-	475,000	494,281	-	35,418	-	-	-	1,330,699
UTAH	-	-	-	105,000	237,600	-	-	-	-	342,600
VERMONT	-	-	469,740	517,160	-	-	-	-	-	986,900
VIRGINIA	-	-	-	271,600	-	-	-	-	-	271,600
WASHINGTON	326,000	-	-	803,474	-	-	2,115,000	-	2,049,865	5,294,339
WEST VIRGINIA	31,000	-	-	84,500	-	-	-	-	-	115,500
WISCONSIN	326,000	-	-	267,600	-	268,080	-	-	88,533	950,213
WYOMING	31,000	-	-	66,850	-	-	-	-	-	97,850
BIOTECH	-	-	5,489	-	-	177,471	-	-	-	182,960
SBIR	-	19,200	38,400	165,120	9,600	738,144	325,454	-	178,944	1,474,862
PEER PANEL/OTHER	-	12,017	18,889	56,395	-	43,589	-	-	75,313	206,203
FED ADMIN	268,000	80,000	160,000	688,000	40,000	2,050,400	1,338,753	-	745,600	5,370,753
OBLIGATIONS	6,687,460	2,000,000	4,000,000	17,200,000	1,000,000	51,260,000	21,816,250	-	18,640,000	122,603,710
BAL. AVAILABLE, EOY	280,540	-	-	-	-	-	25,343,809	-	-	25,624,349
TOTAL, AVAILABLE	6,968,000	2,000,000	4,000,000	17,200,000	1,000,000	51,260,000	47,160,059	-	18,640,000	148,228,059

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**TABLE 2 - FISCAL YEAR 2017
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED PROGRAMS**

<u>STATE</u>	METHYL BROMIDE	ORGANIC TRANSITION RISK ASSESSMENT	CROP PROTECTION/PEST MANAGEMENT PROGRAMS	RURAL DEVELOPMENT CENTERS	HOMELAND SECURITY	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	SPECIALTY CROPS RESEARCH INITIATIVE	TOTAL FEDERAL FUNDS
SBIR	20,000	40,000	171,000	10,000	-	185,000	1,487,710	1,913,710
BIOTECH RISK	-	-	15,000	-	-	37,000	918,091	970,091
FEDERAL ADMIN OBLIGATED	80,000	160,000	687,000	40,000	279,222	745,000	3,992,692	5,983,914
UNDISTRIBUTED	1,896,000	3,793,000	16,294,000	948,000	6,687,778	17,653,000	93,425,507	140,697,285
TOTAL OBLIGATIONS	1,996,000	3,993,000	17,167,000	998,000	6,967,000	18,620,000	99,824,000	149,565,000

**TABLE 3 - FISCAL YEAR 2018
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED PROGRAMS**

<u>STATE</u>	METHYL BROMIDE	ORGANIC TRANSITION RISK ASSESSMENT	CROP PROTECTION/PEST MANAGEMENT PROGRAMS	RURAL DEVELOPMENT CENTERS	HOMELAND SECURITY	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	SPECIALTY CROPS RESEARCH INITIATIVE	TOTAL FEDERAL FUNDS
SBIR	-	-	145,000	-	-	199,000	1,192,000	1,536,000
BIOTECH RISK	-	-	15,000	-	-	37,000	92,000	144,000
FEDERAL ADMIN OBLIGATED	-	-	584,000	-	227,000	800,000	3,200,000	4,811,000
UNDISTRIBUTED	-	-	13,848,000	-	5,457,000	18,964,000	75,516,000	113,785,000
TOTAL OBLIGATIONS	-	-	14,592,000	-	5,684,000	20,000,000	80,000,000	120,276,000

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INTEGRATED ACTIVITIES

Classification by Objects

(Dollars in thousands)

	2015	2016	2017	2018
	Actual	Actual	Estimate	President's Budget
Personnel Compensation:				
Washington D.C.	\$766	\$769	\$771	\$777
11.1 - Full-time employees.....	766	769	771	777
12.0 - Personnel Benefits.....	128	132	132	135
Total, personnel comp. and benefits.....	894	901	903	912
Other Objects:				
21.0 - Travel & Transportation of Persons.....	36	497	324	260
22.0 - Transportation of Things.....	-	3	2	2
23.3 - Comm., Util., Misc. Charges.....	1,665	342	1,554	896
25.1 - Advisory and Assistance Services.....	2,115	762	1,154	1,266
25.4 - Oper & Maintenance of Facilities.....	29	316	210	168
25.5 - Research & Development Contracts.....	61	728	758	609
26.0 - Supplies and Materials.....	20	20	20	21
31.0 - Equipment.....	30	30	30	31
41.0 - Grants, Subsidies & Contributions.....	120,738	117,005	144,610	116,111
Total, Other Objects.....	124,694	119,703	148,662	119,364
99.9 - Total, new obligations.....	125,588	120,604	149,565	120,276
Position Data:				
Average Salary (dollars), ES positions.....	192,350	183,628	187,484	191,046
Average Salary (dollars), GS positions.....	102,600	106,377	108,611	110,675
Average Grade, GS positions.....	13.5	13.5	13.5	13.5

Status of Programs

INTEGRATED ACTIVITIES:

Current Activities:

- Section 406 Programs. Per Section 406 of AREERA, grants are awarded on a competitive basis to support integrated, multifunctional agricultural research, extension, and education activities. Programs include: The Methyl Bromide Transition Program supports the discovery and implementation of practical pest management alternatives for commodities affected by the methyl bromide phase-out. The Organic Transition Program supports the development and implementation of biologically based management practices that mitigate the ecological, agronomic and economic risks associated with a transition from conventional to organic agricultural production systems. The Crop Protection/Pest Management Program, supports IPM projects that respond to pest management challenges with coordinated state-based, regional and national research, education, and extension programs.
- Regional Rural Development Centers. These programs are conducted under the authority of Section 2(c) (1) (B) of Public Law 89-106, as amended (7 U.S.C. 450i(c)) and Title V of the Rural Development Act of 1972 (Pub. L. 92-419), which enables the agency to support research, extension or education activities. The program improves the social and economic well-being of rural communities in their respective regions.
- Food and Agriculture Defense Initiative (FADI). The FADI Program is authorized Section 1484 of the Farm Security and Rural Investment Act of 2002. This program provides support for the National Plant Diagnostic Network and the National Animal Health Laboratory Network to identify and respond to high risk biological pathogens in the food and agricultural system. The network is used to increase the ability to protect the Nation from plant and animal disease threats by providing surveillance, early detection, mitigation, and recovery functions that serve to minimize the threats. The funds also are used to support the Extension Disaster Education Network.

Selected Examples of Recent Progress:

- Methyl Bromide Transition Program. A University of Florida project demonstrated the efficacy of methyl bromide alternatives for small fruit (strawberry) and vegetable (tomato) production in Florida for the management of weeds and soil borne pests and pathogens. The project supports the discovery and implementation of practical pest management alternatives for commodities and uses affected by the methyl bromide phase-out. In Florida, field trials demonstrated that supplemental application of a potential alternative soil fumigant, the pesticide chloropicrin, decreased the incidence of the plant disease Fusarium wilt by 26 to 77 percent, compared to the grower treatment standard. The new treatment led to an increase of 21 to 23 percent in tomato yields. However, the supplemental application of chloropicrin at the recommended rate of 150 lbs. per treated acre added \$183 to the cost per treated acre when compared to methyl bromide.
- Organic Transition Program. A multidisciplinary, multi-state research team led by Iowa State University demonstrated that cover crops, compost, and mulch can optimize pest management, crop quality and profitability, and enhance soil quality in organic vegetable farming. Overall, cover crops enhanced storage of soil organic carbon, total nitrogen, and biologically active soil carbon and nitrogen; reduced tillage improved soil structure; and composted animal manure increased soil organic carbon, total nitrogen, biologically active soil nitrogen, and plant nutrient concentrations. The concentration of leached nitrogen was consistently reduced when vegetables were grown with a cover crop and in no-till systems. Organic farmers are encouraged to use a combination of cover crops and compost to enhance production and environmental quality. The results of this study demonstrate that vegetable cropping systems that utilize fall-planted cover crops and composted animal manure will increase overall soil quality, enhance microbial activity, increase carbon sequestration, and reduce nitrogen leaching loss from the rooting zone over the long-term. This information was disseminated to more than 1,689 farmers and agricultural professionals through workshops, field days, and conferences.

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- **Crop Protection/Pest Management Program (CPPM).** The CPPM Regional Coordination Program Area funds the Western Integrated Pest Management (IPM) Center that brings together the expertise needed to successfully address high-priority pest-management issues facing farmers, pest managers, communities, and others in the western U.S. This network works to reduce risks from pests in the 13 Western states and 4 Pacific Island territories including: Alaska, Arizona, American Samoa, California, Colorado, Guam, Hawaii, Idaho, Micronesia, Montana, Nevada, New Mexico, Northern Mariana Islands, Oregon, Utah, Washington, and Wyoming. The Western IPM Center's food security signature project, Regional Infrastructure for Climate and Weather-based Decision Support Tools, established web-based tools that combine U.S. weather data with plant pest and disease models to serve many decision support needs in U.S. agriculture -- <http://uspest.org/wea> . The site now has more than 27,000 public weather stations linked to more than 127 different pest and crop models. The website has run more than 388,696 degree-day model runs and approximately 310,000 hourly-driven model runs for users since project inception. These degree-day models allow users to forecast when pests should be managed by modeling the effects of weather and lifecycle information. New features added to the extended forecasting functionality include the 10-year average station data, which uses the National Oceanic and Atmospheric Administration's North American Multi-Model Ensemble forecast system and generates predictions for up to seven months. This regional infrastructure for climate and weather-based decision-support tools provides daily and hourly weather-driven models serving IPM, regulatory and plant biosecurity uses nationally, and specializes in IPM needs for the West.
- **Regional Rural Development Centers.** The Southern Rural Development Center (SRDC) at Mississippi State University has been a leader in the focus area of economic and community development and has developed two nationally recognized programs (Turning the Tide on Poverty and Stronger Economies Together) that have major impacts on Mississippi communities. In particular, projects initiated by the SRDC and supported by the Mississippi State University Extension Service in Neshoba, Lauderdale, and Winston counties have identified priorities for combating poverty that include developing farmer's markets, food pantries, community clothing closets, and fruit tree planting initiatives and improving parental involvement from low-income communities. On average, the SRDC reports they generate \$5.86 external grant dollars for every \$1 in base funding annually.
- **Food and Agriculture Defense Initiative Programs.** National Animal Health Laboratory Network (NAHLN). NAHLN is a coalition of high-performing state and Federal veterinary diagnostic laboratories which proactively coordinate and collaborate to protect the U.S. from incursion of high-consequence livestock diseases, especially those that are emerging and of foreign origin. The network's goal is to help the country better prepare, prevent, rapidly detect, respond, and recover (PPDRR) from outbreaks of livestock diseases that would be devastating to trade, food security, animal and public health, and the national agro-economy. Most recently, the NAHLN was activated to respond to and control what became the most costly animal disease outbreak in U.S. history. An aggressive strain of Highly Pathogenic Avian Influenza (HPAI) entered the U.S. from Canada in 2015 and led to the loss of over 40 million commercial poultry in several northern states, especially in Minnesota and Iowa. The Congressional Research Service estimated that total losses attributable to this outbreak exceed \$3.3 billion. While the outbreak was severe, it was ultimately brought under control in large measure because of the rapid response capabilities of NAHLN labs that were well equipped with highly trained personnel to handle the surges of diagnostic testing resulting from the outbreak. The outbreak was halted before it reached the eastern seaboard of the U.S., where the greatest concentration of poultry production is located.

National Plant Diagnostic Network (NPDN). In 2016, a new corn disease called bacterial stripe was discovered in 12 mid-western states. The disease was first recognized in the University of Nebraska-Lincoln NPDN lab and the identity of the pathogen was confirmed by the molecular plant pathology lab at Colorado State University. Subsequent delimiting surveys were conducted by USDA's Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine program (APHIS-PPQ) in close cooperation with NPDN. Ultimately, the decision was made by APHIS that the pathogen did not pose a regulatory risk. NPDN labs will continue to track the pathogen and its distribution in coming years.

Extension Disaster Education Network (EDEN). EDEN aims to build local community capacity for disasters by increasing the use of Community Organizations Active in Disasters (COADs). By building new or stronger COADs at the local level, communities are better prepared for disasters and subsequent response and recovery. This initiative started with developing COADs in Illinois, Missouri, Nebraska and Washington. One COAD in

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Illinois (Henderson County) developed annex plans for donations, volunteers, education, shelter, and long-term recovery. Plans also are underway for developing agriculture, health, and mental health annexes. In Nebraska, a COAD was activated as a response to a public housing fire that temporarily displaced 100 people. COAD partners worked together to provide shelter, food, and apartment furnishings to those impacted by the fire. Well-established COADs can save lives through disaster mitigation, provide faster responses to disasters, and save millions of dollars in recovery efforts by properly utilizing donated goods, money, and volunteer time.

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Summary of Budget and Performance

The National Institute of Food and Agriculture (NIFA) was established on October 1, 2009, pursuant to Section 7511(f)(2) of the Food, Conservation, and Energy Act of 2008, which amends the Department of Agriculture Reorganization Act of 1994 (7 U.S.C. 6971). The mission of NIFA is to invest in and advance agricultural research, education, and extension to solve societal challenges.

NIFA’s primary agency goal is to catalyze exemplary and relevant research, education, and extension programs. The NIFA strategic plan separates this goal into seven sub-goals that show NIFA’s commitment to identifying and meeting research, education, and extension priorities in the six priority areas of the Agricultural Act of 2014:

- Agriculture economics and rural communities;
- Agriculture systems and technology;
- Animal health, production, and animal products;
- Bioenergy, natural resources, and environment;
- Food safety, nutrition, and health; and
- Plant health, production, and plant products.

The Department will be revising the USDA Strategic Plan later in the spring and expects to release it with the FY 2019 President’s Budget.

Key Performance Measures:

This key measure to assess the number of college graduates in agriculture is the result of Congressional action taken in 1977 when Congress designated the USDA as the lead federal agency for higher education in the food and agricultural sciences. Trends in agricultural education are studied every five years to determine the supply and demand of graduates in agriculture, natural resources, and veterinary sciences.

The latest study for 2015 identifies 57,900 annual job openings for new graduates from 2015 through 2020. To fill these openings, an average of 35,400 graduates is expected annually from colleges of agriculture and life sciences, forestry and natural resources, and veterinary medicine. Most employers prefer to hire graduates with this expertise. However, because we anticipate more annual job openings than can be filled by these graduates, employers will need to look to allied disciplines such as biology, business administration, engineering, education, communication, and consumer sciences to fill the remaining 39 percent of openings. Providing students in allied disciplines with the necessary hands-on experiences required by the employers in the food and agricultural sector has become critical.

	Number of college graduates prepared for the professional and technical workforce in the food and agricultural industry						
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Number Per Year	29,300	29,300	30,700	35,400	35,400	35,400	35,400

Selected Past Accomplishments Toward the Achievement of the Key Outcome:

- In FY 2016, a new grant program called Professional Development Opportunities for Secondary School Teachers will help enhance agricultural science, technology, engineering and mathematics (STEM) awareness and interests amongst secondary school students. The Research and Extension Experiential Learning for Undergraduate Fellowships, launched in FY 2015 with \$4.3 million in funding, provides hands-on experiences desired by the employers. This program is expected to enhance STEM experiences for 480 undergraduate students at 16 institutions. The number of NIFA’s Predoctoral and Postdoctoral fellowships increase annually. Last year, NIFA gave 95 students \$12 million to support doctoral and post-doctoral education. NIFA has a

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portfolio of programs targeted for minority-serving institutions. Last fiscal year, NIFA's grants to these institutions represented 24.55 percent of all awards made to institutions of higher education.

- NIFA-supported Agriculture in the Classroom (AIRC) programs were implemented by state-operated programs to improve agricultural literacy, awareness, knowledge, and appreciation, among pre-K through 12th grade teachers and their students. In 2016, AIRC's curriculum website had nearly 142,000 visitors accessing the online curriculum matrix of more than 295 lesson plans and 537 companion resources. At the post-secondary level, AFRI educational programs supported 1,055 undergraduates, 652 graduates, and 270 postdoctoral researchers. Other NIFA-funded education programs provided direct support to 3,710 students through learning and engagement programs, capacity building for minority-serving institutions, and workforce development.
- In 2013, Hispanics made up 16 percent of the U.S. population, but earned only 9 percent of all certificates and degrees awarded in STEM fields, according to Excelencia in Education. Since then, the Hispanic population has grown to 17.3 percent of the population while its participation in degrees awarded continues to be low. Engaging Hispanics, the fastest growing section of the population, in STEM education is essential to the nation's economic growth, innovation, and global competitiveness. Texas A&M University-Kingsville, with a Hispanic-Serving Institution Education project, completed a multi-institution program that encouraged such students to pursue STEM degrees and careers and prepared them to become leaders in agriculture. Participants of the Science, Technology, and Environmental Programs for Undergraduate Preparation to USDA Career Success (STEP UP) program received intensive hands-on training and internships at one of four USDA agencies: Natural Resources Conservation Service, Agricultural Marketing Service, Agricultural Research Service, and Animal and Plant Health Inspection Service. More than 330 students have participated in the program's courses since 2012, surpassing the project's goal of 50 students per year. With STEP UP, students discover the types of jobs where they may excel, and the field of agriculture receives an infusion of diverse, well-educated career professionals.
- Agricultural engineers with robotics knowledge are in high demand because advanced robotics and unmanned agricultural vehicles are becoming widely used in precision agriculture. Prairie View A&M University in Texas now offers agricultural robotics training to ensure that students are adequately prepared for this burgeoning job market. With support from a \$276,000 NIFA grant, Prairie View has created an agricultural robot capable of carrying multiple sensors, including one that can detect crop height, a multi-spectral camera, and hyperspectral radiometer for processing information from across the electromagnetic spectrum. Robots in agriculture include self-driving tractors and other machines that perform tasks such as precision weeding and spraying, pruning vines in the wine industry, and herding cattle. Prairie View students designed their system and use it in the classroom and in rice and fruit fields.

Accomplishments Expected at the FY 2018 Proposed Resource Level:

At the FY 2018 proposed resource level, NIFA's education programs are expected to sustain the impacts it had in 2016, i.e., direct financial support for about 1,100 undergraduates, 950 graduate, and 400 postdoctoral students. NIFA funded grants will also indirectly benefit about 75,000 students through recruitment/retention, curriculum development and faculty development programs.

Challenges for the Future:

- A significant concern in education is the "leaky pipeline", where many students entering primary schools drop out at various stages and do not complete their education. Even fewer students complete their graduate education in STEM fields. The NIFA Education portfolio is designed to strengthen the pipeline through programs that support agricultural workforce development, increase student recruitment and retention, and build capacity.
- Another challenge is the obesity and correlated health conditions that have a \$100 billion-a-year impact on the U.S. health care system. The Minority Serving Institutions (MSI) are well-positioned to reach underserved audiences that are susceptible to obesity, or currently being impacted by the obesity epidemic. Looking ahead, the Commission on Dietetic Registration will change the entry-level registration eligibility education

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requirements for dietitians, beginning in 2024, from a baccalaureate degree to a minimum of a graduate degree. NIFA’s minority serving institution Higher Education programs are well-positioned to address this challenge by ensuring that nutrition/dietetic programs at the undergraduate level are well-developed and sustainable so that students will be properly trained to be competitive for graduate training.

Key Performance Measure:

This measure evaluates the success of the Expanded Food and Nutrition Education Program (EFNEP) to both reach limited resource populations, and make positive behavior changes to improve diet quality, food safety, management of food resources and physical activity. EFNEP is administered by leveraging the strong outreach and educational intervention system available through each State Cooperative Extension system, which leads, trains and supervises county paraprofessional staff to deliver programming to their community participants.

Percent of EFNEP participants making dietary improvements							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Percent	95	95	95	94	94	95	95
Number of Adult Program Participants in EFNEP							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Cumulative number	130,485	121,007	121,704	119,351	118,976	121,000	121,000
Number of Youth Program Participants in EFNEP							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Cumulative number	479,398	418,961	392,563	377,702	365,369	386,000	386,000

Selected Past Accomplishments Toward the Achievement of the Key Outcome:

- To enhance program quality and improve employee-related results and impacts, the EFNEP national leadership and university program partners provided guidance for supervisory training, self-assessment, professional development, and decision making by universities that provide supervisory support to EFNEP paraprofessionals. Paraprofessionals are community members who deliver EFNEP experiential learning programs tailored to each audience, and work with local groups to identify participants for the program. They are trained and supervised by university and locally-based professional staff, and are considered to have a significant impact on program outcomes and effectiveness. This new guidance is the product of an inclusive two year process resulting in the development of the whitepaper, “Expanded Food and Nutrition Education Program Paraprofessional Supervision, Crucial Components for Program Success.” Evidence of success will be reflected in improved programmatic outcomes for states and universities that implement best practices and invest in paraprofessional supervision.
- To assist new coordinators as they begin their position, an EFNEP New Coordinator Guide was released during 2016. Each university that administers EFNEP has a primary contact known as the EFNEP coordinator. This individual provides leadership of EFNEP within states, and is responsible that program requirements and expectations are understood and met. Many coordinators are also tasked with hiring, training, monitoring, and developing staff. The New Coordinator Guide includes information, on how the program is structured within the USDA and the Land Grant University system, annual reporting requirements, communication channels, and

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other best practices to help orient new coordinators. Training slides also are provided to help answer common questions and make sure that this resource is available for future EFNEP Coordinators, as well.

- A single father reported that prior to EFNEP, he typically ate prepackaged prepared foods, which were high in fat, sodium and calories, and low in fruits, vegetables, and whole grains. Now he shops with a grocery list, doesn't add salt to food when cooking, and prepares healthy meals for him and his son. - University of California Davis
- "I was not sure about participating in [EFNEP] in the beginning. Today I can tell you that you have made such a lasting impact on me and my family. We cook healthy meals together, we eat together, we play together, and we never run out of food. I cannot thank you enough!" – Mother of four, University of Maine
- Low birth weight was an issue for mothers enrolled in the Nurse Family Partnership (NFP) program. Since partnering with EFNEP, all young moms enrolled in the program gave birth to healthy weight babies, and initiated breast feeding after giving birth. – Director of a county NFP program - North Carolina A&T State University.

Accomplishments Expected at the FY 2018 Proposed Resource Level:

Since 1969, the Expanded Food and Nutrition Education Program (EFNEP) has successfully addressed critical societal concerns by employing paraprofessional staff to influence nutrition and physical activity behaviors of targeted populations; namely low-income families, youth, and young children. USDA's Economic Research Service estimates that 17 million U.S. households are food-insecure; EFNEP will continue to use a holistic nutrition educational approach to address the needs of these low-income populations.

In FY 2013 EFNEP suffered its first significant decrease in funding since FY 2004. Sequestration and a rescission led to a ~8 percent reduction in funds from previous years. Universities lost anywhere from 2 percent to 54 percent of their allocation (average loss = 10 percent). The effect of this would not have materialized until FY 2014 because of carryover funds and then there was likely trickle down effects into FY 2015. Staffing losses and inability to hire/rehire may have prevented universities from meeting outreach goals. Also, costs of living and inflation make it more expensive to conduct programming and funding has been relatively level since FY 2010 with the exception of FY 2013. As previously mentioned, we have raised our expectations with duration of programming and data integrity. The increased focus on program quality does impact total reach, but we stress that both quality and quantity are important and intend to meet our goal and get back on track in the coming year.

Additional Performance Measures:

NIFA has several additional performance measures that show NIFA's commitment to identifying and meeting research, education, and extension priorities including:

- Advance the Nation's ability to achieve global food security and fight hunger.
- Advance the development and delivery of science for agricultural, forest, and range systems adapted to climate variability and to mitigate climate impacts.
- Optimize the production of goods and services from working lands while protecting the Nation's natural resource base and environment.
- Contribute to U.S. energy independence and enhance other agricultural systems through the development of regional systems for the sustainable production of optimal biomass (forests and crops) for the production of bioenergy and value-added bio-based industrial products.
- Combat childhood obesity by ensuring the availability of affordable, nutritious food and providing individuals and families science-based nutritional guidance.
- Reduce the incidence of food-borne illness and provide a safer food supply.
- Ensure the development of human capital, communities, and a diverse workforce through research, education, extension and engagement programs in food and agricultural sciences to support a sustainable agriculture system.

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The number of farmers and ranchers that gained an economic, environmental or quality-of-life benefit from a change in practice learned by participating in a SARE project							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Cumulative number	13,905	14,775	15,461	16,172	16,922	17,758	17,858

The number of new drought and disease resistant varieties of crops to reach commercialization.							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Cumulative number	3	4	4	8	10	15	15

The cumulative number of specific animal diseases labs are prepared to detect							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Percentage	11	11	12	13	13	14	14

Percentage of high consequence samples (APHIS high priority pests Citrus Greening (HLB), Plum Pox Virus (PPV), and Sudden Oak Death (SOD) diseases) processed at the 'confirmed or not detected' confidence levels at National Plant Diagnostic Network (NPDN) Laboratories.							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Percentage	-	-	-	99	90	90	90

Number of forest landowners who implemented at least one new forest stewardship practice.							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual*	2017 Target	2018 Target
Cumulative number	-	-	-	11,765	13,245	13,245	0

* This is estimated, reporting is not complete. This measure was created during FY2015 and will not be funded in FY2018.

Number of new bio-based products successfully patented							
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Cumulative number	6	5	5	9	4	6	6

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	Number of novel experimental and systematic approaches for investigating the antimicrobial resistance and/or ecology in soil, air, water, in production agriculture, and in aquaculture farms.						
	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Actual	2017 Target	2018 Target
Number Per Year	--	--	5	6	4	4	4

Selected Past Accomplishments Toward the Achievement of the Other Outcomes:

- While pursuing a Ph.D. at the University of California, Berkeley, Hillary Sardiñas' goal was to translate research into practical information on the steps farmers can take to support native pollinators. Along the way, she got critical funding support from a SARE Graduate Student grant. "Writing a SARE grant was a really great experience because it allowed me to articulate my research and come up with a budget for it," Sardiñas says. "I was able to hammer out a lot of the details that up to that point had been largely theoretical." The impact of the SARE Graduate Student grant program is shared through stories, video, testimonials and numbers online. Sardiñas, now a pollinator conservation specialist with the Xerces Society for Invertebrate Conservation, is one of 600 agricultural scientists who have received a SARE Graduate Student grant since they were first offered in 2000. Like many others, she credits the funding program—intended to support young scientists engaged in collaborative, practical research on sustainability issues—with helping her conduct meaningful research, get published and achieve her career goals.
- Increasing vineyard efficiency and decreasing input costs are paramount to a sustainable production system that also is environmentally beneficial when fuel and pesticide use is reduced and the vineyard ecology is enhanced. Oregon State University conducted a trial to determine alternative methods by which growers can conserve soil moisture, conduct non-chemical weed control, increase vine nutrition through organic sources, and increase vine health during the first few years of vineyard establishment. The four years of this trial indicated that cover crops can be used in innovative ways to impact vine growth, soil moisture and soil health. The estimated potential cost savings is \$82/acre in reduced herbicide use, \$75/acre in reduced fertilizers use, and \$3,000/acre in not having to install an irrigation system.
- Researchers from the University of California at Davis, supported by a Coordinated Agricultural Project from USDA-NIFA, in collaboration with colleagues from the John Innes Institute in the United Kingdom (U.K.) have developed a new tool that will accelerate the characterization of wheat genes. The article, highlighted in the Proceedings of the National Academy of Sciences, reports the sequencing of more than 10 million mutations in the protein-coding regions of 2,735 mutant lines of pasta and bread wheat. These mutations, which are likely to disrupt gene function for more than 90 percent of the wheat genes, are catalogued in public databases in the U.S. and U.K. and can be accessed by a simple on-line search tool. Researchers and breeders can then request seeds of the selected mutant lines to characterize the function of their target genes. Since wheat is a polyploid species (meaning wheat plants have more than one set of genes), mutants are first identified for each gene copy and then combined by crossing. The multiple gene copies present in wheat and other polyploid crops can mask genetic mutations, reducing the probability of selecting favorable recessive mutations during natural or human selection. This tool will accelerate the identification of mutations in all the gene copies and the discovery of previously hidden variation. These mutant collections also are being used to improve valuable wheat traits and validate the effects of beneficial genes from diploid (having two sets of genes) grass species directly in wheat. Examples of direct improvements of wheat germplasm include lines with mutations in the Starch Branching Enzyme genes that have an 8 to 10-fold increases in grain resistant starch (a dietary fiber associated with beneficial effects on human health), and tetraploid and hexaploid wheat lines with larger grains. The general strategies and methods developed herein also can be applied to other polyploid crops. In summary, the mutant populations sequenced in this study represent a powerful tool to uncover previously hidden variation in a central crop for global food security.

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- Development of improved wheat varieties serves the wheat industry in Colorado and the western Great Plains through reduction of production costs and increased disease and insect resistance providing minimized environmental impacts and improved marketing options. Since inception of the program, 37+ Colorado State University (CSU) bred wheat cultivars account for 61.3 percent (or 77.4 percent of the accounted-for acreage) of Colorado's 2.4 million acres. Average wheat grain yields in Colorado have more than doubled with at least 50 percent of this increase attributed to improved cultivars. Estimates of economic returns in Colorado from CSU-developed wheat varieties were approximately \$43 million for one recent year alone. These estimates include yield increases resulting from improved CSU varieties (\$29 million), marketing benefits resulting from CSU varieties with enhanced end-use quality (\$9 million), and yield-protection resulting from adoption of CSU varieties carrying herbicide tolerance traits for winter annual grassy weed control (\$5 million).
- The National Animal Health Laboratory Network (NAHLN) supported recent outbreaks including the 2015-2016 U.S. Avian Influenza (AI) outbreaks and the 2015 Vesicular Stomatitis Virus (VSV) outbreak:

A total of sixteen laboratories were involved in the 2015 and 2016 outbreak response to low and highly pathogenic avian influenzas (HPAI). These laboratories ran approximately 90,000 assays and conducted over 1,000 virus isolations throughout the response. In the large-scale 2015 HPAI outbreak, the network was activated which included directing samples to other labs, and deployment of personnel from one lab to another to increase local capacity. Additionally, eight laboratories support the enhanced avian influenza wild bird surveillance program conducted by USDA's Wildlife Services. The rapid, standardized testing conducted by NAHLN laboratories was key in controlling the spread of HPAI and response to the largest animal health outbreak in U.S. history.

In 2015, Vesicular Stomatitis Virus (VSV) was de-listed from the World Organization for Animal Health (OIE), which resulted in a shift in strategy for how the U.S. manages and reports VSV, putting much of the responsibility with the states. VSV is a viral disease that primarily affects horses and cattle, and occasionally swine, sheep, goats, llamas, and alpacas. By spring 2015, National Veterinary Services Laboratory (NVSL) validated and deployed a test to network laboratories to be used in conjunction with the existing tests; the NVSL in Ames, Iowa continued to provide support to the states through confirmation testing for new states, ruminants and any inconclusive results. VSV was confirmed in eight states in 2015-2016 and five NAHLN laboratories in those states were activated to respond to the VSV outbreak. This testing in the NAHLN laboratories allowed for State animal health officials dealing with the disease to be able to take immediate action and make decisions about suspect horses in their states.

- A new patented test under development by Pennsylvania State University scientists tells farmers if a cow is carrying an embryo 18-20 days after she has been inseminated, 10-20 days earlier than is currently possible. The simple blood test detects a protein to determine if a cow has failed to conceive and is "open." Detecting an embryo early can save farmers time and between \$1 and \$3 per day. If the test were used once on just 10 percent of the dairy cows in Pennsylvania, the total cost savings would be \$1.6 million if we assume an average cost of \$2/day over 15 days. With leveraged funding, the team is working to bring the test to market.
- Enteric Septicemia of Catfish (ESC) is caused by the gram negative bacteria, *Edwardsiella ictaluri*. ESC is a leading cause of mortality for catfish producers, resulting in a direct loss of \$20 - \$40 million annually due to fingerling mortality. Mississippi State University scientists at the Thad Cochran Warm Water Aquaculture Center developed a live, attenuated ESC vaccine and an oral delivery system for pond usage. Using this system, the vaccine is orally delivered to 50 to 60-day old fingerlings after they have been transferred to fingerling ponds (June - July). Both the vaccine and delivery technology have been patented and a commercialization strategy is currently being developed in cooperation with the industry. The vaccine has been shown to be safe, effective, and stable, conferring lifetime immunity to ESC. Use of the vaccine results in 30 - 50 percent increase in fingerling survival, 10 percent increase in mean weight of fingerlings at time of sale, 25 percent improvement in feed conversion ratio, and 35 - 50 percent increase in gross fingerling production/acre/year with a value of \$2700 - \$3800/acre/year increase in gross revenues. Assuming a \$3,000/acre/year gain in fingerling sales and 6,000 surface acres of fingerling production, the vaccine will add approximately \$18 million/year value to fingerling segment of catfish industry (approximately 10 percent of total production acres).

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- There is public demand for unbiased horticultural and integrated pest management education for sustainable landscapes, gardens, and conservation of natural resources. The DC Master Gardener Program was started as a means of extending the horticultural and pest management expertise of University of the District of Columbia Extension to the general public. The program is designed to train volunteer horticultural educators for the University of the District of Columbia Extension- the principal outreach education unit of the University of the District of Columbia. In FY2015, 276 (which includes 42 trainees) Master Gardeners and Trainees provided 9,000 hours of horticultural expertise to the District of Columbia. The value of volunteer time is \$39.86 per hour according to www.independentsector.org with a total value of \$358,740 in savings to the District of Columbia. In addition, 41,194 direct contacts were served by the Master Gardener Coordinator/Extension Agent. Various Master Gardener projects throughout all eight wards have been established which includes the Ward 3 food hubs (the UDC green roof/greenhouse), schools, parks, beautification projects, landscape design, youth gardens, local and national botanical gardens, and partnerships with non-profit organizations. Master Gardeners volunteered 600 hours to the success of the Ward 3 Food Hub (green roof/greenhouse) in its inaugural year. The value of their volunteer time is an additional \$21,641 in savings to the university.
- Huanglongbing, or citrus greening disease, is a disease that causes citrus trees to produce small, bitter fruit that drop prematurely and cannot be sold or used for juice. In Florida, the disease has reached epidemic proportions across the state. It is caused by a bacterial pathogen that is transmitted by the Asian citrus psyllid, which feeds on the stems and leaves of citrus trees. NIFA began supporting citrus greening research and extension efforts in February 2016 with \$20.1 million in grants through the Specialty Crop Research Initiative (SCRI) Citrus Disease Research and Extension Program. In Florida, where 95 percent of commercial groves are affected, the University of Central Florida is testing a bactericide designed to kill the citrus greening bacteria. Their approach is to deliver two potent bactericides within a natural clay-based film-forming repellent. At University of California, Riverside there is a study to develop disease resistant varieties of citrus using genome editing.
- The AgroClimate Workbook, supported by NIFA and the National Oceanic and Atmospheric Administration (NOAA) through the Southeast Climate Consortium, provides a wide range of decision support tools for managing climate risk in the Southeastern U.S. These include tools for drought, water availability, and water usage. While most tools primarily target agricultural producers, the Lawn and Garden Moisture Index can assist homeowners in irrigation decisions as well. The Water Footprint Calculator allows growers to estimate the amount of water used to produce a crop. This decision support tool is being used by crop producers to decide what crop to grow in their region, based on water availability and the amount of water needed. The wide variety of tools, factsheets and videos have helped land managers in the Southeast manage their crops more efficiently in light of the risks associated with an increase in weather extremes. One example of increased efficiency is the Strawberry Advisory System plant disease decision support system for strawberry fields in Florida. This management tool helps growers assess the risk of epidemics from anthracnose and Botrytis on their farms. The system enables growers to apply fungicides against these diseases only when conditions are favorable for disease so that they can avoid unnecessary sprays and reduce production costs.
- Pollutants such as nitrogen, phosphorus, and sediment contribute to the degradation of our nation's streams, rivers, lakes, and bays. Many of these pollutants originate from nonpoint sources of pollution. Best Management Practices (BMP) as taught by the Alabama Cooperative Extension Service have been installed in the Mill Creek Watershed (Lee and Russell Counties) of Alabama as part of a special funded watershed project by the Alabama Department of Environmental Management Section 319 funding. The Spreadsheet Tool for Estimating Pollutant Load (STEPL) model was run to determine pollutant load reductions from 3 watershed BMP - constructed storm water wetland and 2-stream enhancement projects. As a result an average of 40 pounds per year did not enter Mill Creek as a result of watershed BMP implemented in 2015. And an average of 26.6 pounds per year of nitrogen was removed due to the implementation of these projects.
- A water sensor technology that began as basic research at Cornell is blooming into a business that fills a vital need for grape, nut, apple, and other growers. While current water sensing tools are expensive, inaccurate or labor intensive, the new sensor tells growers when their plants need irrigation with accurate, real-time readings at a reasonable cost. Much like a blood pressure gauge for humans, the sensor reads the water pressure inside the plant. When plants are thirsty, their water pressure is low, sometimes even negative. The sensor reads this

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pressure inside the plant to help growers ensure plant health and optimize water use in drought-stricken agricultural areas. Applying water at the right time also can greatly improve the quality of fruits, nuts and especially grapes for red wines. Basic research was supported by NIFA, the National Science Foundation and the U.S. Air Force. In November 2016, the group became one of four university teams to win the first national Innovations in Food and Agricultural Science and Technology (I-FAST) prize competition.

- Mercury is very toxic and can cause long-term health damage, but removing it from water is challenging. With NIFA funding, researchers at the University of Minnesota created a sponge that uses nanotechnology to absorb mercury from polluted water in seconds. The sponge can be used on tap water, industrial wastewater, and in lakes. It converts contaminants into nontoxic waste that can be disposed in a landfill. The sponge also kills bacterial and fungal microbes.
- Poultry production is a \$2 billion enterprise in Arkansas, and health and efficiency in growing broilers, turkeys and eggs is paramount to this successful industry. In recent years, water quality has become a more crucial component for reducing disease stresses in modern poultry systems in the state. In response, Arkansas scientists set up a water quality lab to provide technical expertise and identify water problems for poultry growers in the state and region. In 2015, the water lab analyzed 2,663 samples, a new record. For the past five years, the lab has analyzed samples and provided problem-solving information to more than 9,000 poultry operations in the region. Industry estimates a total savings of \$2,250,000 for growers during the past five years by correcting or preventing water-borne diseases into flocks by the water lab and as a result have pledged increasing support for its continued operation.
- The Mississippi River Valley Alluvial Aquifer is declining at 300,000 acre-feet a year due primarily to agricultural withdrawals. Mississippi State University developed the Row-Crop Irrigation Science Extension and Research Program (RISER) to address declining aquifer levels in the Mississippi Delta. The primary objective of RISER is to evaluate novel irrigation water management (IWM) practices at the micro-plot scale and then to demonstrate at the field-scale technologies that improve crop water use efficiency and on-farm profitability. In the last year, the RISER program managed 11 corn, 15 soybean, 11 rice, and 3 cotton on-farm IWM demonstration sites across the Delta. Results from these validation trials indicate that if producers adopt RISER IWM strategies across all furrow irrigated acres then withdrawals from the alluvial aquifer will be reduced by 433,333 acre-feet a year at positive economic impact of \$25,400,000 a year. RISER results have been transferred to 3,084 stakeholders at a number of events: 2 scientific talks, 6 field days, 16 grower meetings and 26 technical presentations.
- The development and production of biofuels and biobased chemicals from readily available renewable resources is essential to minimize the cost of shifting from a petroleum-based economy to a more environmentally sustainable biobased economy and improve energy security of the U.S. Oklahoma State University continued the development of a direct monitoring and control of carbon monoxide/hydrogen (CO/H₂) in bioreactors. The selection and overall design of the real-time CO sensor and real-time CO/H₂ monitoring system were finalized. One invention disclosure is filed which indicated university interest to retain this invention. There are opportunities to apply the hybrid conversion technology in different regions of the country to meet our increasing energy needs. Upon its full development, this hybrid technology can provide 35 percent more ethanol from the same amount of biomass as compared to the biochemical conversion technology. If biofuel producers adopt this hybrid technology to produce 25 percent of the mandated 16 billion gallons per year (GPY) renewable transportation fuels such as ethanol (i.e., 4 billion GPY), my research suggests a projected annual savings of over \$650 million due to the use of 13.1 million tons less biomass with the hybrid technology.
- Developing, implementing, and supporting sustainable energy sources is one of USDA's top priorities. Researchers from USDA's Agricultural Research Service (ARS) at the Eastern Regional Research Center in Pennsylvania developed a way to produce a renewable fuel called bio-oil from agricultural and food waste. A key part of this bio-oil production project is a new high-output mobile processing unit. The mobile reactor travels from farm to farm, converting biomass into energy-dense bio-oil right on the farm, eliminating the need to ship agricultural waste to refinery plants at high cost. This bio-oil is a higher quality bio-oil that is more marketable to biofuel producers than bio-oil made from traditional pyrolysis methods.

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- Tire manufacturing in America will reach a milestone in mid-2017 when Cooper Tire & Rubber Company, in Findlay, Ohio, will produce a tire made with guayule-based polymers rather than natural and synthetic rubber. Guayule is a shrub that grows in the American Southwest and contains an alternative to the natural rubber used to process tires. The tire, which is 100 percent guayule-based, will undergo extensive technical trials following its production. The company will continue studies regarding the commercial distribution of the tires. Cooper has completed a number of pilots that include the replacement of both natural and synthetic rubber with guayule in various components, and testing each build for maximum durability. The project will replace petroleum-based materials in tires, produce renewable fuels from biomass, and create green jobs in agriculture and manufacturing. Project partners included Cornell University, Clemson University, and ARS.
- South Dakota State University collaborated with Agrisoma Biosciences, Inc., and the South Dakota Oilseeds Council to develop an oilseed crop, Carinata, to be used for production of bio-based jet fuel and diesel for the U.S. Navy. Carinata, which has the potential to be used as a 100 percent petroleum substitute in biodiesel, bio-jet fuel, oil additives, and specialty lubricants, can reduce dependence on petroleum-based products. The project allows farmers in semi-arid and arid areas the potential to transform the economy of their regions.
- Infestations of pine and spruce bark beetles has led to widespread tree death in coniferous forests across the Rocky Mountains over the past decade, with about 42 million acres of U.S. forests impacted since 1996. The resulting beetle-killed wood represents a vast bioenergy resource that requires no cultivation, circumvents food-versus-fuel concerns, and may have a highly-favorable carbon balance compared to other forestry feedstocks. Cool Planet Energy Systems' proprietary technology and advances in modular thermochemical conversion enable them to produce gasoline and jet fuel from wood chips, and other organic waste and could significantly reduce the potential for forest fires. Cool Planet's work falls under the Bioenergy Alliance Network of the Rockies at Colorado State University, which brings together scientists, educators, and extension specialists from universities and government agencies across the region to research the use of insect-killed trees for the production of biofuels and biochar.
- Switchgrass is an environmentally-friendly plant that provides cover for wildlife, forage production, and erosion control, and can absorb pesticide residue from the soil. Baled switchgrass can be a cost-effective alternative to cordwood or propane for heat production on farms or supplement coal in municipal power plants to reduce greenhouse gas emissions. Research conducted at University of Missouri's Bradford Research Farm shows that baled switchgrass has about the same British thermal unit output and burn duration as cordwood, per equal weight but with significantly less ash residue and carbon emissions. Switchgrass has an advantage over other alternative crops because it is a perennial that also returns nutrients back into the soil and can produce 25 tons of crop per 100 acres.
- Consumer demand for safe, high-quality, additive-free packaged foods is growing. Thanks to two recent investments in innovative food processing technology based on microwave energy, Washington State University (WSU) is advancing toward meeting this demand. They established a Center of Excellence for food safety that will serve to accelerate the technology transfer to mainstream commercial markets. In addition, the Australian government has announced a \$7.2 million investment to adopt microwave assisted thermal sterilization (MATS) technology. WSU and industry partner 915 Labs will provide the system to Australia's Ministry of Defense. These investments will improve ready-to-eat meals for convenience-oriented consumers and soldiers alike.

MATS and microwave assisted pasteurization systems (MAPS) use a combination of microwave heat and hot water to rapidly heat and briefly hold packaged food at sterilization or pasteurization temperatures and then quickly cool it. WSU researchers developed the technologies and processing methods. The MATS/MAPS systems currently operate at several locations around the U.S., and major consumer food companies in Singapore and India have recently purchased systems. The U.S. Food and Drug Administration acceptance of one MATS food product filed by WSU is paving the way for commercialization in the U.S.

- The fungus *Fusarium graminearum* infects the wheat spike causing the disease Fusarium head blight (FHB), and contaminates grain with mycotoxins--particularly vomitoxin--which is a major food safety concern for humans

and animals. Field experiments were conducted to develop effective management strategies that are more robust to adverse field conditions and provide producers with flexible options in minimizing losses caused by FHB and vomitoxin. Data were generated by Ohio scientists showing that fungicide applications can be made several days after flowering without losing efficacy when compared to applications made at flowering. During harvest, increasing airflow through the combine helps to eliminate damaged, vomitoxin-contaminated kernels. Combining the two management strategies provides more than 70 percent reduction of both. The integration of fungicide application, disease-resistant cultivars, and grain harvesting strategies is the most effective and economically beneficial approach for managing FHB and vomitoxin as it minimizes yield loss, reduces vomitoxin contamination and disease-damaged grain, and reduces price discounts. Using this integrated approach will save the wheat industry millions of dollars in lost income and reduce the risk of vomitoxin entering the food chain.

- Keeping seafood fresh and safe for consumers is a challenging task for the industry. The Hazard Analysis and Critical Control Point protocol, or HACCP, is a quality control system that helps the seafood industry comply with federal seafood safety regulations. For more than two decades, Florida Extension has helped lead the development of the national HACCP seafood safety training curriculum for the seafood industry. Federal authorities have specifically cited the HACCP training as one of the leading factors of the significant decline of fish-associated foodborne illness outbreaks over the last decade. Continuous seafood HACCP training helps sustain Florida's 347 seafood processing plants by reducing weak links in an industry heavily reliant on seafood workers to complete basic sanitation tasks. More than 200 Florida seafood industry workers are trained in a national food safety curriculum that has brought the significant decline of fish-associated foodborne illness outbreaks over the last decade.
- Community Food Projects are addressing food distribution issues in food-insecure communities by creating new local food hubs, including the Molokai Food Hub on the island of Molokai, Hawaii. An estimated 80-90 percent of the food in Molokai grocery stores is imported via barge, and families bear the transportation costs through high food prices. In West Springfield, Massachusetts, the New Lands Farm Marketing Initiative connects new American farmers and low-income consumers to local, fresh, culturally-appropriate foods. In the past three years, Lutheran Social Services has worked with 172 farmers, more than 100 being from Bhutanese, Burundi, Kenyan, and Vietnamese communities. During that time, participating micro-farmers have reached an average of 10,171 consumers per year, 58 percent of whom were low-income.
- According to the Department of Health and Human Services' Indian Health Service, American Indians are 2.2 times more likely to have diabetes compared to non-Hispanic whites. The United Tribes Technical College (UTTC), in Bismarck, North Dakota, is doing its part to lower that number by mentoring nearly 450 people at five diabetes-related events. UTTC also produces three publications that were delivered to more than 11,000 local households. They include, "Buffalo and Native American Wellness," "UTTC Eat Smart. Play Hard," and "Together, Sharing Food Safely." In 2017, UTTC plans to host three 6-week training sessions for 10-15 people each, covering topics such as understanding and monitoring the human body, nutrition, and physical activity.
- Around 34.5 percent of adult Arkansans were recently reported as obese, which ranks Arkansas as the third most obese state in the U.S. Studies have shown that about three grams daily of dietary conjugated linoleic acid (CLA) confers great human health benefits in reducing the clinical indicators of obesity related diseases. Arkansas scientists have adapted equipment originally designed for oil hydrogenation to produce a legally "trans free," 20 percent CLA soy oil, without using hydrogen gas or hydrogenation. They are collaborating with Riceland Foods to ensure the processing conditions and processing aids are compatible with commercial practices to enable industrial hydrogenation units to be adapted for this purpose. As a result a US patent for CLA rich oil production was obtained and a provisional utility patent has been filed that describes recent process improvements. This CLA-rich soy oil produced by this technology would allow consumers to obtain the clinically effective daily intake of CLA to combat obesity related diseases.
- In Mississippi, Alcorn State University's 4-H program and UnitedHealthcare teamed up to conduct the 4-H Food Smart Families Program to fight hunger and food insecurity. After receiving training that included the 4-H Food Smart Shopping Experience, 4-H teen leaders served as ambassadors and mentors to approximately 6,000 people throughout the state on how to prepare healthy meals on a budget.

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- An Agriculture and Food Research Initiative (AFRI) research project at North Carolina State University found that money, not access, is the biggest factor determining food purchases for people who live in areas far from supermarkets, also known as "food deserts." Researchers found that, while supermarkets had a wide range of fruits and vegetables, neighborhood stores offered little or no fresh produce. What's more, staple foods and healthier options in neighborhood stores cost 25 percent more on average.
- Researchers at Louisiana State University found a way to reduce the particle size of salt so it transfers to taste buds more efficiently. This means less salt can be used without affecting taste.

Accomplishments Expected at the FY 2018 Proposed Resource Level:

NIFA program portfolios are scheduled to be assessed by expert external panels in 2017 through 2019 to determine the relevance, quality and performance of the science produced in each portfolio. These panel assessment reports will be made publicly available. A challenge is to identify the gaps in science identified in portfolio inventories and stakeholder input sessions and determine if the goals appropriately indicate the direction of NIFA program grants; if the portfolio goals fully support our mission; if all major activities are clearly reflected; and where the highest priorities should be, given limited resources.

With the overall goal of significantly boosting agricultural production, while minimizing agriculture's ecological footprint, NIFA will invest in strategic initiatives to promote and improve the use of systems approaches to collectively improve the many facets of the agricultural system, from farms to supply chain businesses to consumers, and transform the way we produce, process, consume, and dispose of food.

To achieve transformation of U.S. agricultural systems, NIFA proposes the Agriculture and Food Research Initiative (AFRI) program to include investments on three major foci: 1) Sustainable Agricultural Systems, 2) Foundational and Applied Science, and 3) Education and Workforce Development. These complementary foci will support the creation, delivery, and application of the knowledge, tools, and innovations needed to tackle the broad range of global agricultural challenges impacting America.

For each goal and objective, funds provided through AFRI will fund agriculturally-relevant discovery and applied research and provide the foundation upon which current and future solutions are built and will sustain the disciplines needed to ensure agricultural science remains vibrant and useful over time. This funding is expected to bring a wide array of agriculturally related disciplines back to international leadership by supporting the high risk, but potentially high reward, research of individual investigators and small teams. NIFA's priority for FY 2018 is to continue building a foundation of knowledge critical for solving current and future societal challenges. The six priority areas are: Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Bioenergy, Natural Resources, and Environment; Agriculture Systems and Technology; and Agriculture Economics and Rural Communities. Single-function Research Projects, multi-function Integrated Projects, and Food and Agricultural Science Enhancement (FASE) Grants are expected to address one of the Program Area Priorities. These include new program area priorities within the Plant Health and Production and Plant Products Program Area, including the Plant-Associated Microbes and Plant-Microbe Interactions program; Animal Health and Production and Animal Products Program Area; Food Safety, Nutrition, and Health Program Area; Bioenergy, Natural Resources, and Environment Program Area; and the Agriculture Economics and Rural Communities Program Area. Changes also include addition of four specific priorities for co-funding with the Mushroom Council and National Peanut Board.

The NIFA-sponsored Cooperative Extension programs at the Land-Grant Universities will provide key leadership and educational offerings and trainings developed and administered through programs to provide local businesses, farmers, governments, community institutions and local residents with access to trusted sources of information. This will include education and technical assistance that will guide them in their broadband and e-commerce adoption decisions. Extension will also support the sustainability and profitability of plant and animal production systems by:

- Preparing youth, families and individuals for success in the global workforce and all aspects of life.
- Creating pathways to energy independence.

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- Ensuring an abundant and safe food supply for all.
- Assisting in effective decision-making regarding environmental stewardship.
- Assisting communities in becoming sustainable and resilient to the uncertainties of economics, weather, health, and security.
- Helping families, youth and individuals to become physically, mentally, and emotionally healthy.

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

The Small Business Innovation Research Act (SBIR) codified at §9 of the Small Business Act, 15 U.S.C. §638 was designed to strengthen the role of small, innovative firms in federally funded research and development. Under this program, small firms receive at least a fixed minimum percentage of research and development awards made by Federal agencies with sizable research and development budgets. The Small Business Research and Development Enhancement Act of 1992 (Public Law 102-564, October 28, 1991) as amended by the National Defense Authorization Act for Fiscal Year 2012, reauthorized the SBIR program through September 30, 2017 mandates that, 3.0 percent of FY 2016, and 3.2 percent of FY 2017, and 3.2 percent of FY 2018 extramural research and development funds within the Department are set-aside and used to fund the SBIR program.

<u>Agency</u>	<u>FY 2016 Actual</u>	<u>FY 2017* Estimate</u>	<u>FY 2018 * Estimate</u>
Agricultural Research Service	\$ 1,680,030	\$ 1,680,030	\$ 1,680,030
Animal and Plant Health Inspection Service.....	34,521	34,500	34,500
National Institute of Food and Agriculture Economic Research Service.....	19,784,831	21,466,214	20,526,271
Forest Service	158,820	158,820	158,820
National Agricultural Statistics Service	852,394	852,000	852,000
	<u>45,000</u>	<u>45,000</u>	<u>45,000</u>
Total	\$22,555,596	\$24,236,564	\$23,296,621

*A report to the Small Business Administration (SBA) describing planned FY 2017 investments is under development. FY 2017 data has been delayed to include full-year appropriations data. FY 2017 and FY 2018 data will be updated once the SBA report is completed.

The staff functions of USDA’s SBIR program (solicitation, review and evaluation of proposals) have been centralized in NIFA in order to serve the SBIR community most effectively and efficiently. Ten research topic areas have been established:

1. Forests and Related Resources. Research proposals are solicited to enhance the protection of the Nation’s forested lands and forest resources and help to ensure the continued existence of healthy and productive forest ecosystems.
2. Plant Production and Protection – Biology. Research proposals are solicited that employ either biological or engineering approaches to examine means of enhancing crop production by reducing the impact of destructive agents, developing effective crop systems that are economically and environmentally sound, enhancing the impact of new methods of plant manipulation, and developing new crop plants and new uses for existing crops.
3. Animal Production and Protection. Research proposals are solicited to find ways to enable producers of food animals to increase production efficiency and to assure a reliable and safe supply of animal protein and other animal products while conserving resources and reducing production costs.
4. Air, Water and Soils. Research proposals are solicited to develop technologies for conserving air, water and soil resources while sustaining agricultural productivity.

5. Food Science and Nutrition. Research proposals are solicited to develop new knowledge and a better understanding of the characteristics of foods and their nutritional impact; to apply new knowledge to improve our foods and diets; and to apply new knowledge to the production of useful new food products, processes, materials, and systems, including the application of nutritional information to consumer foods and food service systems.
6. Rural and Community Development. Research proposals are solicited to develop knowledge and technology that will promote, foster, or improve the well-being of rural Americans.
7. Aquaculture. Research proposals are solicited to develop new technologies to promote the aquaculture production of animal and plant species in both freshwater and marine environments.
8. Biofuels and Biobased Products. Research proposals are solicited to develop new or improved technologies that will lead to increased production of industrial products from agricultural materials.
9. Small and Mid-Size Farms. Research proposals are solicited that will promote and improve the sustainability and profitability of small and mid-sized farms and ranches.
10. Plant Production and Protection – Engineering. The objective of this topic area is to enhance crop production by creating and commercializing technologies that enhance system efficiency and profitability and that protect crops from pests and pathogens in economically and environmentally sound ways. Projects that promote energy conservation or efficiency are strongly encouraged.

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Report on Anticipated RFA Publication Date

Information on the publication schedule for NIFA Requests for Applications (RFAs) is included below, as required by a directive from the FY 2015 House Report on the Agriculture Appropriations Bill and the 2014 Farm Bill. The scope of the final RFAs will depend upon the final appropriations levels enacted by Congress. The actual publication dates may change due to factors such as amount and timing of appropriations, unexpected delays in the review process, and new science developments. For the most up-to-date AFRI RFA publication schedule, please refer to the NIFA website at: <http://nifa.usda.gov/afri-request-applications>.

The anticipated RFA publication dates are provided for Other Competitive Programs. The Expected FY 2018 RFA Publication Dates for AFRI are 12/1/2017 through 3/31/2018. Funding amounts for AFRI reflect those amounts of appropriated funds anticipated for programs including interagency programs and legislative set-asides for programs such as the Small Business Innovation Research program, except where noted otherwise.

FY 2018 President's Budget for the Agriculture and Food Research Initiative

The U.S. Department of Agriculture (USDA) established the Agriculture and Food Research Initiative (AFRI) competitive grants program, under which the Secretary of Agriculture may make competitive grants for fundamental and applied research, education, and extension to address food and agricultural sciences (as defined under section 1404 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) (7 U.S.C. 3103)), as amended, in six priority areas. The six priority areas are: 1) plant health and production and plant products; 2) animal health and production and animal products; 3) food safety, nutrition, and health; 4) bioenergy, natural resources, and environment; 5) agriculture systems and technology; and 6) agriculture economics and rural communities. The alignment of AFRI program Requests for Applications (RFAs) with the Farm Bill priorities are described in the following document.

Through AFRI, NIFA seeks to ensure our nation's food security by addressing the challenges that U.S. agriculture faces, promoting America's global competitive edge in agricultural exports, and supporting the country's investments in agricultural research, education, and extension. A major food systems challenge is the need to substantially increase food production for a burgeoning global population, projected to approach ten billion in just the next three decades. Much of the increased food production is expected to come from the U.S. and represents a great economic opportunity for the U.S. agricultural sector and rural communities, while ensuring global nutritional security. Increased domestic and global production of food, however, must occur on diminishing arable land and increasingly variable and unpredictable water availability due to extreme weather events. Additionally, American agriculture will need to maintain its global competitive edge, particularly over nations such as China and Brazil whose investments in agricultural research and development have recently outpaced that of the U.S. A well-trained workforce and next generation of researchers are needed to meet these challenges posed by the ever-changing production agriculture landscape. The generation of new knowledge critical to advancing food and agriculture will require increased investment at academic institutions and non-academic research organizations in America.

AFRI supports the creation, delivery, and application of new knowledge in a broad range of agriculturally relevant areas, including sustainable food production systems, renewable bioenergy production, resiliency of agriculture to impacts of climate variability, water management, natural resources and the environment, rural development, human nutrition, and food safety. These efforts are addressed through the three major components of AFRI including the Foundational and Applied Science Program, the new Sustainable Agricultural Systems Program, and the Education and Workforce Development Program (formerly, the Education and Literacy Initiative). Research, education, and extension work is supported by AFRI in the six primary Farm Bill program priorities: plant health and

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production and plant products; animal health and production and animal products; food safety, nutrition, and health; bioenergy, natural resources, and environment; agriculture systems and technology; and agriculture economics and rural communities.

Fundamental and applied research that aligns with the six Farm Bill priority areas is supported by the AFRI Foundational and Applied Science Program. The Foundational and Applied Science Program also funds the Critical Agricultural Research and Extension (CARE) program area, which is intended to result in implementable solutions to critical problems faced by food producers and consumers, along with the Exploratory Research Program, which supports development of innovative knowledge to position U.S. agriculture at the global forefront.

Increased funding for the Foundational and Applied Science Program also will increase the funding rate (i.e., the number of grants awarded), especially for new investigators, which is essential for continued development of the next generation of scientists that is critical for sustaining a vigorous research enterprise in agricultural sciences. Discoveries made through research supported by the Foundational and Applied Science Program, in turn, provide the base of knowledge required for subsequent transformative future research, extension, and education programs at NIFA (especially those in the AFRI Sustainable Agricultural Systems Program) that aim to solve applied problems in the food and agricultural sciences. Thus, the Foundational and Applied Science Program is both complementary and essential to the success of the Sustainable Agricultural Systems Program.

Additional high-priority science will be supported in collaboration with other Federal science agencies. These interagency programs are aligned with NIFA’s relevant programs aimed at developing the foundational knowledge needed to address the societal challenges.

Through AFRI grants, NIFA also will support new initiatives on the microbiome and on Food and Agriculture Cyberinformatics and Tools (FACT), as well as increased emphasis on classical and conventional plant and animal breeding, as described below. This request in FY 2018 seeks to invest AFRI funding at the level of \$349,335,000, as detailed by program below.

Agriculture and Food Research Initiative Requests for Applications

In FY 2018 the AFRI program will issue three Requests for Applications (RFA) to solicit new grant awards; one RFA will be issued for each of the Foundational and Applied Science, Sustainable Agricultural Systems, and Education and Workforce Development programs. All three of these RFAs collectively address the six AFRI Farm Bill Priority Areas: 1) plant health and production and plant products; 2) animal health and production and animal products; 3) food safety, nutrition, and health; 4) bioenergy, natural resources, and environment; 5) agriculture systems and technology; and 6) agriculture economics and rural communities.

FY 2018 President’s Budget			
Program	New Grant Awards	Existing Grant Awards	Total
Agriculture and Food Research Initiative	\$310,504,000	\$38,831,000	\$349,335,000

The NIFA 2018 budget proposes to support the AFRI program at \$349,335,000, which includes:

- A new initiative on the microbiome of foods, agricultural animals, plants, and soils to be included in the Foundational and Applied Science Program;
- A new initiative on Food and Agriculture Cyberinformatics and Tools (FACT) to be included in the Foundational and Applied Science Program;

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- Increased emphasis on classical and conventional plant and animal breeding in the Foundational and Applied Science Program;
- Continuation of the Critical Agricultural Research and Extension (CARE) program area initiated in FY 2014, as part of the Foundational and Applied Science Program;
- Continued support for high priority areas including production agriculture, food security, adaptation of crop and livestock agriculture to climate variability, food safety, sustainable bioenergy, and nutrition and health;
- Consolidation, restructuring and advancement of the Challenge Area into the new Sustainable Agricultural Systems Program that will support innovative, transformative, integrated, and transdisciplinary systems-level approaches to improve production systems for food, feed, fiber and biomass feedstock, and resolve problems impacting agricultural production systems;
- Continuation of the Exploratory Research program area that was initiated in FY 2014, as part of the Foundational and Applied Science Program;
- Continuation of the Education and Workforce Development program that was initiated in FY 2015 as the Food, Agricultural, Natural Resources, and Human Sciences Education and Literacy Initiative; and
- Continued fostering of inter-agency collaborations to leverage greater investment in agriculturally-relevant areas of science, and to attract new communities of scientists to address challenging agricultural issues.

AFRI Request for Applications (RFA):

Foundational and Applied Science RFA | The AFRI Foundational and Applied Science RFA is organized by, and directly aligns with, the Farm Bill AFRI priority areas. The Foundational and Applied Science Program priorities are designed to include the scope of topics listed within each of the six Farm Bill Priority Areas. NIFA will invest \$220,976,000 of appropriated AFRI funds to support *new* grants in the Foundational and Applied Science Program. This will include approximately \$11,000,000 for *new* grants focusing on the microbiome of foods, agricultural animals, plants, and soils; \$11,000,000 for *new* grants on Food and Agriculture Cyberinformatics and Tools (FACT); and \$10,000,000 to increase investments for *new* grants in plant and animal breeding that support classical and conventional breeding efforts to improve crop and animal productivity, efficiency, quality, performance, local adoption of cultivars and breeds, and development of public cultivars. In this display, the Foundational and Applied Science Program also includes funding for interagency programs.

Request for Applications (RFA)	New Grant Awards	Total
Foundational and Applied Science Program	\$220,976,000	\$220,976,000

Sustainable Agricultural Systems RFA | In FY 2018, NIFA will launch the AFRI Sustainable Agricultural Systems Program, which represents the advancement of prior efforts initiated under the AFRI Challenge Areas. This restructuring of AFRI to create the Sustainable Agricultural Systems will address the former Challenge Area topics comprehensively and collectively, rather than in isolation. NIFA will invest \$65,809,000 for *new* grants to catalyze transformative, integrated, and transdisciplinary systems-level approaches to increase agricultural production, productivity and profitability, ensure nutritional security and food safety, and foster the bioeconomy for economic prosperity, especially in rural America. Approximately, \$38,831,000 will continue support of *existing* grants initiated in prior years under the Challenge Areas. This includes: \$6,580,712 to complete *existing* grants in the Food Security Challenge Area that will improve health and production of crops and livestock; \$4,900,000 to complete *existing* grants in the Food Safety Challenge Area that use integrated approaches to address food contamination by pathogens, toxins, and chemicals occurring along the entire food chain; \$8,659,000 to complete *existing* grants in the Childhood Obesity Prevention Challenge Area to implement effective family, peer, community, and school-based interventions to prevent and reverse

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overweight and obese trends, and to promote healthy behaviors in children and adolescents; \$10,437,288 to complete *existing* grants in the Water for Agriculture Challenge Area to support integrated research education, and extension efforts aimed at improving efficiency of water use in agriculture; and \$8,254,000 to complete *existing* grants in the Sustainable Bioenergy and Bioproducts Challenge Area that focus on production and handling of feedstocks for biofuels. Combined, this research, education, and outreach portfolio is expected to catalyze the next revolution in production agriculture by providing breakthrough technologies and data-driven decision tools, generating locally and regionally-adapted crop cultivars, and developing prudent water management practices for food production systems.

Request for Applications (RFA)	New Grant Awards	Existing Grant Awards¹	Total¹
Sustainable Agricultural Systems Program	\$65,809,000	---	\$65,809,000
Challenge Areas	---	\$38,831,000	\$38,831,000

¹ Funding to continue existing grants awarded in previous years in the Food Security, Food Safety, Childhood Obesity Prevention, Water for Agriculture, and Sustainable Bioenergy and Bioproducts Challenge Areas.

Education and Workforce Development RFA | NIFA will invest \$23,800,000 of appropriated AFRI funding in Education and Workforce Development for *new* education and training grants that focus on further enhancing the three distinct components of the agricultural pipeline for preparing the next generation of scientists in the food, agriculture, natural resource, and human sciences. Recent studies project significant shortfalls in the availability of qualified agricultural workers. NIFA will promote the education pipeline continuum by: a) *Enhancing Agricultural Literacy* through institutional grants to provide K-14 teachers and administrators with increased knowledge of food, agricultural, natural resource and human sciences and help them to develop improved curricula to enhance agricultural literacy; b) *Developing Pathways* by providing undergraduates in agriculture and allied disciplines with the applied technical and leadership skills required for careers in agricultural sectors and farming enterprises or in graduate programs; and c) *Advancing Science* to support graduate and post-graduate education in agriculture and related disciplines through pre-and post-doctoral fellowships.

Request for Applications (RFA)	New Grant Awards	Total
Education and Workforce Development Program	\$23,719,000	\$23,719,000

Table 1. Funding allocations by Request for Applications for the FY 2018 President’s Budget for the Agriculture and Food Research Initiative (AFRI).

FY 2018 President’s Budget			
Program	New Grant Awards¹	Existing Grant Awards¹	Total¹
Agriculture and Food Research Initiative	\$310,504,000	\$38,831,000	\$349,335,000
Request for Applications (RFA)²			
Foundational Program	\$220,976,000	\$ -	\$220,976,000

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Education and Workforce Development Program ³	\$23,719,000	\$ -	\$23,719,000
Sustainable Agricultural Systems Program ⁴	\$65,809,000	\$ -	\$65,809,000
Challenge Areas ⁵	\$ -	\$38,831,000	\$38,831,000

¹ Includes set-asides.

² Funding for interagency programs is included within the Foundational Program or various Challenge Areas, as appropriate.

³ Formerly called the Education and Literacy Initiative.

⁴ New in FY 2018. Includes transdisciplinary systems approaches of topics previously covered under the Challenge Areas.

⁵ Funding to continue existing grants awarded in previous years in the Food Security, Food Safety, Childhood Obesity Prevention, Water for Agriculture, Agricultural Science for Climate Variability and Change, and Sustainable Bioenergy and Bioproducts Challenge Areas.

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Table 2. Funding allocations by Farm Bill Priority Area for the FY 2018 President’s Budget for the Agriculture and Food Research Initiative.

FY 2018 President’s Budget									
Farm Bill Priority Area	Agriculture and Food Research Initiative	RFA Topic Area							
		Foundational Program	Education and Workforce Development	Sustainable Agricultural Systems	Challenge Area ¹				
					Water for Food Production	Climate Variability and Change	Food Safety	Sustainable Bioenergy	Childhood Obesity Prevention
A. Plant Health and Production and Plant Products	24%	30%	25%	30%	22%	20%	5%	25%	-
B. Animal Health and Production and Animal Products	18%	24%	20%	24%	13%	20%	40%	-	-
C. Food Safety, Nutrition, and Health	19%	15%	20%	15%	9%	5%	50%	-	100%
D. Bioenergy, Natural Resources, and Environment	17%	11%	20%	11%	17%	40%	3%	50%	-
E. Agriculture Systems and Technology	11%	8%	8%	8%	26%	5%	2%	10%	-
F. Agriculture Economics and Rural Communities	11%	12%	7%	12%	13%	10%	-	15%	-

¹ Funding allocations by Farm Bill Priority Area for Challenge Areas in FY 2018 is for existing grants only.

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Table 3. Funding allocations by Request for Applications for FY 2014 to FY 2017 appropriations and the FY 2018 President's Budget for the Agriculture and Food Research Initiative (AFRI).

AFRI Program Areas	2014 Enacted	2015 Enacted	2016 Enacted	2017 Continuing Resolution	2018 President's Budget
Sustainable Agricultural Systems Program	---	---	---	---	65,809,000
Sustainable Bioenergy Challenge Area	39,561,000	36,682,000	27,566,000	26,362,800	8,254,000 ¹
Climate Variability and Change Challenge Area	34,117,000	9,862,000	15,312,000	9,823,050	- ¹
Water for Food Production Systems Challenge Area	43,750,000	56,166,000	69,917,000	58,896,600	17,018,000 ¹
Childhood Obesity Prevention Challenge Area	27,631,000	22,870,000	25,049,000	19,772,100	8,659,000 ¹
Food Safety Challenge Area	22,806,000	23,839,000	14,309,000	14,883,400	4,900,000 ¹
<i>SUBTOTAL</i>	<i>167,865,000</i>	<i>149,419,000</i>	<i>152,154,000</i>	<i>129,737,950</i>	<i>104,640,000</i>
Foundational Program	140,634,000	158,543,000	177,029,000	198,771,950	220,976,000
Education and Literacy Initiative	7,910,000	17,038,000	20,818,000	20,825,100	23,719,000
<i>Total</i>	<i>316,409,000</i>	<i>325,000,000</i>	<i>350,000,000</i>	<i>349,335,000</i>	<i>349,335,000</i>

¹ Funding for Challenge Areas in FY 2018 is for existing grants only.

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Other Competitive Programs

Non-AFRI competitive programs included in the Congressional Directive and/or Farm bill language are listed below. FY 2017 discretionary funding is based on the Annualized Continuing Resolution for FY 2017. Programs funded by mandatory funding are included based on the Agricultural Act of 2014 (2014 Farm Bill). FY 2017 mandatory funds include the impact of a 6.8 percent sequestration order. FY 2018 Budget estimates are the estimated resources based on the President’s budget request and FY 2018 funding amounts provided in the 2014 Farm Bill, and may differ from final FY 2018 funding amounts appropriated by Congress.

Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Sustainable Agriculture Research and Education Program	7 U.S.C. 5811, 7 U.S.C. 5812, 7 U.S.C. 5831, & 7 U.S.C. 5832 in accordance with the general authorities in 7 U.S.C. 343(d)	<p>The FY 2017 RFAs will focus on increasing the knowledge of and helping farmers and ranchers to adopt practices that are productive, profitable, environmentally sound, and good to communities. Grants awarded by the four regional administrative councils will support projects that address crop and livestock production and marketing, stewardship of soil and other natural resources, economics and quality of life. The program will support development of technical guides and handbooks and education and training for Cooperative Extension System agents, and other agricultural professionals involved in the education and transfer of technical information concerning sustainable agriculture.</p> <p>The FY 2018 RFA will focus on projects submitted by farmers and ranchers as well as limited support to innovative projects and graduate education. The competition will first identify sites for the next five years and then provide funding for the first year of continuation grants.</p>	\$24,620	\$19,009	<p>2017: April 2017</p> <p>2018: October 2017</p>

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Methyl Bromide	7 U.S.C. 7626	<p>The FY 2017 RFA focuses on supporting the discovery and implementation of practical pest management alternatives for commodities and uses affected by the methyl bromide phase-out. This program will request integrated, extension-only, and state-of-the-commodity projects that use a systems approach to evaluate and deliver economically viable short- to medium-term solutions for all commodities impacted by the loss of methyl bromide.</p> <p>The President has not requested funding for this program in FY 2018.</p>	1,996	0	2017: February 28, 2017

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Minor Crop Pest Management Program – Interregional Research Project #4	7 U.S.C. 450i(e)	<p>The FY 2017 RFA will focus on funding projects that provide safe, effective, and economical pest management solutions for minor agricultural uses and specialty crops. NIFA anticipates funding five projects: one to establish a national headquarters and four to establish geographically-based regional IR-4 centers (North Central, Northeastern, Southern, and Western)</p> <p>The FY 2018 RFA will focus on providing safe, effective, and economical pest management solutions for minor agricultural uses and specialty crops. NIFA anticipates funding five continuation awards: one for a national headquarters and four to fund the existing regional IR-4 centers, three of which will include analytical chemistry programs.</p>	11,890	11,890	2017: March 20, 2017 2018: January 2018

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Organic Transition Program	7 U.S.C. 7626	<p>The FY 2017 RFA will focus on the development and implementation of research, extension, and higher education programs to improve the competitiveness of organic livestock and crop producers, as well as those who are adopting organic practices. The program will focus on the development and implementation of biologically based pest management practices that mitigate the ecological, agronomic, and economic risks associated with a transition from conventional to organic agricultural production systems. The program also support the development of cultural practices and other allowable alternatives to substances recommended for removal from NOP’s National List of Allowed and Prohibited Substances.</p> <p>The President has not requested funding for this program in FY 2018.</p>	3,993	-	<p>2017: December 8, 2016</p> <p>2018: None</p>
Crop Protection/Pest Management	7 U.S.C. 7626	<p>The FY 2017 RFA focuses on IPM projects that respond to pest management challenges with coordinated regional and national research and extension programs and that promote further development and use of IPM approaches. The program will develop projects and programs to help end-users discover and implement effective, affordable, and environmentally sound IPM strategies to reduce economic, environmental, and societal losses caused by diseases, insects, weeds, and other pests that affect crops and livestock and pests that affect human well-being and community vitality. In FY 2017, the Applied Research and Development program area and the Extension Implementation program area will be make new awards through a competitive process. The Regional Coordination program area will make</p>	17,167	14,592	<p>2017: March 7, 2017</p>

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
		<p>continuation awards; new proposals will not be solicited. The additional \$3 million requested for the Crop Protection/Pest Management program will support extension activities to address pollinator health issues identified by the President’s Pollinator Health Initiative. These efforts will help agricultural producers implement pest management strategies that increase productivity and reduce pest losses while protecting the health of pollinators and other beneficial organisms.</p> <p>The FY 2018 RFA will focus on integrated pest management (IPM) projects that respond to pest management challenges with coordinated regional and national research and extension programs and that promote further development and use of IPM approaches. The program will develop projects and programs to help end-users discover and implement effective, affordable, and environmentally sound IPM strategies to reduce economic, environmental, and societal losses caused by diseases, insects, weeds, and other pests that affect crops and livestock and pests that affect human well-being and community vitality. In FY 2017 only new projects under the Regional Coordination program area and continuations under the Extension Implementation program area will be funded.</p>			<p>2018: January 2018</p>

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Specialty Crop Research Initiative	7 U.S.C. 7632	The FY 2017 and FY 2018 SCRI RFAs will continue to give priority to projects that are multistate, multi-institutional, or trans-disciplinary; and include explicit mechanisms to communicate results to producers and the public. It will also continue to require that applications address one of the five legislatively mandated focus areas. The Emergency Citrus Research and Extension Program RFA will again focus on Huanglongbing (HLB, citrus greening) and the insect that vectors the pathogen causing this disease.	74,480	80,000	SCRI 2017: September 27, 2016 Citrus 2017: April 2017 SCRI 2018: September 2017 Citrus 2018: April 2018

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Beginning Farmer and Rancher Development Program	7 U.S.C. 3319f(c)(1)	The FYs 2017 and 2018 RFA will continue to focus on education and training through standard grants and educational enhancement grants with the same range of topics. At least five percent of funds will focus on training for veteran Beginning Farmers and Ranchers (BFRs) BFR's, and at least five percent of funds will focus on training for limited-resource BFRs, socially disadvantaged BFRs, and farmworkers desiring to become BFRs (both set-asides as specified in the Agricultural Act of 2014).	18,620	20,000	2017: September 29, 2016 2018: September 2017

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Organic Agriculture Research and Extension Initiative	7 U.S.C. 5925b(a)	<p>The FY 2017 and FY2018 RFA will focus on solving critical organic agricultural issues, priorities and enhancing the ability of producers and processors who have already adopted organic standards to grow and market high quality organic agricultural products. Focus will be on the eight legislatively-defined goals: (1) Facilitating the development of organic agriculture production, breeding, and processing methods, (2) Evaluating the potential economic benefits of organic agricultural production and methods to producers, processors and rural communities, (3) Exploring international trade opportunities for organically grown and processed agricultural commodities, (4) Determining desirable traits for organic commodities, (5) Identifying marketing and policy constraints on the expansion of organic agriculture, (6) Conducting advanced on-farm research and development that emphasizes observation of, experimentation with, and innovation for working organic farms, including research relating to production and marketing, food safety, socioeconomic conditions, and farm business management, (7) Examining optimal conservation and environmental outcomes relating to organically produced agricultural products, (8) Developing new and improved seed varieties that are particularly suited for organic agriculture.</p>	18,620	20,000	<p>2017: October 21, 2016</p> <p>2018: October 2017</p>

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Program	Authority	Scope of RFA and Budget Justification	2017 Estimate (\$000s)	2018 Budget (\$000s)	RFA Date
Food Insecurity Nutrition Incentive Program	7 U.S.C. 7517	The FY 2017 and FY 2018 RFAs will focus on evaluating projects intended to “increase the purchase of fruits and vegetables by low-income consumers participating in Supplemental Nutrition Assistance Program (SNAP) by providing incentives at the point of purchase. The program will test strategies that could contribute to our understanding of how best to increase the purchase of fruits and vegetables by SNAP participants to inform future efforts, and develop effective and efficient benefit redemption technologies.	18,620	25,000	2017: October 2017 2018: October 2018