2017 Explanatory Notes
National Institute of Food and Agriculture

Contents

Purpose Statement 19-1
Available Funds and Staff Years 19-26
Permanent Positions by Grade and Staff Year Summary 19-29
National Institute of Food and Agriculture:
- Appropriations Language and Explanation of Changes 19-30
- Lead-off Tabular Statement 19-33
- Summary of Increases and Decreases 19-33
- Project Statements 19-35
- Justification of Increases and Decreases 19-41
- Small Business Innovation Research Program 19-61
- Proposed Legislation of Programs 19-63
- Geographic Breakdown of Obligations and Staff Years 19-65
- Classification by Objects 19-73
- Shared Funding Projects 19-74
- Status of Programs 19-76

Summary of Budget and Performance
- Statement of Goals and Objectives 19-89
- Key Performance Outcomes and Measures 19-90
- Full Cost by Strategic Goal 19-113

Competitive Programs Exhibit 19-117

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 advance knowledge for agriculture, the environment, human health and well-being, and communities.

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 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 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
- 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:

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 the FY 2016 AFRI request 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

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. 3341authorizes 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.

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 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.
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> 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.
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> 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.

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 Ilisagvik 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

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.
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> 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

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

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 prorata 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 prorata 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.

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 eligible1890 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 (AITC) program is administered under the federal administration line. AITC 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.

11. 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 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.

12. 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.

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.

13. 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.

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 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, 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 section1408A 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, Education, Extension 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 activities and 50 percent for demonstration. Waiver authority for the 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. Mandatory funding is made available in the enacted amount of $3 million for each FY 2014 through FY 2017.

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.

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 $5 million in FY 2014 and $9 million for each of FY 2015 through FY 2018.

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 $35 million for each of FY 2014 through FY 2015, $20 million for each of FY 2016 through FY 2017, and $25 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, 2015, there were 353 permanent full-time employees and 36 other employees.

Agency Audit Reports

OMB Circular A-133 Audits

A-133 audit reviews for the grantees listed below were completed during fiscal year 2015.

Audit Report No.	Institution	Year Ending	Closed Date
26305	Resources For Human Development, Inc.	2014	1/7/15
43791	CIFT	2014	1/7/2015
92979	Vanderbilt University	2014	1/7/15
101106	William Marsh Rice University	2014	1/7/15
112087	Mariposa Community Health Center, Inc.	2014	1/7/15
125745	Inyo Mono Advocates For Community Action	2014	1/7/15
147751	Board Of Education Of Worcester County	2014	1/7/15
148671	Western Michigan University	2014	1/7/15
150676	Regents Of The University Of Minnesota	2014	1/7/2015
158010	Eastern New Mexico University	2014	1/7/15
158041	University Of New Mexico	2014	1/7/15
238068	Greenfield Community College	2014	1/7/15
6735	Yale University	2014	1/12/2015
17225	Research Foundation For The State University Of New York	2014	1/12/2015
193062	New York State	2014	1/12/2015
242213	YMCA Of Central New Mexico And YMCA Of Central New Mexico Foundation	2013	1/12/2015
147	Bowdoin College	2014	2/27/2015
356	Coastal Enterprises, Inc. & Subsidiaries	2014	2/27/2015
5865	Brown University	2014	2/27/2015
17157	Rensselaer Polytechnic Institute	2014	2/27/2015
18506	Hobart And William Smith Colleges	2014	2/27/2015
21715	Prevent Child Abuse - New Jersey Chapter, Inc.	2014	2/27/2015
25460	Nationalities Service Center Of Philadelphia	2014	2/27/2015
25526	Thomas Jefferson University And Controlled Affiliates	2014	2/27/2015
33779	DCCCA, Inc.	2014	2/27/2015

35195	Lehigh University	2014	2/27/2015
48480	Rush University Medical Center Obligated Group	2014	2/27/2015
60472	College Of Menominee Nation	2014	2/27/2015
77803	Carnegie Institution Of Washington	2014	2/27/2015
81366	Wake Forest University	2014	2/27/2015
86512	Clark Atlanta University	2014	2/27/2015
108191	National Center For Appropriate Technology	2014	2/27/2015
109269	University Corporation For Atmospheric Research	2014	2/27/2015
114648	Mercy Corps And Affiliates	2014	2/27/2015
123466	University Of Southern California	2014	2/27/2015
123525	University Of La Verne	2014	2/27/2015
124104	The University Corporation	2014	2/27/2015
126512	Cal State L.A. University Auxiliary Services, Inc.	2014	2/27/2015
131856	County Of Mono	2014	2/27/2015
133999	Hartnell Community College District	2014	2/27/2015
134460	Yosemite Community College District	2014	2/27/2015
144758	Northeast Iowa Community College	2014	2/27/2015
148661	Michigan State University	2014	2/27/2015
154881	University Of Nebraska	2014	2/27/2015
161050	Harnett County	2014	2/27/2015
162392	The Ohio State University	2014	2/27/2015
166055	Wheeler County	2014	2/27/2015
166683	Chemeketa Community College	2014	2/27/2015
174919	Laredo Community College District	2014	2/27/2015
176059	Fauquier County Government & Public Schools	2014	2/27/2015
179719	Oneida Tribe Of Indians Of Wisconsin	2014	2/27/2015
180907	Southwest Wisconsin Technical College	2014	2/27/2015
181178	Wayne State University	2014	2/27/2015
181377	Montclair State University	2014	2/27/2015
181758	Boston Medical Center	2014	2/27/2015
182312	New Jersey Institute Of Technology	2014	2/27/2015
189616	Illinois State University	2014	2/27/2015
193259	Champlain Valley Office Of Economic Opportunity, Inc.	2014	2/27/2015
193608	Community College District Of Newton And McDonald Counties	2014	2/27/2015
204527	National 4-H Council	2014	2/27/2015
204563	Tohono O'Odham Community College	2014	2/27/2015
232433	Tri-County Council For Southern Maryland	2014	2/27/2015
233262	The Kohala Center	2014	2/27/2015
238738	Rancho Santa Ana Botanic Garden	2014	2/27/2015
239596	American Planning Association	2014	2/27/2015
33816	Sitting Bull College	2014	3/2/2015

35809	Carnegie Mellon University	2014	3/2/2015
45510	University Of Notre Dame Du Lac	2014	3/2/2015
78063	The Nature Conservancy	2014	3/2/2015
96882	Universidad Interamericana De Puerto Rico	2014	3/2/2015
111249	Biomedical Research Institute Of New Mexico	2014	3/2/2015
123517	Chapman University And Affiliates	2014	3/2/2015
171698	City Of Johnson City	2014	3/2/2015
130503	Pima County Community College District	2014	3/3/2015
145832	Colby Community College	2014	3/3/2015
158024	New Mexico State University	2014	3/3/2015
162382	Central State University	2014	3/3/2015
164828	Langston University	2014	3/3/2015
173946	Alamo Community College District	2014	3/3/2015
174197	El Paso County Community College District	2014	3/3/2015
174338	Houston Community College System	2014	3/3/2015
175013	State Of Utah	2014	3/3/2015
191889	Fairleigh Dickinson University	2014	3/3/2015
192446	University Of Massachusetts	2014	3/3/2015
192565	University Of Oklahoma- Norman Campus	2014	3/3/2015
194414	New Mexico Highlands University	2014	3/3/2015
198446	The Community College Of Baltimore County	2014	3/3/2015
212768	White Earth Tribal And Community College	2014	3/3/2015
47882	Loyola University Chicago	2014	3/24/2015
119196	North Coast Opportunities, Inc.	2014	3/24/2015
145868	Kentucky State University	2014	3/24/2015
152737	Missouri State University	2014	3/24/2015
187338	Del Mar College District	2014	3/24/2015
220192	College Of Southern Idaho	2014	3/24/2015
75657	Conservation International Foundation	2014	3/25/2015
94539	Tuskegee University	2014	3/25/2015
1535	Vermont Center For Independent Living, Inc.	2014	3/27/2015
2130	Boston College	2014	3/27/2015
18063	Syracuse University	2014	3/27/2015
25540	Saint Joseph's University	2014	3/27/2015
35942	Duquesne University Of The Holy Spirit	2014	3/27/2015
59870	Lac Courte Oreilles Ojibwa Community College, Inc.	2014	3/27/2015
68497	Fort Berthold Community College	2014	03/27/15
69537	The Center For Rural Affairs & Controlled Organizations	2014	3/27/2015
132305	City Of Santa Maria	2014	3/27/2015
134720	State Of Colorado	2014	3/27/2015
136829	State Of Georgia/State Accounting Office	2014	03/27/15

138493	Chicago State University	2014	03/27/15
145682	Northwest Kansas Educational Service Center Interlocal District 602	2014	3/27/2015
146632	State Of Louisiana	2014	03/27/15
147111	Maine Community College System	2014	3/27/2015
147921	County Of Barnstable	2014	3/27/2015
148753	County Of Ogemaw	2014	3/27/2015
154762	Aaniiih Nakoda College, Inc.	2014	3/27/2015
161202	County Of Wayne, North Carolina	2014	3/27/2015
164273	Wauseon Exempted Village School District	2014	3/27/2015
166795	The Pennsylvania State University	2014	3/27/2015
170831	State Of South Dakota	2014	03/27/15
171190	Mitchell School District No. 17-2	2014	3/27/2015
171944	State Of Texas C/O Comptroller Of Public Accounts	2014	03/27/15
175887	Commonwealth Of Virginia	2014	3/27/15
182723	Northeast Texas Public Health District	2014	3/27/2015
192207	COIC	2014	3/27/2015
194401	American Samoa Community College	2014	03/27/15
201450	Assabet Valley Regional Technical High School	2014	3/27/2015
206851	Medical University Of South Carolina	2014	3/27/2015
211356	Wyoming Services For Independent Living	2014	3/27/2015
212942	State Of Arkansas	2014	3/27/2015
229253	Twin Rivers Unified School District	2014	3/27/2015
233244	Resource Conservation District Of Santa Cruz County	2014	3/27/2015
240689	Healthy Acadia	2014	3/27/2015
242670	College Of The Muscogee Nation	2014	03/27/15
1366	University Of Vermont And State Agricultural College	2014	03/30/15
2164	Massachusetts Institute Of Technology	2014	03/30/15
10654	National Audubon Society, Inc.	2014	03/30/15
54157	Southern Illinois University	2014	03/30/15
68991	Sisseton-Wahpeton College	2013	03/30/15
108237	Salish Kootenai College, Inc.	2014	03/30/15
131804	University Of California	2014	03/30/15
137874	University Of Hawaii	2014	03/30/15
147114	University Of Maine System	2014	03/30/15
147719	State Of Maryland	2014	03/30/15
147913	Commonwealth Of Massachusetts	2014	03/30/15
152738	University Of Missouri System	2014	03/30/15
166791	Commonwealth Of Pennsylvania	2014	03/30/15
193066	Institute Of American Indian And Alaska Native Culture And Arts Development	2014	03/30/15
217183	Leech Lake Tribal College, Inc.	2014	03/30/15

242667	Lakewood Board Of Education	2014	03/30/15
242736	University System Of New Hampshire	2014	03/30/15
9545	Cypress Hills Local Development Corporation	2014	04/30/15
15175	New York University	2014	04/30/15
25638	Temple University	2014	04/30/15
41431	Torrey Pines Institute For Molecular Studies	2014	04/30/15
48485	The University Of Chicago	2014	04/30/15
74455	The American Farmland Trust	2014	04/30/15
87167	National Foundation For The Centers For Disease Control And Prevention	2014	04/30/15
123653	City Of Hope And Affiliates	2014	04/30/15
142179	Ball State University	2014	04/30/15
142235	Indiana University	2014	04/30/15
142300	Ivy Tech Community College Of Indiana	2014	04/30/15
148074	Town Of Greenfield	2014	04/30/15
148660	Lake Superior State University	2014	04/30/15
177417	Northwest Indian College	2014	04/30/15
180985	Purdue University	2014	04/30/15
182945	Saginaw Chippewa Indian Tribe Of Michigan	2014	04/30/15
185002	Hampshire College	2014	04/30/15
188565	Flathead Valley Community College	2014	04/30/15
190874	Refugee Family Services, Inc.	2014	04/30/15
193043	State Of Mississippi Institutions Of Higher Learning	2014	04/30/15
200449	Alabama A&M University	2013	04/30/15
203258	The Food Trust	2014	04/30/15
211418	OCCK, Inc.	2014	04/30/15
211781	South Carolina Research Foundation	2014	04/30/15
235990	Pocahontas County Commission	2014	04/30/15
237378	United Teen Equality Center, Inc.	2014	04/30/15
18064	Cornell University	2014	05/05/15
30749	Africare	2014	05/05/15
129783	State Of Alaska	2014	05/05/15
138560	Northern Illinois University	2014	05/05/15
182926	Rutgers, The State University Of New Jersey	2014	05/05/15
219643	Delaware State University	2014	05/05/15
10698	Yeshiva University	2014	05/06/15
25545	University Of Pennsylvania	2014	05/06/15
35765	University Of Pittsburgh Of The Commonwealth System Of Higher Education	2014	05/06/15
48297	DePaul University	2014	05/06/15
68471	United Tribes Technical College	2014	05/06/15
136063	State Of Florida	2014	05/06/15

138590	University Of Illinois	2014	05/06/15
143605	State Of Iowa	2014	05/06/15
144797	State Of Kansas	2014	05/06/15
166019	State Of Oregon	2014	05/06/15
170255	State Of Rhode Island And Providence Plantations	2014	05/06/15
170349	State Of South Carolina	2014	05/06/15
171359	State Of Tennessee	2014	05/06/15
176362	State Of Washington C/O Office Of Financial Management	2014	05/06/15
177867	State Of Wisconsin	2014	05/06/15
180102	University Of Guam	2014	05/06/15
180143	University Of Puerto Rico	2014	05/06/15
181658	State Of Connecticut	2014	05/06/15
181661	State Of North Carolina	2014	05/06/15
181664	State Of Arizona	2014	05/06/15
192840	Regents Of The University Of Michigan	2014	05/06/15
193698	State Of North Dakota	2014	05/06/15
198496	University Of Delaware	2014	05/06/15
202015	Little Big Horn College	2014	05/06/15
4611	The Woods Hole Research Center, Inc.	2014	05/07/15
25515	Drexel University	2014	05/07/15
73151	Federation Of American Societies For Experimental Biology	2014	05/07/15
130463	Maricopa County Community College District	2014	05/07/15
138010	City Of Boise	2014	05/07/15
150662	State Of Minnesota	2014	05/07/15
155928	State Of Nevada	2014	05/07/15
177397	Quinault Indian Nation	2014	05/07/15
179738	State Of Wyoming	2014	05/07/15
181667	State Of New Jersey	2014	05/07/15
193596	Northeastern Illinois University	2014	05/07/15
198627	Leech Lake Band Of Ojibwe	2014	05/07/15
203015	State Of Illinois Governor's Office Of Management And Budget	2014	05/07/15
207799	Chicago Horticultural Society	2014	05/07/15
01-1007	College of Micronesia Land Grant Program	2001	9/21/2015
06-1007	College of Micronesia	2006	9/21/2015
06-1058	The Ohio State University	2006	9/21/2015
06-1060	University of Missouri System	2006	9/21/2015
07-1028	The Ohio State University	2007	9/21/2015
07-1032	University Of Missouri System	2007	9/21/2015
07-1049	Territory of American Samoa	2007	9/21/2015
09-1001	American Somoa Community College	2009	9/21/2015
09-1008	College of Micronesia	2009	9/21/2015

10-1001	University of Wyoming	2010	9/21/2015
10-1005	State Of Wisconsin	2010	9/21/2015
10-1018	Joslin Diabetes Center, Inc.	2010	9/21/2015
10-1020	Marshall Public Schools	2010	9/21/2015
10-1047	College of Menominee Nation	2010	9/21/2015
10-1053	Christiana Care Health System, Inc.	2010	9/21/2015
10-1054	Jefferson County Commission	2010	9/21/2015
11-1010	Mississippi Association of Cooperatives, Inc.	2011	9/21/2015
11-1021	Africare	2011	9/21/2015
11-1022	American Somoa Community College	2011	9/21/2015
11-1023	Arkansas Land and Farm Development Corp	2011	9/21/2015
11-1024	Delaware State University	2011	9/21/2015
11-1025	Georgetown University	2011	9/21/2015
11-1027	State of Connecticut	2011	9/21/2015
11-1028	State of Texas C/O Comp of Public Account	2012	9/21/2015
11-1029	State Of Wisconsin	2011	9/21/2015
11-1031	Universidad Central Del Caribe, Inc.	2011	9/21/2015
11-1033	Yeshiva University	2011	9/21/2015
11-1036	State of Colorado	2011	9/21/2015
11-1038	University of Puerto Rico	2011	9/21/2015
11-1039	Christiana Care Health Systems, Inc.	2011	9/21/2015
11-1040	College of Marshall Island	2011	9/21/2015
11-1043	Morehouse Council on Aging, Inc.	2011	9/21/2015
11-1045	Partners Healthcare	2011	9/21/2015
11-1046	Smithsonian Institution	2011	9/21/2015
11-1047	University of The Virgin Island	2011	9/21/2015
12-1007	Cambridge Public Health Commission	2012	9/21/2015
12-1009	School District of Denmark	2012	9/21/2015
12-1010	School District of Granton	2012	9/21/2015
12-1011	School District of Thorp	2012	9/21/2015
12-1014	State Of Texas C/O Comptroller Of Public Accounts	2012	9/21/2015
12-1015	University of Missouri System	2012	9/21/2015
12-1016	Yeshiva University	2012	9/21/2015
12-1018	Delaware State University	2012	9/21/2015
12-1019	Georgetown University	2012	9/21/2015
12-1020	Northeastern Illinois University	2012	9/21/2015
12-1021	State of Colorado	2012	9/21/2015
12-1022	State of Connecticut	2012	9/21/2015
12-1023	State of Florida	2012	9/21/2015
12-1028	The Ecological Society of America	2012	9/21/2015
12-1029	Emory University	2012	9/21/2015

12-1030	Indian Nations Conservation Alliance	2012	9/21/2015
12-1032	State Of Colorado	2012	9/21/2015
12-1035	University of Puerto Rico	2012	9/21/2015
12-1037	Africare	2012	9/21/2015
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
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
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
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

A-133 audit reviews for the grantees listed below, are still in progress for 2016.

Audit Report No.	**Institution**	**Year Ending**
10-1038	University Of Illinois	2010
11-1032	University Of Illinois	2011
11-1013	Lincoln University	2011
12-1025	University Of Illinois	2012
225299	Growing Power, Inc.	2013
128562	Pacific Gateway Center	2013
212629	South Carolina State University	2014
108238	Blackfeet Community College	2014

OIG Reports

The audits below were completed during fiscal year 2015.

OIG Audit Report Number	Audit Report Name
050703-01-23	Trade Adjustment Assistance for Farmers Program. NIFA final actions to address recommendations accepted 06/26/2015.

The audits below are ongoing in fiscal year 2016.

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 2015.

GAO Report Number	Report Name
GAO Job Code 131224	Federal Stem Research Data Survey. Final report issued 03/17/2015.
GAO Job Code 250774	Small Business Venture Capital. Final report issued 11/20/2014.
GAO Job Code 361591	Small Business Research Programs: Challenges Remain in Reporting. Final report issued 04/15/2015.

The reports below are ongoing in 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 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 131333	Women in Federal STEM Research final report issued 12/15/2015.
GAO Job Code 240741	Consumer Product Safety Duplication, Overlap and Fragmentation
GAO Job Code 361628	Federal Research Requirements

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Available Funds and Staff Years (SYs)

(Dollars in thousands)

Item	2014 Actual		2015 Actual		2016 Enacted		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
National Institute of Food and Agriculture:								
Discretionary Appropriations	-	-	-	-	-		$1,378,889	401
Mandatory Appropriations	-	-	-	-	-	-	145,000	-
Biomass Research and Development Initiative:								
Mandatory Appropriations	$3,000	-	$3,000	-	$3,000	-	3,000	-
Research and Education Activities:								
Discretionary Appropriations	777,644	229	791,953	221	824,391	236	-	-
Extension Activities:								
Discretionary Appropriations	469,191	145	471,691	145	475,891	148	-	-
Mandatory Appropriations	60,000	-	25,000	-	45,000	-	-	-
Integrated Activities:								
Discretionary Appropriations	35,317	6	30,900	5	30,900	6	-	-
Mandatory Appropriations	100,000	-	100,000	-	100,000	-	-	-
Sequestration	-360	-	-9,344	-	-10,064	-	-	-
Rescission	-	-	-	-	-	-	-	-
Adjusted Appropriation	1,444,792	380	1,413,200	371	1,469,118	390	1,526,889	401
Transfers In (Congressional Relations)	102	-	102	-	-	-	-	-
Balance Available, Start of Year	244,767	-	393,958	-	394,128	-	-	-
Other Adjustments	14,642	-	29,422	-	-	-	-	-
Total Available	1,704,303	380	1,836,682	371	1,863,246	390	1,526,889	401
Lapsing Balances	-38	-	-814	-	-	-	-	-
Balance Available, End of Year	-393,958	-	-394,128	-	-	-	-	-
Obligations	1,310,307	-	1,441,740	-	1,863,246	-	1,526,889	-
Other Appropriations:								
Biodiesel Fuel Education Program	1,000	-	927	-	932	-	1,000	-
Community Food Projects Program	5,000	-	9,000	-	9,000	-	9,000	-
Total, Other Appropriations	6,000	-	9,927	-	9,932	-	10,000	-
Total, Appropriations	1,316,307	-	1,451,667	-	1,873,178	-	1,536,889	-
Obligations under other USDA appropriations:								
Research and Education Activities:								
Agricultural Research Service:								
Biotechnology Risk Assessment	1,447	-	1,560	-	1,447	-	1,447	-
National Atmospheric Deposition Program	-	-	7					
Agricultural Marketing Service:								
Salary, Benefits and Operating Expenses for Detailees	-	-	18	-	-	-	-	-
Forest Service:								
Biotechnology Risk Assessment	108	-	108	-	63	-	63	-
Salary, Benefits and Operating Expenses for Detailees	9	-	-	-	-	-	-	-
National Atmospheric Deposition Program	220	-	223	-	200	-	200	-
Foreign Agricultural Service:								
Salary, Benefits and Operating Expenses for Detailees	17	-	8	-	-	-	-	-
Office of the Chief Scientist:								
Salary, Benefits and Operating Expenses for Detailees	-	-	133	-	-	-	-	-
Various agencies sharing cost of the USDA Small Business Innovation Research Program (SBIR)	2,208	-	2,765	-	2,208	-	2,208	-
Various research agencies sharing cost of the Current	-	-	-	-	-	-	-	-
Research Information System (CRIS)	640	-	640	-	640	-	640	-
Other Anticipated Reimbursements	-	-	0	-	1,000	-	1,000	-
Subtotal, Res./Ed. Other USDA Appropriations	4,649	-	5,462	-	5,558	-	5,558	-

Item	2014 Actual		2015 Actual		2016 Enacted		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Extension Activities:								
Agricultural Marketing Service:								
Grant Writing Workshop	1,000	-	-	-	-	-	-	-
AAPI/Hmong Resource Center	25	-	-	-	-	-	-	-
Local Food Resource Mapping	-	-	880					
Food and Nutrition Service:								
Study SNAP-Ed Activities	4,000	-	2,000	-	-	-	-	-
Food Safety and Inspection Service:								
Study SNAP-Ed Activities	-	-	18	-	-	-	-	-
Forest Service:								
RREA-National Focus Fund Program	-	-	-	-	300	-	-	-
Natural Resources Conservation Service:								
AAPI/Hmong Resource Center	100	-	-	-	-	-	-	-
Rural Development:								
AAPI/Hmong Resource Center	100	-	100	-	-	-	-	-
Other Anticipated Reimbursements:	-	-	-	-	2,000	-	2,000	-
Subtotal, Extension Other USDA Appropriations	5,225	-	2,998	-	2,300	-	2,000	-
Total, NIFA Other USDA Appropriations	9,874	-	8,460	-	7,858	-	7,558	-
Other Federal Funds:								
Research and Education Activities:								
US Air Force:								
KSU-USAF 2014 FAP Research Project	2,268	-	1,965	-	-	-	-	-
Reduce Victims Risk of Repeat Sexual Assault/Assault	400	-	2,640	-	-	-	-	-
US Air Force Traumatic Brain Injury	681	-	1,498	-	-	-	-	-
Army Corps of Engineers:								
Enhanced the Inland Waterways Module of RECONS	121	-	-	-	-	-	-	-
Road Mapping & Attribute Data Collection Pilot	83	-	-	-	-	-	-	-
Recreation Survey Review	83	-	-	-	-	-	-	-
Department of Commerce:			-		-			
NOAA National Atmospheric Deposition Program	231	-	235	-	235	-	235	-
Department of Defense:								
Support Students of Military Service Members	400	-	-	-	-	-	-	-
Gifted Education Program	400	-	-	-	-	-	-	-
Navy/4-H Military Partnership and Outreach and Support	-	-	550	-	-	-	-	-
Expanding High Quality Preschool Access	350	-	-	-	-	-	-	-
FAP Commanders & Seniors Enlisted Training Project	500	-	-	-	-	-	-	-
Evaluation Plan Development for DoD Care & Development for Children & Yo	500	-	-	-	-	-	-	-
DoD Family Program Evaluation Plan Development/Implementation Project	1,500	-	-	-	-	-	-	-
EFMP Benchmark Study	200	-	-	-	-	-	-	-
Ready & Resilient Program/Portfolio Evaluation	204	-	-	-	-	-	-	-
Environmental Protection Agency:								
National Atmospheric Deposition Program	478	-	639	-	639	-	639	-
Department of Interior:								
Geological Survey, National Atmospheric Deposition Program	670	-	604	-	604	-	604	-
National Park Service, National Atmospheric Deposition Program	409	-	409	-	409	-	409	-
Bureau of Land Management, National Trends Network	57	-	54	-	54	-	54	-
Tennessee Valley Authority:								
Support of National Trends Network	28	-	-	-	-	-	-	-
Other Anticipated Reimbursements	-	-	-	-	5,538	-	5,538	-
Subtotal, Res./Educ. Other Federal Funds	9,563	-	8,594	-	7,479	-	7,479	-

Item	2014 Actual		2015 Actual		2016 Enacted		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Other Federal Funds:								
Extension Activities:								
Department of Defense:								
Army Reserve Family Readiness Programs	1,000	-	-	-	1,000	-	-	-
Army Substance Abuse Program, Ft-Hood	64	-	-	-	-	-	-	-
Army/4-H Military Partnership	-	-	1,100	-	500	-	500	-
Army Youth Development Program	500	-	-	-	500	-	500	-
Air Force Partnership & Outreach and Support	900	-	1,800	-	1,800	-	1,800	-
Air Force Family Advocacy Program (Kanas)	-	-	-	-	1,800	-	1,800	-
Community Info Service/Survivor Outreach Program, Ft. Hood	-	-	-	-	500	-	-	-
Community Early Monitoring & Warning System Behavior Health	4,000	-	-	-	-	-	-	-
Child Care Curriculum Project	-	-	-	-	-	-	-	-
Clearinghouse for Military Family Readiness	2,510	-	3,160	-	2,500	-	2,000	-
Continuation of Military Extension Internship Program	550	-	-	-	-	-	-	-
Cost Benefit/Effectiveness Analysis of Army Community Services	-	-	548	-	-	-	-	-
Development of Math Curriculum Model Units	-	-	400	-	-	-	-	-
Family Life Skills, Fort Bliss (TX AgriLife Extension Services)	1,203	-	1,222	-	1,039	-	1,039	-
Family Life Skills, Ft, Campbell	370	-	-	-	-	-	-	-
Family Advocacy Program Incident Determination Committee	-	-	2,000	-	-	-	-	-
Family Advocacy Program Ft. Sam Houston	381	-	-	-	-	-	-	-
Family Advocacy Program and New Parent Support, Fort Hood	1,363	-	1,371	-	-	-	-	-
Family Advocacy Victim Advocacy Tutorial	-	-	158	-	-	-	-	-
Familes with Special Needs/EFMPs Educationa Directory Maintenance	110	-	-	-	-	-	-	-
Military Family Learning Network eXtension	1,577	-	2,439	-	2,439	-	2,439	-
Military Family Learning Networks Leadership & Core Support	830	-	-	-	-	-	-	-
Project YES	440	-	-	-	-	-	-	-
Project Military REACH	660	-	660	-	660	-	660	-
Adventure Camps	880	-	880	-	500	-	-	-
Relocation Assistance Program, Ft. Hood	79	-	160	-	55	-	-	-
Staffing Costs Ft. Drum Army Community Services	862	-	-	-	-	-	-	-
Substance Abuse Program Ft. Sam Houston	403	-	-	-	375	-	-	-
Substance Abuse Program Joint Base San Antonio, TX	0	-	409	-	409	-	409	-
Substance Abuse Program Ft. Hood	436	-	430	-	310	-	-	-
Support of the Substance Abuse Program	-	-	-	-	-	-	-	-
Teen Adventure Camps	1,210	-	-	-	880	-	-	-
Virtual Lab School	1,100	-	-	-	1,000	-	1,000	-
Department of Health and Human Services:								
Extension Disaster Education Network	-	-	-	-	-	-	-	-
Education and Outreach for the Health Insurance	750	-	-	-	-	-	-	-
Department of Housing and Urban Development:								
IPM Training to Public Housing Authorities	300	-	300	-	300	-	300	-
Healthy Homes	250	-	250	-	250	-	250	-
Department of Interior:								
Fish and Wildlife 4-H Award	-	-	-	-	-	-	-	-
U.S. Department of Navy:								
Extension System-Military Partnership Virtual Lab School	-	-	1,350	-	1,000	-	1,000	-
Navy/4-H Military Partnership and Outreach and Support	-	-	1,282	-	1,000	-	1,000	-
Child Care Training & Technical Assistance	3,300	-	-	-	-	-	-	-
Navy Youth Sports and Fitness Project	2,755	-	-	-	-	-	-	-
Other Anticipated Reimbursements	-	-	-	-	3,000	-	4,500	-
Subtotal, Extension Other Federal Funds	28,783	-	19,919	-	21,817	-	19,197	-
Total, NIFA Other Federal Funds	38,346	-	28,513	-	29,296	-	26,676	-
Total, NIFA Available Funds	1,364,527	380	1,488,640	371	1,910,332	390	1,571,123	401

The Native American Interest Endowment Fund is included in the Research and Education Activities Discretionary Appropriations amount.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Permanent Positions by Grade and Staff Year Summary

Item	2014 Actual Wash. D.C.	2015 Actual Wash. D.C.	2016 Enacted Wash. D.C.	2017 Estimate Wash. D.C.
Senior Executive Service.....	8	8	8	8
GS-15.....	74	72	73	73
GS-14.....	52	52	53	55
GS-13.....	54	63	64	65
GS-12.....	71	75	77	79
GS-11.....	28	29	31	34
GS-10.....	5	6	6	6
GS-9.....	29	21	25	28
GS-8.....	12	13	16	16
GS-7.....	37	36	40	40
GS-6.....	9	7	9	9
GS-5.....	7	5	6	6
GS-4.....	2	3	3	3
GS-3.....	2	1	1	1
GS-2.....	0	0	0	0
Total Permanent Positions.....	390	391	412	423
Unfilled, EOY	-29	-38	-19	-11
Total, Perm. Full-Time Employment, EOY	361	353	393	412
Staff Year Estimate.....	380	371	390	401

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Appropriation Language

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

National Institute of Food and Agriculture

For payments to agricultural experiment stations, for cooperative forestry and other research, for facilities, for payments to States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, Micronesia, the Northern Marianas, and American Samoa for cooperative extension activities, for integrated activities, for research, education, and extension grant programs, including necessary administrative expenses, and for other expenses, $1,373,974,000, which shall be for the purposes, and in the amounts, specified in the table titled "National Institute of Food and Agriculture" in the report accompanying this Act: *Provided*, That funds for research grants for 1994 institutions, education grants for 1890 institutions, the agriculture and food research initiative, veterinary medicine loan repayment, grants management systems, Hispanic serving institutions education grants, tribal college education equity grants, Alaska native-serving and native Hawaiian-serving institutions, grants for insular areas, extension services at 1994 institutions, and facility improvements at 1890 institutions 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: *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: *Provided further*, That funds for the Food and Agriculture Defense Initiative shall remain available until September 30, 2018: *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).

Research and Education Activities

[For payments to agricultural experiment stations, for cooperative forestry and other research, for facilities, and for other expenses, $819,685,000, 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 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.]

Hispanic-Serving Agricultural Colleges and Universities Endowment Fund

For the Hispanic-Serving Agricultural Colleges and Universities Endowment Fund under section 1456(b) (7 U.S.C. 3243(b)) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977, $10,000,000, to remain available until expended.

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, to remain available until expended.

[Extension Activities]

[For payments to States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, Micronesia, the Northern Marianas, and American Samoa, $475,891,000, which shall be for the purposes, and in the amounts, specified in the table titled "National Institute of Food and Agriculture, Extension Activities" described 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.]

[Integrated Activities]

[For the integrated research, education, and extension grants programs, including necessary administrative expenses, $30,900,000, 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: *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 change adds the Hispanic-Serving Agricultural Colleges and Universities Endowment Fund and retains the Native American Institutions Endowment Fund in the research and education account. It also deletes the remaining language contained in separate research and education, extension, and integrated accounts and incorporates the language into one agency account.

In 1994, the Extension Service (ES) and Cooperative State Research Service (CSRS) were merged into the Cooperative State Research, Education, and Extension Service (CSREES) which in 2009 became the National Institute of Food and Agriculture as required by the 2008 Farm Bill. ES and CSRS each had their own appropriations account. After the 1994 merger, the ES account was renamed Extension Activities and the CSRS account was renamed Research and Education Activities. The 1998 Farm Bill established a new Integrated Research, Education, and Extension Competitive Grants Program (Section 406). An Integrated Activities account

was established in FY 2000 for programs funded under this authority. Since then NIFA has been working to integrate research, education, and extension activities across many of its programs.

NIFA proposes to organize the funding lines within a single NIFA account rather than the current three accounts. Merging all funding lines within a single account structure will mirror the organization as a National Institute with a unified mission and offer opportunities to streamline administration of funds. Having a single appropriation account will reduce the complexity of the account structure by reducing the number of financial accounts by at least half thereby allowing for greater transparency into NIFA's administrative expenses. This will contribute to simplifying operational procedures and reduce staff time that is currently dedicated to managing multiple accounts, potentially reducing time spent on administration. The merge will not impact the function or funding level of any program, but it will help simplify the management of funds within the financial systems.

Lead-Off Tabular Statement

Budget Estimate, 2017	$1,373,974,000
2016 Enacted	1,326,476,000
Change in Appropriation	+ 47,498,000

Summary of Increases and Decreases

(Dollars in thousands)

	2014 Actual	2015 Change	2016 Change	2017	Change	2017 Estimate
Discretionary Appropriations:						
Hatch Act	$243,701	-	-		-	$243,701
McIntire-Stennis Cooperative Forestry Research Program	33,961	-	-		-	33,961
Evans-Allen Payments to 1890 Colleges and Tuskegee University	52,485	-	+$1,700		+$3,815	58,000
Animal Health and Disease Research, Section 1433	4,000	-	-		-4,000	-
Special Research Grants:						
Other Special Research Grants	2,700	-	+650		-3,350	-
Agroclimatology (Global Change)	1,405	-	-		-	1,405
Improved Pest Control:						
Minor Crop Pest Mgmt, IR-4	11,913	-	-		-	11,913
Food & Ag Res Program for Military Vets	-	-	-		+2,500	2,500
Critical Agricultural Materials Act of 1984	1,081	-$1,081	-		-	-
Alfalfa Forage and Research Program	1,350	-	+650		-2,000	-
Aquaculture Centers, Section 1475	4,000	-	-		-4,000	-
Sustainable Agriculture	22,667	-	+2,000		+5,300	29,967
1994 Institutions Research Program	1,801	-	-		+2,113	3,914
Supplemental and Alternative Crops, Section 1473D	825	-	-		-825	-
Capacity Building for Non-Land Grant Colleges of Agriculture	4,500	-	+500		-5,000	-
Agriculture and Food Research Initiative	316,409	+8,591	+25,000		+25,000	375,000
Farm Business Management and Benchmarking Program	1,450	-	-		-1,450	-
Sun Grant Program	2,500	-	-		-2,500	-
Federal Administration (direct appropriation):						
Grants Management Systems	7,830	-	-		+1,960	9,790
GSA Rent and DHS Security Expenses	-	+6,311	-351		-5,960	a/
General Administration	14,108	+84	+162		+7,277	21,631
Ag in the Classroom	552	-	-		-552	-

a/ Funds for rent and security costs are shifted to the General Administration funding line in 2017.

	2014 Actual	2015 Change	2016 Change	2017	Change	2017 Estimate
Higher Education:						
Inst. Challenge, Multicultural Scholars, and Graduate Fellowship Grants	9,000	-	-		-9,000	-
1890 Institution Capacity Building Grants	19,336	-	-		+11,074	30,410
Hispanic Serving Institutions Education Grants Program	9,219	-	-		-	9,219
Tribal Colleges Education Equity Grants Program	3,439	-	-		+215	3,654
Secondary/2-Year Post Secondary	900	-	-		-900	-
Veterinary Medical Services Act	4,790	+210	-		-	5,000
Veterinary Services Grant Program	-	-	+2,500		-2,500	-
Alaska Native-serving and Native Hawaiian-Serving Institutions	3,194	-	-		-	3,194
Grants for Insular Areas	1,800	+200	-		-200	1,800
Smith-Lever Sections 3(b) and 3(c)	300,000	-	-		-	300,000
1890 Colleges, Tuskegee Univ. & WV State Univ	43,920	-	+1,700		+2,730	48,350
Smith-Lever, Section 3(d) Programs:						
Farm Safety and Youth Farm Safety Education and Certification	4,610	-	-		-	4,610
Expanded Food and Nutrition Education Program	67,934	-	-		+100	68,034
Federally Recognized Tribes Extension	3,039	-	-		+2,800	5,839
New Technologies for Ag Extension	1,550	-	-		-1,550	-
Youth at Risk	8,395	-	-		-	8,395
Home Visits for Remote Areas	-	-	-		+20,000	20,000
Rural Health and Safety Education	1,500	-	-		-1,500	-
1890 Facilities Grants (Sec. 1447)	19,730	-	-		+1,973	21,703
Grants to Youth Organizations	-	-	-		+1,000	1,000
Food Safety Outreach	-	+2,500	+2,500		-	5,000
Renewable Resources Extension Act (RREA)	4,060	-	-		-	4,060
Extension Services at the 1994 Institutions	4,446	-	-		+2,278	6,724
Food Animal Residue Avoidance Database	1,250	-	-		-1,250	-
Women and Minorities in STEM Fields	400	-	-		-400	-
Food Agriculture Defense Initiative (Homeland Security)	6,680	+20	-		+3,300	10,000
Water Quality	4,500	-4,500	-		-	-
Crop Protection/Pest Management	17,143	+57	-		+3,000	20,200
Organic Transition Program	4,000	-	-		-	4,000
Methyl Bromide Transition Program	1,996	+4	-		-2,000	-
Regional Rural Development Centers Program	998	+2	-		-	1,000
Total Discretionary Appropriations	1,277,067	+12,398	+37,011		+47,498	1,373,974
Endowment Funds:						
Native American Institutions Endowment Fund	11,880	-	-		-	11,880
Native American Institutions Endowment - Interest Earned	(5,085)	(-6)	(-373)		(+209)	(4,915)
Hispanic Serving Agricultural Colleges and Universities	-	-	-		+10,000	10,000
Total Endowment Funds	11,880	-	-		10,000	21,880
Total Funds	1,288,947	+12,398	+37,011		+57,498	1,395,854

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

(On basis of adjusted appropriations)
(Dollars in thousands and Staff Years (SYs))

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Appropriations:										
Hatch Act	$243,701	-	$243,701	-	$243,701	-	-	-	$243,701	-
McIntire-Stennis Cooperative Forestry Research Program	33,961	-	33,961	-	33,961	-	-	-	33,961	-
Evans-Allen Payments to 1890 Colleges and Tuskegee University	52,485	-	52,485	-	54,185	-	+3,815	-	58,000	-
Animal Health and Disease Research, Section 1433	4,000	-	4,000	-	4,000	-	-4,000	-	-	-
Special Research Grants										
Other Special Research Grants	2,700	-	2,700	-	3,350	-	-3,350	-	-	-
Agroclimatology (Global Change)	1,405	-	1,405	-	1,405	-	-	-	1,405	-
Total Special Research Grants	4,105	-	4,105	-	4,755	-	-3,350	-	1,405	-
Minor Crop Pest Mgmt, IR-4	11,913	-	11,913	-	11,913	-	-	-	11,913	-
Food & Ag Res Program for Military Vets	-	-	-	-	-	-	+2,500	-	2,500	-
Critical Agricultural Materials Act of 1984	1,081	-	-	-	-	-	-	-	-	-
Alfalfa Forage and Research Program	1,350	-	1,350	-	2,000	-	-2,000	-	-	-
Aquaculture Centers, Section 1475	4,000	-	4,000	-	4,000	-	-4,000	-	-	-
Sustainable Agriculture	22,667	-	22,667	-	24,667	-	+5,300	-	29,967	-
1994 Institutions Research Program	1,801	-	1,801	-	1,801	-	+2,113	-	3,914	-
Supplemental and Alternative Crops, Section 1473D	825	-	825	-	825	-	-825	-	-	-
Capacity Building for Non-Land Grant Colleges of Agriculture	4,500	-	4,500	-	5,000	-	-5,000	-	-	-
Agriculture and Food Research Initiative	316,409	-	325,000	-	350,000	-	+25,000	-	375,000	-
Farm Business Management and Benchmarking Program	1,450	-	1,450	-	1,450	-	-1,450	-	-	-
Sun Grant Program	2,500	-	2,500	-	2,500	-	-2,500	-	-	-
Federal Administration (direct appropriation):										
Grants Management Systems	7,830	-	7,830	-	7,830	-	+1,960	-	9,790	-
GSA Rent and DHS Security Expenses	-		6,311		5,960		-5,960		a/	
General Administration	14,108	-	14,192	-	14,354	-	+7,277	-	21,631	-
Ag in the Classroom	552	-	552	-	552	-	-552	-	-	-
Total Federal Administration	22,490	-	28,885	-	28,696	-	+2,725	-	31,421	-

a/ Funds for rent and security costs are shifted to the General Administration funding line in 2017.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

(On basis of adjusted appropriations)
(Dollars in thousands and Staff Years (SYs))

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Higher Education:										
Inst. Challenge, Multicultural Scholars, and Graduate Fellowship Grants	9,000	-	9,000	-	9,000	-	-9,000	-	-	-
1890 Institution Capacity Building Grants	19,336	-	19,336	-	19,336	-	+11,074	-	30,410	-
Hispanic Serving Institutions Education Grants Program	9,219	-	9,219	-	9,219	-	-	-	9,219	-
Tribal Colleges Education Equity Grants Program	3,439	-	3,439	-	3,439	-	+215	-	3,654	-
Secondary/2-Year Post Secondary	900	-	900	-	900	-	-900	-	-	-
Veterinary Medical Services Act	4,790	-	5,000	-	5,000	-	-	-	5,000	-
Veterinary Services Grant Program	-	-	-		2,500	-	-2,500	-	-	-
Alaska Native-serving and Native Hawaiian-Serving Institutions	3,194	-	3,194	-	3,194	-	-	-	3,194	-
Grants for Insular Areas	1,800	-	2,000	-	2,000	-	-200	-	1,800	-
Total Higher Education Grants	51,678	-	52,088	-	54,588	-	-1,311	-	53,277	-
Endowment Funds:										
Native American Institutions Endowment Fund	(11,880)	-	(11,880)	-	(11,880)	-	-	-	(11,880)	-
Native American Institutions Endowment - Interest Earned	5,085	-	5,079	-	4,706	-	+209	-	4,915	-
Hispanic Serving Agricultural Colleges and Universities	-	-	-	-	-	-	(10,000)	-	(10,000)	-
Total Endowment Fund	5,085	-	5,079	-	4,706	-	+209	-	4,915	-
Smith-Lever Sections 3(b) and 3(c)	300,000	-	300,000	-	300,000	-	-	-	300,000	-
1890 Colleges, Tuskegee Univ. & WV State Univ	43,920	-	43,920	-	45,620	-	+2,730	-	48,350	-
Smith-Lever, Section 3(d) Programs:										
Farm Safety and Youth Farm Safety Education and Certif	4,610	-	4,610	-	4,610	-	-	-	4,610	-
Expanded Food and Nutrition Education Program	67,934	-	67,934	-	67,934	-	+100	-	68,034	-
Federally Recognized Tribes Extension	3,039	-	3,039	-	3,039	-	+2,800	-	5,839	-
New Technologies for Ag Extension	1,550	-	1,550	-	1,550	-	-1,550	-	-	-
Youth at Risk	8,395	-	8,395	-	8,395	-	-	-	8,395	-
Home Visits for Remote Areas	-	-	-	-	-	-	20,000	-	20,000	-
Total Section 3(d) Programs	85,528	-	85,528	-	85,528	-	+21,350	-	106,878	-

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

(On basis of adjusted appropriations)
(Dollars in thousands and Staff Years (SYs))

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Rural Health and Safety Education	1,500	-	1,500	-	1,500	-	-1,500	-	-	-
1890 Facilities Grants (Sec. 1447)	19,730	-	19,730	-	19,730	-	+1,973	-	21,703	-
Grants to Youth Organizations	-	-	-	-	-	-	+1,000	-	1,000	-
Food Safety Outreach	-	-	2,500	-	5,000	-	-	-	5,000	-
Renewable Resources Extension Act (RREA)	4,060	-	4,060	-	4,060	-	-	-	4,060	-
Extension Services at the 1994 Institutions	4,446	-	4,446	-	4,446	-	+2,278	-	6,724	-
Food Animal Residue Avoidance Database	1,250	-	1,250	-	1,250	-	-1,250	-	-	-
Women and Minorities in STEM Fields	400	-	400	-	400	-	-400	-	-	-
Food Agriculture Defense Initiative (Homeland Security)	6,680	-	6,700	-	6,700	-	+3,300	-	10,000	-
Water Quality	4,500	-	-	-	-	-	-	-	-	-
Crop Protection/Pest Management	17,143	-	17,200	-	17,200	-	+3,000	-	20,200	-
Organic Transition Program	4,000	-	4,000	-	4,000	-	-	-	4,000	-
Methyl Bromide Transition Program	1,996	-	2,000	-	2,000	-	-2,000	-	-	-
Regional Rural Development Centers Program	998	-	1,000	-	1,000	-	-	-	1,000	-
Subtotal, Discretionary Appropriations	1,282,152	-	1,294,544	-	1,331,182	-	47,707	-	1,378,889	-
Mandatory Appropriations:										
Food Insecurity Nutrition Incentive	35,000	-	-	-	18,640	-	+1,360	-	20,000	-
Biomass R&D Initiative	3,000	-	2,781		2,796		+204	-	3,000	-
Risk Management Education Program	4,640	-	4,635	-	4,660	-	+340	-	5,000	-
Beginning Farmers and Ranchers	20,000	-	18,540	-	18,640	-	+1,360	-	20,000	
Emergency Citrus Disease Research	25,000	-	23,175	-	23,300	-	+1,700	-	25,000	-
Specialty Crop Grant Program	55,000	-	50,985	-	51,260	-	+3,740	-	55,000	-
Organic Research and Extension Initiative	20,000	-	18,540	-	18,640	-	+1,360	-	20,000	-
Total Adjusted Appropriation	1,444,792	-	1,413,200	-	1,469,118	-	+57,771	-	1,526,889	-
Rescissions, Transfers, and Seq. (Net)	360	-	9,344	-	10,064	-	-10,064	-	-	-
Total Appropriation	1,445,152	-	1,422,544	-	1,479,182	-	47,707	-	1,526,889	-
Transfers In:										
Congressional Relations	102	-	102	-	-	-	-	-	-	-
Total	102	-	102	-	-	-	-	-	-	-
Rescission	-	-	-	-	-	-	-	-	-	-
Sequestration	-360	-	-9,344	-	-10,064	-	+10,064	-	-	-
Balance Available, SOY	244,766	-	393,957	-	394,128	-	-394,128	-	-	-
Recoveries, Other (Net)	14,642	-	29,423	-	-	-	-	-	-	-
Total Available	1,704,302	-	1,836,682	-	1,863,246	-	-336,357	-	1,526,889	-
Lapsing Balances	-38	-	-814	-	-	-	-	-	-	-
Balance Available, EOY	-393,957	-	-394,128	-	-	-	-	-	-	-
Total Obligations	1,310,307	380	1,441,740	371	1,863,246	390	-336,357	+11	1,526,889	401

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

Obligations Detail and Staff Years (SYs)

(Dollars in Thousands)

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Discretionary Appropriations:										
Hatch Act	243,681	-	243,421	-	$243,701	-	-	-	$243,701	-
McIntire-Stennis Cooperative Forestry Research Program	33,961	-	33,961	-	33,961	-	-	-	33,961	-
Evans-Allen Payments to 1890 Colleges and Tuskegee University	52,485	-	52,485	-	54,185	-	+3,815	-	58,000	-
Animal Health and Disease Research, Section 1433	4,000	-	4,000	-	4,000	-	- -4,000	- -	-	-
Special Research Grants										
Other Special Research Grants	2,700	-	2,700	-	3,350	-	-3,350	-	-	-
Agroclimatology (Global Change)	1,405	-	1,405	-	1,405	-	-	-	1,405	-
Total Special Research Grants	4,105	-	4,105	-	4,755	-	-3,350	-	1,405	-
Improved Pest Control										
Minor Crop Pest Mgmt, IR-4	11,913	-	11,913	-	11,913	-	-	-	11,913	-
Total Improved Pest Control	11,913	-	11,913	-	11,913	-	-	-	11,913	-
Food & Ag Res Program for Military Vets	-	-	-	-	-	-	+2,500	-	2,500	-
Critical Agricultural Materials Act of 1984	1,095	-	-	-	33	-	-33	-	-	-
Alfalfa Forage and Research Program	1,350	-	1,350	-	2,000	-	-2,000	-	-	-
Aquaculture Centers, Section 1475	4,000	-	4,000	-	4,000	-	-4,000	-	-	-
Sustainable Agriculture	22,667	-	22,667	-	24,667	-	+5,300	-	29,967	-
1994 Institutions Research Program	1,189	-	3,106	-	2,269	-	+1,645	-	3,914	-
Supplemental and Alternative Crops, Section 1473D	825	-	825	-	825	-	-825	-	-	-
Capacity Building for Non-Land Grant Colleges of Agriculture	180	-	4,490	-	9,330	-	-9,330	-	-	-
Agriculture and Food Research Initiative	286,885	-	305,597	-	656,667	-	-281,667	-	375,000	-
Farm Business Management and Benchmarking Program	1,450	-	1,450	-	1,450	-	-1,450	-	-	-
Sun Grant Program	2,500	-	2,500	-	2,500	-	-2,500	-	-	-
Federal Administration (direct appropriation):										
Grants Management Systems	7,830	-	7,830	-	7,830	-	+1,960	-	9,790	-
GSA Rent and DHS Security Expenses a/	-		5,801		5,960		-5,960		-	
General Administration	14,156	-	14,293	-	14,354	-	+7,277	-	21,631	-
Ag in the Classroom	552	-	552	-	552	-	-552	-	-	-
Total Federal Administration	22,538	-	28,476	-	28,696	-	+2,725	-	31,421	-

a/ Funds for rent and security costs are shifted to the General Administration funding line in 2017.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

Obligations Detail and Staff Years (SYs)

(Dollars in Thousands)

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Higher Education:										
Inst. Challenge, Multicultural Scholars, and Graduate Fellowship Grants	10,210	-	3,865		18,256		-18,256		-	-
1890 Institution Capacity Building Grants	20,504	-	19,336		19,785		+10,625		30,410	-
Hispanic Serving Institutions Education Grants Program	9,219	-	9,219		9,219		-		9,219	-
Tribal Colleges Education Equity Grants Program	3,439	-	3,439		3,439		+215		3,654	-
Secondary/2-Year Post Secondary	900	-	900		900		-900		-	-
Veterinary Medical Services Act	1,801	-	4,888		12,529		-7,529		5,000	-
Veterinary Services Grant Program	-	-	-		2,500		-2,500		-	-
Alaska Native-serving and Native Hawaiian-Serving Institutions	2,954	-	3,194		3,194		-		3,194	-
Grants for Insular Areas	1,800	-	2,000		2,000		-200		1,800	-
Total Higher Education Grants	50,827	-	46,841	-	71,822	-	-18,545	-	53,277	-
Endowment Funds:										
Native American Institutions Endowment Fund	(11,880)	-	(11,880)	-	(11,880)	-	-	-	(11,880)	-
Native American Institutions Endowment - Interest Earned	5,580	-	6,516	-	4,706	-	+209	-	4,915	-
Hispanic Serving Agricultural Colleges and Universities	-	-	-	-	-	-	(10,000)	-	(10,000)	-
Total Endowment Fund	5,580	-	6,516	-	4,706	-	+209	-	4,915	-
Smith-Lever Sections 3(b) and 3(c)	299,982	-	300,000	-	300,000	-	-	-	300,000	-
1890 Colleges, Tuskegee Univ. & WV State Univ	43,920	-	43,920	-	45,620	-	+2,730	-	48,350	-
Smith-Lever, Section 3d Programs:										
Farm Safety and Youth Farm Safety Education and Cert	4,610	-	4,610	-	4,610	-	-	-	4,610	-
Expanded Food and Nutrition Education Program	67,934	-	67,934	-	67,934	-	+100	-	68,034	-
Federally Recognized Tribes Extension	3,039	-	3,039	-	3,039	-	+2,800	-	5,839	-
New Technologies for Ag Extension	1,550	-	1,550	-	1,550	-	-1,550	-	-	-
Youth at Risk	8,395	-	8,395	-	8,395	-	-	-	8,395	-
Home Visits for Remote Areas	-		-		-		-		20,000	-
Total Section 3d Programs	85,528	-	85,528	-	85,528	-	1,350	-	106,878	-

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Project Statement

Obligations Detail and Staff Years (SYs)

(Dollars in Thousands)

Program	2014 Actual		2015 Actual		2016 Enacted		Inc. or Dec.		2017 Estimate	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Rural Health and Safety Education	1,500	-	1,500	-	1,500	-	-1,500	-	-	-
1890 Facilities Grants (Sec. 1447)	2,901	-	18,424	-	52,381	-	-30,678	-	21,703	-
Grants to Youth Organizations	-	-	-	-	-	-	+1,000	-	1,000	-
Food Safety Outreach	-	-	2,500	-	5,000	-	-	-	5,000	-
Renewable Resources Extension Act (RREA)	4,060	-	4,060	-	4,060	-	-	-	4,060	-
Extension Services at the 1994 Institutions	4,446	-	4,446	-	4,446	-	+2,278	-	6,724	-
Food Animal Residue Avoidance Database	1,250	-	1,250	-	1,250	-	-1,250	-	-	-
Women and Minorities in STEM Fields	400	-	400	-	400	-	-400	-	-	-
Food Agriculture Defense Initiative (Homeland Security)	6,634	-	6,901	-	6,968	-	+$3,032	-	10,000	-
Water Quality	4,500	-	-	-	-	-	-	-	-	-
Crop Protection/Pest Management	17,143	-	17,200	-	17,200	-	+3,000	-	20,200	-
Regional Pest Management Centers	-	-	-	-	-	-	-	-	-	-
Organic Transition Program	4,000	-	4,000	-	4,000	-	-	-	4,000	-
Methyl Bromide Transition Program	1,996	-	2,000	-	2,000	-	-2,000	-	-	-
Regional Rural Development Centers Program	998	-	1,000	-	1,000	-	-	-	1,000	-
Subtotal, Discretionary Obligations	1,230,489	-	1,270,832	-	1,692,833	-	-333,944	-	1,378,889	-
Mandatory Appropriations:										
Food Insecurity Nutrition Incentive	44	-	34,931	-	18,640	-	+1,360	-	20,000	-
Biomass R&D Initiative	41	-	167		11,373		-8,373	-	3,000	-
Risk Management Education Program	4,644	-	4,635	-	4,846	-	+154	-	5,000	-
Beginning Farmers and Ranchers	-	-	36,688	-	18,640	-	1,360	-	20,000	
Emergency Citrus Disease Research	89	-	24,962	-	47,014		-22,014	-	25,000	-
Specialty Crop Grant Program	55,000	-	50,985	-	51,260	-	+3,740	-	55,000	-
Organic Research and Extension Initiative	20,000	-	18,540	-	18,640	-	+1,360	-	20,000	-
Subtotal, Mandatory Obligations	79,818	-	170,908	-	170,413	-	-22,413	-	148,000	-
Total Obligations	1,310,307	-	1,441,740	-	1,863,246	-	-336,357	-	1,526,889	-
Lapsing Balances	38	-	814	-	-	-	-	-	-	-
Balance Available, EOY	393,957	-	394,128	-	-	-	-	-	-	-
Total Available	1,704,302	-	1,836,682	-	1,863,246	-	-336,357	-	1,526,889	-
Transfers In (Congressional Relations)	-102	-	-102	-	-	-	-	-	-	-
Rescission	-	-	-	-	-	-	-	-	-	-
Sequestration	360	-	9,344	-	10,064	-	-10,064	-	-	-
Balance Available, SOY	-244,766	-	-393,957	-	-394,128	-	+394,128	-	-	-
Recoveries, Other (Net)	-14,642	-	-29,423	-	-	-	-	-	-	-
Total Appropriation	1,445,152	380	1,422,544	371	1,479,182	390	47,707	+11	1,526,889	401

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Justification of Increases and Decreases

NIFA research, education, and extension activities support all USDA Strategic Goals.

The activities also support the USDA Research, Education and Economics Mission Area Action Plan goals. Goals include:

- Goal 1. Local and Global Food Supply and Security;
- Goal 2. Responding to Climate and Energy Needs;
- Goal 3. Sustainable Use of Natural Resources;
- Goal 4. Nutrition and Childhood Obesity;
- Goal 5. Food Safety;
- Goal 6. Education and Science Literacy; and
- Goal 7. Rural Prosperity/Rural-Urban Interdependence.

1. An increase of $25,000,000 for Agriculture and Food Research Initiative (AFRI) ($350,000,000 available in 2016) as follows:

   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 more than double food production for a burgeoning population, projected to exceed nine 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 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 is 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, adaptation to impacts of climate change, 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 Program, the Challenge Areas, and the Education and Literacy Initiative (ELI). Research, education, and extension work is supported by AFRI in the six primary Farm Bill program priorities: 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.

   Fundamental research that aligns with the six Farm Bill priority areas is supported by the AFRI Foundational Program. The Foundational 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 Program also will increase the dismal 12 percent funding rate (i.e., the number of grants awarded compared to applications), especially for new investigators, which is critically needed for sustaining a vigorous research enterprise in agricultural sciences. Discoveries made

through research supported by the Foundational Program, in turn, provide the base of knowledge required for subsequent transformative future research, extension, and education programs at NIFA (such as those in the AFRI Challenge Areas) that aim to solve applied problems in the food and agricultural sciences. Thus, the Foundational Program is both complementary and essential to the success of the Challenge Area programs.

Additional high-priority science will be supported in collaboration with other federal science agencies. These interagency programs are aligned with NIFA's relevant Foundational or Challenge Area programs aimed at generating foundational knowledge or directly addressing societal challenges.

Through AFRI grants, NIFA will continue to support government-wide initiatives on antimicrobial resistance (AMR), pollinator health, the bioeconomy, and climate change. This request in FY 2017 seeks to invest AFRI funding at the level of $375 million, including an increase of $25 million for clean energy.

Foundational Program

NIFA will invest $185,934,000 of AFRI funds to support the Foundational Program. In support of Presidential initiatives, approximately $3.8 million will be for *new* grants on antimicrobial resistance (AMR; OMB M-15-16 and M-15-18), $10 million will be for *new* grants on pollinator health to support the government-wide pollinator initiative, and $10 million will be for *new* grants to support the President's Clean Energy Initiative (OMB M-15-16). In addition, the agency will support other Presidential initiatives and OSTP priorities. For example, the Animal Health and Production and Animal Products program area supports research on the emergence of zoonotic diseases (OMB M-15-18), innovation in life sciences, biology and neuroscience (OMB M-15-16), and the microbiome of agricultural animals. The Plant Health and Production and Plant Products program area supports efforts in synthetic biology for agriculture and other innovations in life sciences and biology (OMB M-15-16). Additionally, the Agriculture Economics and Rural Communities program area supports regulatory science for future products of the bioeconomy (OMB M-15-18).

Challenge Areas

- **Water for Food Production Systems Challenge Area:** The AFRI Food Security and Water for Agriculture Challenge Areas are consolidated into a new Challenge Area, Water for Food Production Systems in which NIFA will invest $70 million of AFRI funds in FY 2017 to support projects that address current challenges in agriculture to ensure sustainable production of safe and nutritious food. Globally, we will need to produce 70 percent more food than current levels in order to feed the projected population of 9.5 billion people in 2050. However, ongoing drought and extreme weather events, along with excess moisture and flooding, pose critical challenges to meeting the food production demands in our Nation. Thus, continued funding of research, education, and extension is critical for development of solutions to water availability issues that impact food production. To address these urgent challenges, AFRI will invest $48 million in *new* grants addressing regional- and national-scale issues using systems approaches. Such projects will address improved water availability and conservation, use of alternative water sources, and decreased water requirements for food production systems. Approximately, $22 million will continue support of *existing* grants, of which $11 million will be for grants to improve the health and production of crops and livestock, and $11 million will be for grants to continue research, education, and extension work on water for agriculture initiated in previous years. This work will increase the array of technological and strategic solutions to critical water problems in food production systems and will address the social and economic barriers for adoption of water conservation technologies and practices. 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.

- **Food Safety Challenge Area: A**pproximately $15 million of AFRI funds in the Food Safety Challenge Area will support integrated research, education, and extension projects that protect consumers from microbial and chemical hazards that may be present from "farm-to-fork" along the food chain. The Centers for Disease Control and Prevention estimate that 48 million Americans get sick, 128,000 are hospitalized, and 3,000 die of foodborne illnesses every year.

  As part of the President's National Strategy for Combating Antibiotic Resistant Bacteria (CARB), USDA is charged with the development of practical mitigation strategies to limit or reduce the prevalence of AMR. To achieve this goal, ARS, APHIS, ERS, FSIS, NASS, and NIFA jointly developed a USDA AMR Action Plan (Plan), which calls for these agencies to make combating antibiotic resistance a programmatic and budgetary priority.

  The programs and funding are inextricably linked, allowing USDA to maximize efforts, reduce duplication, and leverage the resources across the agencies in the areas of surveillance, research, education, and extension/outreach. The proposed activities of each Agency are dependent upon the partnering agencies fulfilling their proposed activities; this integrated approach allows the most timely and effective response to the AMR issue.

  Consistent with the Plan, the agencies propose the following for FY 2017. NASS and APHIS will continue to collect cross-sectional and longitudinal data on farm practices and animal health. This information will be combined with information from characterization of biologic samples collected by APHIS and FSIS to evaluate and identify changes in antibiotic usage, production practices, and disease status, and to determine if current and future efforts to impact the use of antibiotics result in reduced prevalence of antibiotic resistance in animal food production and the environment. Building upon this, intramural research conducted by ARS, and competitive extramurally-funded research activities funded by NIFA will lead to better understanding and characterization of effective mitigation strategies for AMR throughout the agro-ecosystem. Data generated from ARS research, and from NIFA-funded research, education, and extension/outreach activities, will be used to inform antimicrobial stewardship efforts conducted both within and external to government. Information from these agencies will support ongoing analysis by ERS of effects of alternative policy scenarios on farm production, profits, and market outcomes.

  In support of CARB (OMB M-15-16 and M-15-18), approximately $8.9 million will support *new* grants that use a systems approach to investigate AMR and the microbiome of soil, air, water, production agriculture, and aquaculture. Approximately $4.8 million will provide continued support for *existing* grants that use integrated approaches to address food contamination by pathogens, toxins, and chemicals occurring through natural or intentional causes along the entire food chain.

- **Childhood Obesity Prevention Challenge Area:** NIFA will invest $25.1 million of AFRI funding in Childhood Obesity Prevention to support innovative and integrated research, education, and extension projects focused on reducing the number of overweight and obese children and adolescents aged 2-19 years. Prevalence rates of overweight and obese children and adolescents have tripled during the past 30 years. Approximately $13.3 million will be for *new* grants to identify and implement effective family, peer, community, and school-based interventions to prevent and reverse overweight and obese trends, and to promote healthy behaviors in children and adolescents. Funding of approximately $11.8 million will be for *existing* grants that provide long-term and sustained strategies to prevent childhood obesity by improving access to healthy food and enhancing the physical activity environments of communities of greatest need.

- **Climate Variability and Change Challenge Area:** The agency will invest $15.4 million of AFRI funds in the Climate Variability and Change Challenge Area to support the President's Global Climate Change Initiative (OMB M-15-16) by funding research in greenhouse gas mitigation and adaptation of agriculture to climate change variability. This program provides the information, technologies, and

decision-support tools to enable crop, animal, forest, rangeland, and urban managers to account for climate variability and achieve long-term sustainability of food and fiber production. Approximately $10.7 million in funds will be for *new* projects that will focus on climate-resilient land use for agriculture and forestry as well as the impact of climate on the microbiome of agricultural production systems. Funding for *existing* grants of approximately $4.7 million will continue to support research, education, and extension projects that will advance understanding on how interactions among climate variability, human activities, and land use will impact the U.S. food and fiber system.

- **Sustainable Bioenergy Challenge Area:** NIFA will invest $42.5 million of available AFRI funds in the Sustainable Bioenergy Challenge Area to support the President's Clean Energy and Advanced Manufacturing Initiatives (OMB M-15-16). NIFA's Sustainable Bioenergy and Bioeconomy portfolio links feedstock development, production, conversion, and markets in the creation of commercial-scale, advanced non-ethanol biofuels and biobased products that are compatible with existing infrastructure. Approximately $32.5 million will be available for *new* grants that focus on biomass crop protection, risk mitigation, and integrating feedstock production with existing production systems. This will include $15 million will be for *new* grants to support the President's Clean Energy Initiative. Additionally, *new* grants will focus on improving feedstock handling logistics and pre-processing technologies, improved water-efficiency and plant breeding in biomass crop production, preprocessing, and conversion of biomass to fuels, chemicals, and products with focus on reducing system-wide water use and efficient wastewater treatment. Approximately $10 million for *existing* grants will continue research, education, and extension work on grasses, willow, and beetle-killed trees as feedstocks for biofuels.

Education and Literacy Initiative (ELI)

NIFA will invest $21 million of FY 2017 AFRI funding in ELI for *new* education and training grants that provide opportunities for students, scientists, and education professionals in order to develop a highly skilled workforce and the next generation of scientists. Recent analyses undertaken by the STEM Food and Ag Council suggest that over 30,000 jobs need to be filled each month in the U.S.; however, only 32,000 degrees are being granted annually in the food, agricultural, natural resources, and human sciences. Yet another study by Purdue University indicates an average of 35,400 new U.S. graduates with expertise in food, agriculture, renewable natural resources, or the environment are expected to fill only approximately 60 percent of the anticipated 57,900 average annual openings. NIFA's approach is to promote the education pipeline continuum by focusing on the following priority areas: (a) provide professional development opportunities for K-12 and community college education professionals to promote engaged learning and positive youth development in their classrooms; (b) broaden experiential learning opportunities for undergraduates to address the 21st century workforce skills necessary to succeed in the food, agriculture, natural resource, and human sciences professions; and (c) support graduate and postgraduate education to cultivate future leaders who are able to address and solve emerging agricultural challenges of the 21st century through innovative solutions. A new addition to the graduate and post-graduate fellowships program are the grants to enhance recruitment and retention of the talented students through peer mentoring and hands-on training. Program areas in ELI collectively support the Presidential initiative on STEM Education (OMB M-15-16) as well as the OSTP priorities for Training Grants in Basic Agricultural Sciences and Research Courses.

2. <u>An increase of $3,815,000 for Capacity/Formula Programs (Research) ($331,847,000 available in 2016) as follows:</u>

   a. <u>Sustained support for Hatch Act ($243,701,000 available in 2016) as follows:</u>

      NIFA's capacity programs are an integral part of its grants portfolio and enable competitiveness of land-grant universities (LGUs) in the food, agricultural, natural resource, and human sciences. An investment 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.

Hatch base Capacity funds 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 and the Nation. 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.

b. Sustained support for McIntire-Stennis Cooperative Forestry ($33,961,000 available in 2016) as follows:

McIntire-Stennis base Capacity 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; carbon sequestration and climate change; 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.

c. An increase of $3,815,000 for Evans-Allen ($54,185,000 available in 2016) as follows:

Evans-Allen Capacity funds are authorized under section 1445 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) to support continuing agricultural research at 1890 land-grant universities and Tuskegee University. The requested increase in funds will enhance innovation and address health issues such as obesity and diabetes in minority communities.

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 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. The additional funding will be leveraged with matching funding from non-Federal sources to support research that will enhance innovation; support the training of African-American students; and address epidemics within minority communities, such as adult and childhood obesity and diabetes.

3. Sustained support for Special Grants ($13,318,000 available in 2016) as follows:

   a. Sustained support for Minor Crop Pest Management, IR-4 ($11,913,000 available in 2016) 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, 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.

   b. Sustained support for Agroclimatology (formerly Global Change, UV-B Monitoring) ($1,405,000 available in 2016) as follows:

      The climatology network includes 38 sites: 35 in the U.S., two in Canada, and one in New Zealand. Base funding for the program supports continuous measurement of Ultraviolet B (UV-B) radiation at all sites, analysis on the damaging effects to agriculture, and providing information on the geographical distribution and temporal trends of UV-B radiation in the US. This is a major contribution of USDA to the U.S. Global Change Research Program and provides the only source of UV-B data directly tied to agricultural production systems. Data is used to support climate forecasting models and assessing the impact of UV-B radiation on ecosystems, human heath, and agricultural production.

4. A decrease of $4,000,000 to eliminate the Aquaculture Centers ($4,000,000 available in 2016) 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 can 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 can be covered through AFRI Foundational program priorities and sub-priorities. NIFA will include priorities within specific program priorities of AFRI RFAs for aquatic species.

5. An increase of $5,300,000 for Sustainable Agriculture Research and Education Program ($24,667,000 available in 2016) 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. Funding will support development of technical guides and handbooks and education and training for CES agents and other agricultural professionals in the university system, the private sector, or other government agencies involved in the education and transfer of technical information concerning sustainable agriculture. 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 has far exceeded its targeted performance levels and is actively engaged in a process to significantly improve future program evaluation efforts.

Additional investment funding is requested to enhance support of beginning farmers and ranchers to adopt sustainable agricultural practices, to provide more flexibility in the size of SARE grants, and to increase support of graduate students in sustainable agriculture. The SARE program provides the Farmer/Rancher Research Grants, which are relatively small awards to test, validate, and disseminate the results for farmer driven innovation. These small grants are especially valuable for early-stage farmers who often have very good ideas but may lack the available resources to adequately test them. Increased funding for SARE will increase the number and size of awards to beginning farmers. The size of these awards has not increased appreciably in over a decade although the cost of conducting research and extension has increased substantially. In addition, sustaining the pipeline of educated agricultural scientists is a critical need for many fields, including sustainable agriculture. SARE has established a unique Graduate Student Research and Education grant program that is producing some very exciting scientific work and, more importantly, is expanding the skill set of the next generation of agricultural scientists. With increased funding we anticipate a 25 percent increase in the number of graduate student awards to 75 per year from the current level of 60 per year.

6. An increase of $2,113,000 for 1994 Research Grants ($1,801,000 available in 2016) 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 climate change, 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.

Increased funds will be used to expand research at 1994 land-grant institutions by enhancing these partnerships, funding basic research instrumentation, and providing student research internships. In FY 2015, only 11 of the 34 active tribal land-grant colleges received funding from this program. With increased funding, these and other 1994 land-grants intuitions will be able to recruit more students for research participation and, as a result, increase the number of graduates prepared for higher degrees in science, technology, engineering, and mathematics (STEM) programs.

*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 at http://www.nifa.usda.gov/funding/pdfs/nlgca_colleges.pdf .)

7. An increase of $2,500,000 for Food and Agriculture Resiliency Program for Military Veterans (FARM-Vets) ($0 available in 2016) as follows:

Funding will be used to promote competition for basic and applied research that explores career opportunities and pathways, therapeutic interventions, resource conservation, and related studies for the veteran population in the food and agriculture sector. Understanding why and how best to engage veterans in the agricultural sector is congruent with the critical need to identify a new generation of farmers, livestock producers, and entrepreneurs as an aging workforce transitions to retirement, especially in rural areas where shortages are acute. Similarly, there is a limited body of research that points to the therapeutic value of working the land in terms of psychological and behavioral health function and benefit. With increasing numbers of veterans presenting traumatic brain injury and post-traumatic stress as a result of the Iraq and Afghanistan wars, determining and encouraging veterans' motivations for engaging in forestry, hunting, fishing, and other nature-based recreational, wildlife management, and resource conservation activities, could lead to discoveries at the individual, family, and community levels. Further, helping local

Extension educators, veteran and military family support personnel, and military and community policy makers understand the impacts of agricultural- and nature-based veteran reintegration efforts would ensure an evidence-based foundation on which program and policy can be built. As a result, NIFA expects FARM-Vets basic and applied research projects to inform the establishment and scalability of educational programming that helps veterans develop farming and ranching skills, business plans, agriculture systems management, knowledge and access to credit, and land use issues.

8. An increase of $2,725,000 for Federal Administration ($28,696,000 available in 2016 under the Research and Education Activities Account and Extension Activities Account) as follows:

   a. An increase of $1,317,000 Federal Administration-Other Necessary Expenses ($20,314,000 available in 2016) as follows:

      i. An increase of $1,317,000 for pay costs ($14,354,000 available in 2016) as follows:

      The pay cost increase is $706,000, which includes $144,000 for annualization of the fiscal year 2016 pay raise and $562,000 for the anticipated FY 2017 pay raise. NIFA's programs are managed at the national level by more than 350 full-time employees at the end of FY 2015 and with a number of temporary and intermittent employees. 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.

      Additional funding totaling $611,000 is requested to maintain staffing levels to support grants processing and post award management activities, including large multi-year Coordinated Agricultural Projects and Farm bill programs. Funds are requested to support increased costs for services and systems needed for administrative processes that ensure proper financial and grants management and Department requirements. The agency also supports ongoing analyses of grants processes, reporting systems, and management of these activities through continuous process improvement and administrative initiatives to improve efficiency.

      ii. Sustained support for GSA Rent and DHS Security Payments ($5,960,000 available in 2016) as follows:

      USDA continues in FY 2017 the decentralization of GSA Rental Payments and DHS payments. The amount is the equivalent share of the current GSA Rent and DHS central appropriations based upon current space occupancy across the continental United States. The appropriations request for 2017 maintains a separate funding line for these items within Federal Administration. By incorporating the GSA rent and DHS security payments into the Federal Administration line, the agency will be able to better manage administrative functions, while reducing overall costs through process efficiencies.

   b. A decrease of $552,000 for Agriculture in the Classroom ($552,000 available in 2016) as follows:

   This program is part of a government-wide initiative to consolidate STEM programs to reduce the number of duplicative programs. Funding for STEM related programs will be requested as part of other agencies' budgets. Funding for this program could be provided under AFRI thru professional development opportunities for K-12 to promote engaged learning and positive youth development in their classrooms.

   c. An increase of $1,960,000 under Federal Administration to modernize the Grants Management Systems ($7,830,000 available in 2016) as follows:

   Increased funds for Grants Management Systems will support Goal 3 of NIFA's Strategic Plan, as well as the Federal Information Technology Acquisition Reform Act. 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 "self-service" capabilities, 3) promote a paperless environment, 4) modernize NIFA's systems, and 5) improve management and reporting of results.

This is the fourth year of a multi-year request to modernize NIFA's grants management systems. 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 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. All capacity-funded applications ("formula") are scheduled to be made through the USDA Grants system starting in FY 2017. NIFA is also 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.

9. A decrease of $21,625,000 to eliminate funding for research programs ($21,625,000 available in 2016) as follows:

	FY 2016 ($000)	Decrease ($000)	FY 2017 ($000)
Animal Health and Disease, Section 1433	$4,000	-$4,000	0
Aquaculture Research Special Grant	1,350	-1,350	0
Potato Research Special Grant	2,000	-2,000	0
Alfalfa Forage and Range Program	2,000	-2,000	0
Supplemental and Alternative Crops	825	-825	0
Farm Business Management and Benchmarking Program	1,450	-1,450	0
Sun Grants	2,500	-2,500	0
Capacity Building at Non-Land Grant Colleges	5,000	-5,000	0
Veterinary Services Grant Program	2,500	-2,500	0
Total	21,625	-21,625	0

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. These programs can be supported by other funding sources, including other NIFA programs.

The broad research goals of these relatively small programs can 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.

10. A decrease of $8,811,000 for Higher Education programs ($47,088,000 available in 2016) as follows:

a. A decrease of $9,900,000 for certain higher education programs ($9,900,000 available in 2016) as follows:

	FY 2016 ($000)	Decrease ($000)	FY 2017 ($000)
Institute Challenge, Multicultural Scholars, and Graduate Fellowship Grants	$9,000	-$9,000	0
Secondary/2-year Post-Secondary Education Program	900	-900	0
Total	9,900	-9,900	0

These programs are part of a government-wide initiative to consolidate STEM programs to reduce the number of duplicative programs. Funding for STEM related programs will be requested as part of other agencies' budgets.

b. An increase of $11,074,000 for 1890 Institution Capacity Building Grants ($19,336,000 available in 2016) as follows:

i. An increase of $1,074,000 for Education Grants ($19,336,000 available in 2016) as follows:

Base funding is used to strengthen 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) support competitive funding of projects that strengthen teaching programs in the food and agricultural sciences in the need areas of curriculum design and materials development, faculty development, and others. CBG supports projects that strengthen research and extension programs in need areas of studies and experimentation, extension program development support systems, and others. CBG also supports integrated project grants to increase and strengthen food and agriculture sciences at the 1890s through integration of education, research and extension activities. In 2012, as a result of CBG recruitment and retention efforts, 56 underrepresented students enrolled in food and agricultural sciences and 129 students graduated. The projects ending in 2013 had more than 86 partnerships between the 1890 institutions and other universities, Federal agencies, business, and organizations, which benefitted more than 2,000 students.

Increased funding will accommodate Central State University (CSU) as the 19th 1890 land-grant institution and will enable NIFA to reach an audience that is currently underrepresented in its programs. This will allow CSU to build their research, teaching and Extension capacity to support USDA's strategic goals for food, agriculture, natural resource and human sciences without compromising the ability of the existing 1890 Land Grants to continue their effective programming in the other states. The funding will result in an increased number of African American students recruited, graduated and employed in science, technology, engineering, and mathematics (STEM) disciplines related to USDA's mission; and address epidemics within minority communities such as adult and childhood obesity and diabetes.

ii. Increase of $10,000,000 for the 1890's Capacity Coordination Initiative to Support Three Centers ($0 available in 2016) as follows:

Authority for this program is contained in section 1417 (b)(4) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA), as amended [7 U.S.C. 3152 (b)(4)] and pursuant to annual appropriations made available specifically for the 1890 Capacity Building Program. Section 7107 of the Food, Conservation, and Energy Act of 2008 (FCEA) (Pub. L. 110-246) amended the authority for the 1890 Capacity Building Program to allow for extension capacity building, as well as teaching and research. Currently, appropriations under the authority of section 1417(b)(4) of NARETPA are limited to 1890 Institutions. Awards to 1890 Institutions will be offered as Competitive Multistate Grants for combined focus on research and extension as well as in education and training to prepare the workforce for strategic areas. Outcomes of these grants will produce regional benefits through the cooperation of two or more States and collaboration at two or more of the 1890 Institutions eligible to receive these grants.

At least three challenges face U.S. agriculture: as the U.S. demographics change, development of a diverse agricultural sector workforce is essential to continue to provide competitive agricultural outputs; resource limited and small farmers, ranchers, and foresters need assistance to develop sustainable enterprises; and the United States must engage internationally to foster international cooperation, trade, development, and improve global food security. The 1890 Institutions can help address these needs. Their teaching programs provide for a broad spectrum of students, but in particular help meet the needs for first generation college students and those who have limited opportunities. They also have programs to enhance the capacity, marketability, profitability, sustainability and diversity in agricultural enterprises for small and limited resource operations. They also have a long history of engagement in international activities. However, the small size of individual programs has hampered their contributions. This coordination initiative will help the institutions increase their effectiveness in addressing these needs.

Funds will support three Centers designed to increase diversity in the Science, Technology, Engineering, and Math (STEM) pipeline; increase profitability and jobs in underserved farming communities; and enhance talent preparation related to global food security. The centers will also increase coordination and collaboration between USDA and the 1890 Institutions. The three Centers will each have a specific focus:

- **Innovation and Sustainable Small Farms, Ranches, and Landowners - $7 million:** The 1890 LGUs will develop integrated research, extension and education regional centers focused on increasing profitability for small farmers, including socially disadvantaged/underserved farmers, ranchers and forest landowners and impacting jobs, economic development and natural resources management in strike force areas. Near-term outcome is enhanced profitability of participating farmers, ranchers and land owners. Longer-term outcomes include healthier families, enhanced quality of life in rural communities, and increased opportunities for the sustainability of small farms.

- **Motivation and Education of Students for Achievement - $2 million:** The Center will serve as a national resource center for developing and sustaining a diverse and talented STEM workforce pipeline by working collaboratively with the government and private sectors. The virtual center will be a network of the nineteen 1890 LGUs. The universities will develop a database of performance indicators related to student participants and program initiatives to support evaluation and tracking of the students from start to program completion. The Center will result in increased public and private partnerships to enhance job-readiness for under-represented students. The Center also will lead to greater recruitment and retention at the 1890 LGUs. Finally, there will be an increased number of under-represented students pursing STEM careers related to food, agriculture and natural resources.

- **International Engagement and Development - $1 million:** The purpose of the Center is to facilitate a more effective response by 1890 institutions to the complex challenges of a globalized society. The Center will promote and support the provision of comprehensive educational opportunities that will effectively prepare both domestic and international students for the global society; support the growth of trade initiatives though targeted programs that increase the penetration of US products; support programs that focus on the development needs of priority trade partners including institutional capacity building, poverty alleviation, food security and environmental sustainability; and implement effective mechanisms to ensure the efficient delivery of the Center's programmatic activities across the nineteen 1890 LGUs. This Center will result in an increased supply of well-trained graduates in the U.S. and abroad to satisfy the workforce needs of both public and private sector entities especially in critical need areas. The Center also will strengthen the coordination, scale and impact of the 1890's international engagement to better support the USDA's global agenda.

c. Sustained support for Hispanic Serving Institutions Education Grants Program ($9,219,000 available in 2016) 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 $9 million program also recruits that promising Hispanic students for food and agriculture science careers, many of which are at USDA. In the 2011-2012 program year, 234 Hispanic students were placed on internships, including 134 at USDA agencies. Currently, the funding success rate is less than 20 percent. This program has the potential address the underrepresentation of Hispanic Students in STEM jobs (less than 2 percent of STEM jobs in the nation) and in the food, agricultural, natural resource, and human sciences. The recently introduced pilot Consortium Grants have been successful and will be expanded to a larger number of institutions.

d. Increase funding of $215,000 for Tribal Colleges Education Equity Grants Program (Payments to the 1994 Institutions) ($3,439,000 available in 2016) 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 global climate change, reduce childhood and adolescent obesity, and improve food safety. In 2014, approximately 3,919 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.

Increased funding will assist the two newest land-grant colleges to develop new partnerships, build research and extension capacity, and to serve a larger American Indian student population. Since the establishment of the 1994 land-grant community 20 years ago, eight additional Institutions have been added and student enrollment has grown by about 30 percent. Two new institutions (College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College) were added with the 2014 Farm

Bill. The 1994 land-grants are essential for healthy and sustainable individuals, Indian communities and Tribal Reservations.

e. Sustained support for Alaska Native-serving and Native Hawaiian-serving Institutions ($3,194,000 available in 2016) 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 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 United States, 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. For example, at any given time, Hawaii has only a one- to two-week food supply (85 percent of the state's food is imported). Any natural or man-made disaster that disrupts shipping could have disastrous consequences for citizens. To improve food security The University of Hawaii works to increase the number of Hawaiian entrepreneurs entering agricultural fields. In 2015, the University of Hawaii at Mānoa made significant impacts through its GoFarm Hawaii program administered by the NIFA-funded Agribusiness Incubator Program (AIP) on three campuses. Plans are in development to expand GoFarm to the island of Maui. In 2015, 155 persons attended the seminars, 77 graduated and 23 graduates are engaged in farming. AIP continued its consulting services to agribusinesses, and assisted 9 new businesses, resulting in 16 new products. During the 2015 reporting period, 90 students participated in career fairs, which involved 24 potential employers. University of Hawaii at Hilo engaged over 3,900 elementary students in its "Lettuce in a Bucket" activity. Around 1,350 parents and children participated in community gardens organized by that campus. Another campus conducted its Pumpkin Patch activity throughout the period, reaching around 1,220 students. Similarly, enrollment at University of Alaska-Sitka, in classes that were enhanced by NIFA grants, has increased from 52 students in academic year 2006/07 to 180 students by academic year 2012/13.

f. A decrease of $200,000 for Grants for Insular Areas ($2,000,000 available in 2016) 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.

11. An increase of $10,000,000 for the Hispanic-Serving Agricultural Colleges and Universities Endowment Fund ($0 available in 2016) as follows:

Section 7129 of the Food, Conservation, and Energy Act 2008, provides for the establishment of an endowment fund for Hispanic-Serving Agricultural Colleges and Universities (HSACU). The Hispanic/Latino community is the fastest growing sector of the American population.

This investment in the Hispanic-Serving Agricultural Colleges and Universities is needed to ensure the institutions can effectively compete for NIFA competitive grants. This endowment fund will assist in the development of a skilled and marketable workforce for employment in the food and agriculture sector from the HSACU. Currently, the Hispanic-Serving Institutions serve 56 percent of all Hispanic students but only receive 66 cents for every dollar going to all other colleges and universities annually, per student, from all

Federal funding sources. Furthermore, as Hispanics have historically been under-represented in such professions as science, technology, engineering and mathematics (STEM), the Nation could face serious shortages in many critical professions, including agricultural sciences. The investment in HSACUs will help close this educational attainment gap. The proposed $10 million will remain at Treasury and be invested in Treasury securities, with the cumulative interest used to support implementation of the program.

12. Sustained support Veterinary Medical Services Act ($5,000,000 available in 2016) 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.

13. An increase of $2,730,000 for Capacity/Formula Programs (Extension) ($345,620,000 available in 2016) as follows:

    a. Sustained support for Smith-Lever 3(b) & (c) ($300,000,000 available in 2016) 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.

    b. An increase of $2,730,000 for 1890 Institutions Extension ($45,620,000 available in 2016) 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. Increased funding will enable the 1890 Institutions to expand 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 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 Nutrition, Diet, and Health.

14. An increase of $22,225,000 for Smith-Lever 3(d) ($85,528,000 available in 2016) as follows:

    a. An increase of $100,000 for Expanded Food and Nutrition Education Program ($67,934,000 available in 2016) as follows:

       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. Additional funding is also needed to accommodate the inclusion of Central State University, a newly-eligible 1890 Institution.

b. Sustained support for AgrAbility/Farm Safety (formerly Farm Safety and Youth Farm Safety Education and Certification) ($4,610,000 available in 2016) as follows:

Base funding will support competitively awarded projects to Extension working with non-profit disability organizations in conducting AgrAbility projects. The projects are designed to assist farmers and ranchers with disabilities to stay in agricultural production. Also the program provides competitively awarded funding to states to conduct training and certification needs of youth working in agriculture.

c. Sustained support for Children, Youth, and Families at Risk ($8,395,000 available in 2016) as follows:

The 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.

d. An increase of $2,800,000 for Federally Recognized Tribes Extension Program ($3,039,000 available in 2016) as follows:

The Federally Recognized Tribes Extension Program (FRTEP) builds capacity through 4-H youth development; agriculture and resource management; entrepreneurship; and business development to the Indian Country communities across the nation. As the Presidential Memorandum on native youth priorities describes (OMB M-15-17), focusing on tribal capacity-building, youth engagement, and promotion of tribal self-determination will begin to address educational and life outcomes for native youth, reduce teen suicide, and increase youth opportunities for an improved quality of life.

FRTEP extension offices have become a platform for state and federal agencies to provide resources and programming for Indian communities. Educators from FRTEP bring a wealth of community-tested and science-based best practices from the 1862 and 1890 land-grants to provide informal learning to support native youth development. Currently, FRTEP supports 36 Extension offices in 19 states but serve only 76 of the 567 Federally Recognized Indian Tribes. The average funding level for a FRTEP extension office is $79,000, which includes a full-time educator.

An increase of $2.8 million will effectively double the number of FRTEP staff engaged in 4-H activities to 72, helping to serve more tribes' native youth. This increase in FRTEP funding will provide the necessary program architecture to realize the vision of an "Indian Country Extension" effort that is currently underway. Ultimately, this effort will provide an avenue for the 1862 and 1890 State Cooperative Extension System, thirty-four 1994 extension programs, federal agency rural development programs, and other non-governmental organizations to promote positive youth development throughout a number of Indian Communities.

e. An increase of $20,000,000 for Home Visits for Remote Areas Program ($0 available in 2016) as follows:

The budget includes a new Home Visits for Remote Areas (HVRAP) competitive grants program that will be administered with the Department of Health and Human Services and will provide support to enhance maternal, child, and family health exclusively in high-need, remote rural areas and Indian country. Audiences in these areas are often typified by a lack of access to social services, educational and workforce opportunities, technology, and transportation. HVRAP will uniquely capitalize on home visiting through the Land-grant University-based Cooperative Extension Service as an effective, place-based infrastructure to reach these audiences. Currently, Cooperative Extension professionals provide evidence-based, non-clinical home and community programming in areas relevant to maternal, infant,

and family health, such as parenting education, early childhood development, behavioral health, youth development, environmental health, disaster preparedness, and family financial capability. To accomplish HVRAP objectives, Extension will leverage its collaborative partnerships at the federal, state, and local level.

HVRAP will complement existing federal programs, such as the Department of Health and Human Service's Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program by providing focused educational services to remote rural and tribal areas. HVRAP will also complement USDA programs such as the Children, Youth and Families at Risk (CYFAR), and community nutrition education programs.

HVRAP will expand upon HHS's MIECHV objectives through addressing healthy family functioning, and building the capacity of family and home-based childcare providers. Specifically HVRAP will encourage grantees to implement programs that will demonstrate measurable outcomes in the following areas: 1) improved maternal, child, and family health, 2) prevention of child abuse, neglect or maltreatment, 3) improvement in school readiness, 4) improvement in financial capability, 5) reduced home health and safety risks, 6) reduced risk for family conflict, 7) improved capacity of family and home-based child care providers, and 8) improved coordination and referrals for other community resources and support. HVRAP home visitors will provide home visitation in high-poverty, rural (non-metro) counties, where at least 20 percent of the population have incomes below the Federal poverty threshold. Where appropriate, NIFA can coordinate with MIECHV program leads and others to determine audiences in communities that can benefit from Extension educational home visiting, but have not been reached through existing resources.

HVRAP will build ongoing connections made specifically in the home to provide access and deliver educational programming and resources for sustainable, positive changes for families. The program will provide culturally and age appropriate in-home education to improve maternal, family and child health, focusing specifically on outcomes relevant to the unique needs of children, pregnant women, expectant fathers, and parents and caregivers of children in remote rural and tribal areas.

15. <u>An increase of $2,278,000 for Extension Services at 1994 Institutions ($4,446,000 available in 2016) as follows:</u>

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 comparable to that of Third World countries. Through the extension services at 1994 institutions, only a few of these communities have received the services they need to improve educational and life outcomes of Native youth and help establish themselves as productive and self-reliant citizens.

With additional funding, the Extension Service at 1994 Institutions will be able to increase the number of Indian youth served and work with complementary programs in the 1862 Cooperative Extension Service (CES) and the Federally Recognized Tribes Extension Program to advance culturally appropriate approaches to help improve the lives of and opportunities for Native youth. This is expected to lead to long-term capacity building by increased professional training opportunities for 1994 extension office personnel; a total of four new tribal 4-H clubs coordinated between the 1994 and the 1862 CES and a 25 percent increase in the number of Indian student interns working on extension summer internships. Building the capacity of 1994 land-grants is essential for healthy and sustainable individuals, Indian communities, and tribal reservations.

16. Sustained support for Renewable Resources Extension Act ($4,060,000 available in 2016) as follows:

The Renewable Resources Extension Act of 1978 (P.L. 95-306, 92 Stat. 349, 16 U.S.C. 1671 et seq.) provides for an expanded and comprehensive extension program for forest and rangeland renewable resources. The majority of the appropriated funds are distributed to eligible institutions based on a formula that considers the geographic extent, ecosystem productivity, economic contribution, and population for each state. Base funding for these grants are used to assist all states in carrying out a program of extension activities designed to (1) use educational programs to disseminate the results of research on renewable resources; (2) conduct educational programs that transfer the best available technology to those involved in the management and protection of forests and rangelands and the processing and use of their associated renewable resources; (3) develop and implement educational programs that give special attention to the educational needs of small, private non-industrial forest landowners; (4) develop and implement educational programs in range and fish and wildlife management; (5) assist in providing continuing education programs for professionally trained individuals in fish and wildlife, forest, range, and watershed management and related fields; (6) help forest and range landowners in securing technical and financial assistance to bring appropriate expertise to bear on their problems; and (7) help identify areas of needed research regarding renewable resources.

17. An increase of $1,973,000 for 1890 Facilities ($19,730,000 available in 2016) as follows:

This program funds 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.

Increased funding will accommodate Central State University (CSU) as the 19th 1890 land-grant institution and will enable NIFA to reach an audience that is currently underrepresented in its programs. This will allow CSU to build their research, teaching and Extension capacity to support USDA's strategic goals for food, agriculture, natural resource and human sciences without compromising the ability of the existing 1890 Land Grants to continue their effective programming in the other states. The additional funding will result in an increased number of African American students recruited, graduated and employed in STEM disciplines related to USDA's mission; and address epidemics within minority communities such as adult and childhood obesity and diabetes.

18. An increase of $1,000,000 for Grants for Youth Serving Organizations ($0 available in 2016) as follows:

Rural Youth Development program, established in 2002 by the Congress, enables Youth-Serving organizations namely 4-H, Future Farmers of America (FFA), Boy Scouts of America, and Girl Scouts of the USA in expanding and strengthening their work in rural America. These organizations increase leadership, citizenship, and life skills in young people and the adults who work with them. They also significantly impact citizens--and the communities in which they live--through the action projects that are implemented.

The program funds will be used to competitively award grants that meet the goals to support pilot-demonstration projects by youth with youth-serving organizations in rural communities. This program is deemed a priority at the local and/or state levels for social capital and community development efforts. It fulfills a niche whereby youth are seen as viable agents of change in rural communities. Youth's engagement leads to economic and community development and will possibly stem the tide of out-migration by youth in rural communities.

19. A decrease of $400,000 for Women and Minorities in Science, Technology, Engineering and Mathematics (STEM) Fields ($400,000 available in 2016) as follows:

This program is part of a government-wide initiative to consolidate STEM programs to reduce the number of duplicative programs. Funding for STEM related programs will be requested as part of other agencies' budgets.

20. Sustained support for Food Safety Outreach Program ($5,000,000 available in 2016) 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 is also in line with the administration's vision of ensuring 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.

21. A decrease of $4,300,000 to eliminate funding for certain extension programs ($4,300,000 available in 2016) as follows:

	FY 2016 ($000)	Decrease ($000)	FY 2017 ($000)
New Technologies for Agricultural Extension	$1,550	-$1,550	$0
Rural Health and Safety	1,500	-1,500	0
Food Animal Residue Avoidance Database	1,250	-1,250	0
Total	$4,300	-$4,300	$0

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. These programs can be supported by other funding sources, including other NIFA programs.

The broad research goals of these relatively small programs can 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.

22. A decrease of $2,000,000 to eliminate Methyl Bromide Transition Program ($2,000,000 available in 2016) as follows:

A decrease is proposed so funding can be directed to support higher priority activities, and is consistent with the Administration's policy to redirect available resources, as appropriate, and consistent with the agency mission, from lower-priority areas to other science and technology activities. Alternatives to methyl bromide research may be addressed through the Minor Crop Pest Management, IR-4 program and a comprehensive integrated pest management strategy funded under the Crop Protection/Pest Management program. In addition to these funding options through NIFA grants, ARS conducts in-house research to find solutions to pest control.

23. Sustained support for Organic Transition Program ($4,000,000 available in 2016) as follows:

    Base funding 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.

24. An increase of $3,000,000 for Crop Protection/Pest Management ($17,200,000 available in 2016) as follows:

    In support of the President's Pollinator Health Initiative and to deal with new and emerging invasive pest species, increased funding is requested to address pollinator health issues through the extension activities in the Crop Protection/Pest Management (CPPM) program. Support provided to these activities will help agricultural producers implement pest management strategies that increase productivity while protecting the health of pollinators and other beneficial organisms. Base funding for the CPPM program will continue to be used to develop new integrated pest management (IPM) tools and strategies and help end-users adopt and implement effective, affordable, and environmentally-sound pest management practices. Use of these practices will reduce economic losses and environmental impacts caused by diseases, insects, weeds, and other pests that affect agricultural production systems. The CPPM program 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.

25. Sustained support for Regional Rural Development Centers ($1,000,000 available in 2016) as follows:

    Base funding will provide support to 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. The RRDCs play a unique role in USDA's service to rural America. They link the research and educational outreach capacity of the Nation's public universities with communities, local decision-makers, entrepreneurs, families, and farmers and ranchers to help address a wide range of development issues. They collaborate on national issues that span regions—like e-commerce, the changing interface between rural, suburban, and urban places, and workforce quality and jobs creation. Each tailors programs to address particular needs in its region. Priorities include strengthening regional economic development, balancing the use of our Nation's natural resources, building disaster-resilient communities, increasing rural broadband adoption and education, assessing and educating on community behavioral health planning, and supporting local and regional food systems. These funds are distributed according to the extent of the problem that requires attention in each state.

26. An increase of $3,300,000 for Food and Agriculture Defense Initiative ($6,700,000 available in 2016) as follows:

    Base funding for the Food and Agriculture Defense Initiative 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, the Extension Disaster Education Network (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 and agriculture infrastructures. The requested increase in funds will enable these three networks to better utilize improved diagnostic technologies and data infrastructure; upgrade their instrumentation; expand diagnostic test capabilities and through-put potential; and develop more effective laboratory information and data management.

The additional sustained resources, are expected to enable the NAHLN to achieve 100 percent readiness status for at least one or two more agents. Similarly, NPDN will be able to respond to ten critical pest incursions and disasters across networks, and train 200 new NPDN first detectors. The outcomes of these increased investments will allow better protection of the U.S. food and agriculture trade, livestock and crop health, and public wellbeing from acute catastrophic challenges.

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 2.8 percent of FY 2014, 2.9 percent of FY 2015, 3.0 percent of FY 2016, and 3.2 percent of FY 2017 extramural research and development funds within the Department are set-aside and used to fund the SBIR program.

Agency	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Agricultural Research Service	$ 1,578,562	$ 1,680,030	$ 1,949,971
Animal and Plant Health Inspection Service	33,371	34,521	40,362
National Institute of Food and Agriculture	20,014,240	23,024,129	25,218,299
Economic Research Service.....	153,526	158,820	196,448
Forest Service	955,894	900,000	960,000
National Agricultural Statistics Service	43,528	45,000	48,000
Total	$22,779,121	$25,842,500	$28,413,080

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 a d 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.

Summary of Proposed Legislation

Program: Agriculture and Food Research Initiative – Investing in Sustainable Agricultural Systems

Proposal:

Significant increases in domestic and global agricultural production are required to feed and support a global population that will exceed 9 billion by 2050. The agricultural system as a value chain operates within a complex economic, biophysical, and sociopolitical setting, and requires a systems approach — biological, physical and social sciences — that considers all aspects of the system necessary to increase production of safe and nutritious food in the context of variable climate and diminishing land and water resources. The National Institute of Food and Agriculture (NIFA) proposes a strategic investment of $325 million of mandatory funding to complement the discretionary appropriation to the Agriculture and Food Research Initiative (AFRI). This funding will allow the agency to facilitate systems approaches to address agricultural challenges. It also will fund the solutions necessary to develop the knowledge, technologies, and practices needed to sustainably increase agricultural production in the context of climate change, diminishing land and water resources, and the need to ensure nutritional security of the burgeoning population.

Transformative innovations are needed in a number of areas, including, for example, engineering microbiomes to manipulate the productivity and health of crops and farm animals, approaches to significantly reduce food waste and food loss, development of climate smart agriculture, reduced energy use in the food supply chain, bridging the productivity gap, efficient irrigation systems, deployment of knowledge in genomics and synthetic biology to enhance yields, better water, nitrogen, phosphorus, and land use efficiencies, improvements in photosynthesis efficiencies and nitrogen fixation, better pest management approaches, and development and deployment of smart farming systems utilizing robotics, sensors, sentinels, and Internet-enabled systems. Additional developments in vertical farming, hydroponics, and aquaponics and other methods will also become part of a portfolio of approaches we will need to utilize to ensure nutritional security.

NIFA will invest in transdisciplinary and transformative agricultural systems projects to expand foundational knowledge, to engineer innovative technologies and advanced manufacturing, to devise prudent management strategies, and to develop integrated educational programs for ensuring that current and future demands for agricultural workforce are met. As a result of significant investments in fundamental and applied science, American citizens will be healthier and nutritionally secure, decision makers will have science based information to make informed judgments, communities will be vibrant and sustainable, and our nation's agricultural economy will continue to prosper and create jobs.

Rationale:

With the overall goal of significantly boosting agricultural production, while minimizing agriculture's ecological footprint, NIFA will invest in strategic initiatives that will 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. NIFA will invest in transdisciplinary projects to promote the development of new technologies for and knowledge of agricultural systems.

The rationale for supporting transdisciplinary approaches is that efforts of investigators from different disciplines working jointly will contribute to creating new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem. In line with this, a few of the overarching, systems efforts would be targeted to achieve a number of goals, including:

- Reduce water use for food production by 50 percent. To achieve this from a systems perspective, the agency will support efforts to determine the role, for example, of soil, hydrology, evapotranspiration, sensors, irrigation technologies deficit irrigation, water reuse/recycle, biological communities, genetics, breeding, and water use efficiency by plants and animals, their interactions and influences on each other in the local to regional to national contexts such that ultimately innovative and transformative paths reduce overall water use from all of these components.

- Reduce net agricultural emissions to below the current level of 9 percent of total U.S. emissions by promoting enhanced carbon sequestration and greenhouse gas reduction methods along the value chain of crop, livestock, forestry, and bioenergy production and consumption systems.
- Reduce adult obesity by 10-15 percent, enhance nutritional security, and reduce public health impact and economic costs associated with foodborne illness, for which transformative innovations are needed across the food system from production to dinner table. A systems assessment of the environmental and economic impacts of promoting a healthy diet across the agriculture value chain would be useful to create a healthier and safer food supply and to sustain healthy eating patterns.

New technologies that allow us to better understand agroecology and identify and protect agricultural environments, from microbial communities to large agroecosystems, will result in new knowledge of how ecosystems and their components can influence and regulate soil productivity, environmental stability, production of crops and livestock, and contribute to improving human health. This information is critical to increasing the production of food, feed, fiber, biofuel, and biobased products through the development of new innovative methods and technologies that require fewer resources and result in a reduced environmental footprint. It will also build upon and complement investments in similar areas of science, including advanced manufacturing, at other Federal agencies.

The potential for addressing urgent agricultural challenges, including nutritional security, has increased as a result of recent advances and availability of data and technologies. NIFA has made major investments in research that has generated large quantities of valuable information — Big Data — on agricultural production systems, including the genetic makeup of important agricultural species; field data on crop biology, physiology and yield; and coupled models of agricultural production, natural resource utilization and climate variability. These big data contain a wealth of untapped information that must be extracted, analyzed, and then translated into important applications in the field, such as the genomes to phenomes initiative. Similarly, big data approaches may be applied to significantly reducing obesity and increasing better health outcomes in children. Therefore, NIFA will make major investments in transdisciplinary approaches to effectively catalog, organize, and analyze the complex information extracted from big data to solve agricultural system challenges.

These new areas of science will also require developing the next generation of scientists and workforce who will be engaged in addressing current and future challenges in agriculture. To achieve this, NIFA will invest in targeted programs that will include training grants to support graduate students and postdoctoral scholars, as well as provide enhanced opportunities for new investigators in the various food and agricultural sciences, including for example plant and animal breeding, microbial, weed, and insect sciences, water and soil science and engineering, economics and social sciences, and nutrition and food technology.

NIFA currently offers competitive funding through the AFRI discretionary program to address agricultural challenges. However, the current level of funding appropriated for AFRI is not commensurate with what's needed to address the same, and allows NIFA to fund only 10 percent of the applications, thus leaving a significant number of highly rated proposals unfunded. NIFA's proposed strategic investment over the next five years in agricultural systems will complement the discretionary AFRI funding, which supports the development of foundational knowledge to address societal challenges, and will allow the agency to ensure our nation's larger goal of sustainably increasing agricultural production.

This proposal is for an investment of $325 million with mandatory AFRI funding. While some progress will be made in acquiring knowledge and developing technologies needed to create sustainable agricultural systems, realizing the vision and transformative goals articulated in this proposal will require sustained funding at the authorized level of $700 million each year.

Goal:

The outcomes from these mandatory investments, in complementing the discretionary AFRI funding, will contribute to sustainably increase agricultural production and achieve nutritional security through investing in transdisciplinary and transformative agricultural systems projects that expand foundational knowledge, engineer innovative technologies and advanced manufacturing, devise prudent management strategies, and develop integrated educational programs in targeted areas for ensuring that current and future demands for agricultural workforce are met.

TABLE 1 - FISCAL YEAR 2015
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

	HATCH ACT AS AMENDED											
STATE	HATCH FORMULA	REGIONAL RESEARCH	TOTAL	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
ALABAMA	3,905,813	1,179,391	5,085,204	1,091,006	5,342,195	66,052	311,746	3,661,692	3,263,455		0	18,821,350
ALASKA	1,073,993	193,032	1,267,025	568,097	0	10,803	0	0	1,629,949		0	3,475,874
AMER SAMOA	1,085,131	29,304	1,114,435	45,187	0	0	0	0	299,225		0	1,458,847
ARIZONA	1,514,881	1,020,647	2,535,528	358,933		47,661	1,138,139	5,067,225	1,001,983		0	10,149,469
ARKANSAS	3,324,043	981,040	4,305,083	1,007,341	2,311,233	78,276	0	2,880,721	600,000		0	11,182,654
CALIFORNIA	4,682,016	2,253,131	6,935,147	840,010	0	196,875	3,469,200	22,332,628	1,649,166		0	35,423,026
COLORADO	2,134,129	1,404,868	3,538,997	400,766	0	164,694	1,457,684	8,188,943	246,000		0	13,997,084
CONNECTICUT	1,596,080	664,195	2,260,275	421,682	0	28,026	0	2,346,113	0		0	5,056,096
DELAWARE	1,139,733	496,849	1,636,582	170,685	1,242,633	22,187	0	3,268,266	899,813		0	7,240,166
DISTRICT OF COLUMBIA	759,152	143,443	902,595	0	0	0	0	25,000	0		0	927,595
FLORIDA	3,009,020	979,815	3,988,835	819,093	2,142,288	101,140	2,192,885	13,263,894	1,134,439		0	23,642,574
GEORGIA	4,437,852	1,686,357	6,124,209	1,153,756	3,067,445	106,091	5,004,314	6,979,098	658,479		0	23,093,392
GUAM	1,123,995	165,283	1,289,278	87,020	0	0	0	0	0		0	1,376,298
HAWAII	1,123,424	517,561	1,640,985	275,268	0	12,119	745,728	649,400	1,528,801		0	4,852,301
IDAHO	1,937,628	804,695	2,742,323	609,930	0	55,708	168,132	5,293,959	0		0	8,870,052
ILLINOIS	5,477,012	1,420,591	6,897,603	526,264	0	36,126	0	7,781,474	796,000		0	16,037,467
INDIANA	5,243,493	1,155,132	6,398,625	630,846	0	72,788	0	6,295,711	235,813		0	13,633,783
IOWA	5,436,669	2,279,444	7,716,113	463,515	0	210,097	745,728	20,444,845	359,000		0	29,939,298
KANSAS	3,325,014	1,061,997	4,387,011	317,100	0	112,526	285,000	7,201,599	101,147		0	12,404,383
KENTUCKY	5,203,138	1,275,962	6,479,100	735,428	3,662,194	47,059	0	1,367,505	1,194,942		0	13,486,228
LOUISIANA	2,999,844	926,010	3,925,854	1,028,258	2,034,206	45,568	0	4,479,452	550,000		0	12,063,338
MAINE	1,705,684	692,263	2,397,947	881,842	0	34,338	250,500	1,612,300	0		0	5,176,927
MARYLAND	2,229,549	871,042	3,100,591	400,766	1,551,667	16,234	1,932,154	5,367,043	1,198,419		0	13,566,874
MASSACHUSETTS	1,866,545	850,256	2,716,801	442,598	0	62,364	215,000	3,297,226	462,923		0	7,196,912
MICHIGAN	5,264,547	1,241,293	6,505,840	923,675	0	98,833	2,293,599	8,693,833	565,941		0	19,081,721
MICRONESIA	1,161,981	0	1,161,981	0	0	0	0	0	0		0	1,161,981
MINNESOTA	5,151,950	1,212,126	6,364,076	860,926	0	112,640	5,838,784	6,185,240	303,441		0	19,665,107
MISSISSIPPI	3,795,524	1,131,967	4,927,491	1,070,090	2,525,490	60,734	958,861	1,440,589	1,249,269		0	12,232,524
MISSOURI	5,108,925	1,082,852	6,191,777	693,595	3,680,208	93,862	290,000	4,354,735	577,298		0	15,881,475
MONTANA	1,871,676	901,208	2,772,884	672,679	0	44,183	620,000	1,289,533	708,029		0	6,107,308
NEBRASKA	3,070,812	1,268,806	4,339,618	296,184	0	116,716	464,849	8,139,199	202,294		0	13,558,860
NEVADA	1,069,057	493,435	1,562,492	107,936	0	18,678	0	1,165,237	0		0	2,854,343
NEW HAMPSHIRE	1,374,935	497,885	1,872,820	484,431	0	14,942	0	1,319,555	0		0	3,691,748
NEW JERSEY	1,860,898	1,487,353	3,348,251	379,849	0	18,211	4,245,340	450,000	298,958		0	8,740,609
NEW MEXICO	1,545,195	542,896	2,088,091	254,351	0	42,831	235,000	490,000	1,544,421		0	4,654,694
NEW YORK	4,877,182	2,177,726	7,054,908	986,425	0	76,152	384,851	10,621,705	319,937		0	19,443,978
NORTH CAROLINA	6,405,787	1,620,194	8,025,981	1,111,922	4,215,640	329,843	0	8,300,044	1,527,486		0	23,510,916
NORTH DAKOTA	2,176,983	815,962	2,992,945	191,601	0	35,370	685,000	1,902,199	505,735		0	6,312,850
NORTHERN MARIANAS	1,076,361	0	1,076,361	0	0	0	0	0	136,108		0	1,212,469
OHIO	6,336,301	1,313,599	7,649,900	609,930	0	64,258	0	5,099,417	599,997		0	14,023,502
OKLAHOMA	3,299,345	804,955	4,104,300	547,180	2,402,317	69,047	265,000	1,302,643	701,147		0	9,391,634
OREGON	2,523,995	1,276,412	3,800,407	1,132,839	0	73,616	311,956	4,234,141	120,000		0	9,672,959

TABLE 1 - FISCAL YEAR 2015
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

STATE	HATCH ACT AS AMENDED HATCH FORMULA	REGIONAL RESEARCH	TOTAL	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
PENNSYLVANIA	5,998,986	1,677,893	7,676,879	777,261	0	103,871	0	9,556,060	0		0	18,114,071
PUERTO RICO	3,608,746	996,759	4,605,505	66,103	0	8,015	0	0	1,261,351		0	5,940,974
RHODE ISLAND	1,032,223	515,557	1,547,780	128,852	0	53,941	0	816,353	0		0	2,546,926
SOUTH CAROLINA	3,337,754	1,169,443	4,507,197	840,010	2,271,843	20,024	0	1,650,487	1,640,191		0	10,929,752
SOUTH DAKOTA	2,336,871	822,911	3,159,782	212,519	0	69,678	2,346,567	1,514,965	303,443		0	7,606,954
TENNESSEE	4,931,645	1,146,117	6,077,762	798,177	3,380,111	59,740	0	8,643,856	1,820,141		0	20,779,787
TEXAS	7,078,789	1,630,349	8,709,138	986,425	5,110,655	270,735	0	8,482,444	4,362,012		0	27,921,409
UTAH	1,345,328	990,161	2,335,489	149,769	0	23,641	5,069,791	1,582,054	0		0	9,160,744
VERMONT	1,426,468	436,562	1,863,030	505,347	0	22,280	5,004,293	3,465,675	0		0	10,860,625
VIRGIN ISLANDS	1,099,686	160,363	1,260,049	45,187	0	0	0	0	447,708		0	1,752,944
VIRGINIA	4,195,202	1,088,641	5,283,843	965,509	2,866,240	40,186	0	8,847,011	1,406,461		0	19,409,250
WASHINGTON	2,755,603	1,993,385	4,748,988	1,049,174	0	125,281	1,516,473	21,436,357	371,147		0	29,247,420
WEST VIRGINIA	2,573,129	725,520	3,298,649	651,763	1,527,342	7,284	0	931,521	1,798,667		0	8,215,226
WISCONSIN	5,209,146	1,303,744	6,512,890	840,010	0	75,127	220,000	8,746,080	202,294		0	16,596,401
WYOMING	1,290,455	719,035	2,009,490	338,017	0	34,509	0	1,295,600	0		0	3,677,616
OTHER	0	0	0	0	0	0	18,222	2,000,000	223,923		0	2,242,145
SBIR	5,174,013	1,688,128	6,862,141	926,663	1,432,111	111,360	1,251,248	8,953,751	179,438		0	19,716,712
FEDERAL ADMIN	5,359,318	1,698,101	7,057,419	1,047,490	1,618,842	160,000	2,204,440	16,250,000	2,245,960		19,756,000	50,340,151
SUBTOTAL	183,058,654	59,683,646	242,742,300	33,927,280	52,384,660	3,982,320	52,140,484	300,964,378	43,432,351	0	19,756,000	749,329,773
UNOBLIG BAL	0	0	0	0	0	0	4,314,500	237,078,198	8,941,199	0	772,000	251,105,897
SUBTOTAL	183,058,654	59,683,646	242,742,300	33,927,280	52,384,660	3,982,320	56,454,984	538,042,576	52,373,550	0	20,528,000	1,000,435,670
TRIBAL ENDOWMENT		0	0	0	0	0	0	0	11,880,000	11,880,000	0	11,880,000
BIOTECH RISK ASSESSMENT	714,932	225,768	940,700	33,720	100,340	17,680	36,011	1,218,340	0		0	2,346,791
TOTAL	**183,773,586**	**59,909,414**	**243,683,000**	**33,961,000**	**52,485,000**	**4,000,000**	**56,490,995**	**539,260,916**	**64,253,550**	**11,880,000**	**20,528,000**	**1,014,662,461**

Data may include 2014 obligations posted in 2015

Table 1 for FY 2015 **NATIONAL INSTITUTE OF FOOD AND AGRICULTURE**
Distribution of Federal Payments for Extension Activities

STATE	SMITH-LEVER FORMULA	FARM SAFETY	YOUTH FARM SAFETY	1890's UNIV & TUSK UNIV	FEDERALLY-RECOGNIZED TRIBES	EFNEP	FOOD SAFETY OUTREACH	YOUTH AT RISK	NEW TECHNOLOGIES AT AG EXT	1890 FACILITIES	RENEWABLE RESOURCES	INDIAN TRIBAL 1994 COLLEGES	OTHER	TOTAL FEDERAL FUNDS
ALABAMA	$7,206,223	-	-	$4,330,224	-	$2,210,328		$273,900	-	$1,906,004	$121,889	-	$1,598,867	$17,647,435
ALASKA	1,247,374	-	-	-	$159,800	263,080		135,000	-	-	81,683	$98,619	-	1,985,556
AMERICAN SAMOA	1,163,205	-	-	-	-	103,110		-	-	-	-	-	-	1,266,315
ARIZONA	2,176,171	-	-	-	541,800	715,989		145,000	-	-	71,412	197,238	750,000	4,597,610
ARKANSAS	6,050,197	-	-	1,906,550	-	1,416,475		-	-	904,550	96,650	-	2,676,279	13,050,701
CALIFORNIA	7,990,608	$189,000	-	-	83,400	3,612,129		135,000	-	-	97,823	-	6,893,987	19,001,947
COLORADO	3,322,145	189,000	-	-	-	663,717		295,000	-	-	61,141	-	-	4,531,003
CONNECTICUT	2,342,236	-	-	-	-	539,365		145,000	-	-	46,467	-	3,775,700	6,848,768
DELAWARE	1,342,032	-	-	1,179,123	-	412,728		135,000	-	701,784	59,967	-	845,424	4,676,058
DISTRICT OF COLUMBIA	1,188,760	-	-	-	-	110,507		-	-	-	13,500	-	3,976,020	5,288,787
FLORIDA	4,838,579	-	-	1,869,745	73,400	2,426,687	$1,197,751	-	-	917,884	98,118	-	2,236,926	12,461,339
GEORGIA	8,121,982	189,000	-	2,586,213	-	2,379,188		135,000	-	1,003,461	109,856	-	702,852	15,227,552
GUAM	1,223,034	-	-	-	-	103,831		-	-	-	13,500	-	-	1,340,365
HAWAII	1,387,239	-	-	-	-	347,344		-	-	-	46,467	-	812,500	2,593,550
IDAHO	2,938,282	-	-	-	248,239	388,066		-	-	-	53,805	-	516,817	4,145,209
ILLINOIS	9,815,014	180,000	-	-	-	2,188,129		-	-	-	55,271	-	813,580	13,051,994
INDIANA	9,208,428	701,457	-	-	-	1,284,821		135,000	-	-	52,338	-	681,405	12,063,449
IOWA	9,693,387	-	-	-	-	958,895		135,000	-	-	46,467	-	798,393	11,632,142
KANSAS	5,768,200	189,000	-	-	-	763,942		406,700	-	-	46,467	182,738	396,000	7,753,047
KENTUCKY	9,480,091	189,000	-	3,228,344	-	1,811,653		415,000	-	1,085,687	81,977	-	540,717	16,832,469
LOUISIANA	5,309,027	-	-	1,693,156	-	1,995,187		135,000	-	839,122	93,716	-	878,326	10,943,534
MAINE	2,427,242	189,000	-	-	-	499,047		135,000	-	-	65,542	-	1,709,529	5,025,360
MARYLAND	3,668,893	-	-	1,356,558	-	1,027,492		-	-	806,696	59,967	-	285,000	7,204,606
MASSACHUSETTS	2,738,175	-	-	-	-	1,038,503		-	-	-	46,467	-	4,955,974	8,779,119
MICHIGAN	9,319,435	189,000	-	-	88,400	1,869,327		135,000	1,488,000	-	78,748	341,476	6,021,779	19,531,165
MICRONESIA	1,290,134	-	-	-	-	106,402		-	-	-	-	-	-	1,396,536
MINNESOTA	9,240,763	-	-	-	80,900	1,060,111		1,570,000	-	-	59,673	548,214	3,529,111	16,088,772
MISSISSIPPI	7,039,839	-	-	2,016,121	74,400	1,838,515		135,000	-	885,965	105,454	-	1,319,900	13,415,194
MISSOURI	9,182,793	189,000	-	3,314,669	-	1,721,749		80,000	-	1,185,493	83,444	-	-	15,757,148
MONTANA	2,827,365	-	-	-	399,000	382,106		135,000	-	-	62,608	858,571	266,946	4,931,596
NEBRASKA	5,241,274	189,000	-	-	-	610,639		135,000	-	-	46,467	98,619	2,119,364	8,440,363
NEVADA	1,294,738	-	-	-	117,401	293,533		135,000	-	-	47,935	-	692,433	2,581,040
NEW HAMPSHIRE	1,783,482	-	-	-	-	324,921		-	-	-	46,467	-	641,222	2,796,092
NEW JERSEY	2,779,275	-	-	-	-	1,140,242		135,000	-	-	46,467	-	460,170	4,561,154
NEW MEXICO	2,246,290	-	-	-	154,800	596,289		-	-	-	67,010	437,255	299,999	3,801,643
NEW YORK	8,489,101	-	-	-	-	3,408,583		270,000	-	-	90,487	-	3,423,327	15,681,498
NORTH CAROLINA	11,936,639	177,993	-	3,661,204	84,400	2,714,446		405,000	-	1,120,444	106,922	-	503,997	20,711,045
NORTH DAKOTA	3,568,308	-	-	-	86,400	420,296		-	-	-	46,467	661,333	-	4,782,804
NORTHERN MARIANAS	1,148,094	-	-	-	-	102,752		-	-	-	-	-	-	1,250,846
OHIO	11,270,591	189,000	-	-	-	2,251,349		215,000	-	-	64,075	-	-	13,990,015
OKLAHOMA	5,805,531	-	-	2,040,087	73,400	1,230,080		-	-	991,778	70,239	-	311,602	10,522,717
OREGON	4,002,972	-	-	-	80,900	600,477	1,197,606	135,000	-	-	179,020	-	1,164,064	6,162,433
PENNSYLVANIA	10,641,012	189,000	150,000	-	-	2,693,874		135,000	-	-	146,345	-	1,903,472	15,858,703
PUERTO RICO	6,557,021	-	-	-	-	1,434,442		-	-	-	13,500	-	-	8,004,963
RHODE ISLAND	1,136,809	-	-	-	-	385,927		135,000	-	-	46,467	-	100,000	1,804,203
SOUTH CAROLINA	5,853,589	-	-	1,851,203	-	1,876,683		280,000	-	873,547	146,119	-	-	10,881,141
SOUTH DAKOTA	3,717,996	-	-	-	243,200	463,122		-	-	-	46,467	295,883	1,591,607	6,358,275
TENNESSEE	9,082,986	189,000	-	2,904,030	-	2,139,919		145,000	-	1,089,543	87,846	-	53,105	15,691,429
TEXAS	13,441,706	189,000	-	4,399,907	-	4,575,852		135,000	-	1,510,916	202,791	-	1,449,018	25,904,190
UTAH	1,871,579	189,000	-	-	-	410,548		135,000	-	-	49,402	-	247,038	2,902,567
VERMONT	1,914,193	-	-	-	-	319,443		80,000	-	-	46,467	-	814,739	3,174,842
VIRGIN ISLANDS	1,189,586	-	-	-	-	102,482		80,000	-	-	13,500	-	-	1,385,568
VIRGINIA	7,438,862	189,000	-	2,437,898	-	1,850,266		135,000	-	992,583	101,052	-	1,797,478	14,942,139
WASHINGTON	4,424,186	-	-	-	166,800	794,988		-	-	-	77,281	266,857	8,412,880	14,142,992
WEST VIRGINIA	4,263,590	189,000	-	1,388,168	-	1,128,675		405,000	-	826,080	71,706	-	100,000	8,372,219
WISCONSIN	9,158,629	189,000	-	-	72,400	1,033,218		145,000	-	-	75,814	281,357	2,563,986	13,519,404
WYOMING	1,698,748	-	-	-	88,400	275,851		-	-	-	50,870	-	-	2,113,869
PEER PANEL/OTHER	238,860	3,150	-	-	-	-	4,643	3,600	-	-	-		283,237	528,847
SUBTOTAL	291,742,500	4,275,600	150,000	42,163,200	2,917,440	67,417,320	2,400,000	8,059,200	1,488,000	17,641,537	3,897,600	4,268,160	75,914,770	519,935,327
FEDERAL ADMINISTRATION	8,257,500	178,150	6,250	1,756,800	121,560	516,680	100,000	335,800	62,000	789,200	162,400	177,840	13,666,000	26,030,180
OBLIGATIONS	300,000,000	4,453,750	156,250	43,920,000	3,039,000	67,934,000	2,500,000	8,395,000	1,550,000	18,430,737	4,060,000	4,446,000	89,580,770	545,965,507
BALANCE	-	-	-	-	-	-	-	-	-	-	-	-	31,665	31,665
TOTAL	300,000,000	4,453,750	156,250	43,920,000	3,039,000	67,934,000	2,500,000	8,395,000	1,550,000	18,430,737	4,060,000	4,446,000	89,612,435	545,997,172

Data may include 2015 obligations posted in 2016

OTHER

STATE	RURAL HEALTH & SAFETY	FEDERAL ADMINISTRATION	FOOD ANIMAL RESIDUE AVOIDANCE DATABASE	WOMEN AND MINORITIES IN STEM FIELDS	MANDATORY PROGRAMS	OTHER
ALABAMA	-	-	-	-	1,598,867	$1,598,867
ALASKA	-	-	-	-	-	-
ARIZONA	-	-	-	-	750,000	750,000
ARKANSAS	$162,364	-	-	-	2,513,915	2,676,279
CALIFORNIA	-	-	$396,000	-	6,497,987	6,893,987
COLORADO	-	-	-	-	-	-
CONNECTICUT	-	-	-	-	3,775,700	3,775,700
DELAWARE	-	-	-	-	845,424	845,424
DISTRICT OF COLUMBIA	-	-	-	-	3,976,020	3,976,020
FLORIDA	-	-	204,000		2,032,926	2,236,926
GEORGIA	-	-	-	-	702,852	702,852
GUAM	-	-	-	-	-	-
HAWAII	-	-	-	-	812,500	812,500
IDAHO	-	-	-	-	516,817	516,817
ILLINOIS	-	-	-	-	813,580	813,580
INDIANA	-	-	-	-	681,405	681,405
IOWA	-	-	-	-	798,393	798,393
KANSAS	-	-	396,000	-	-	396,000
KENTUCKY	-	-	-	-	540,717	540,717
LOUISIANA	-	-	-	-	878,326	878,326
MAINE	-	-	-	-	1,709,529	1,709,529
MARYLAND	-	-	-	$285,000	-	285,000
MASSACHUSETTS	-	-	-	-	4,955,974	4,955,974
MICHIGAN	-	-	-	-	6,021,779	6,021,779
MICRONESIA	-	-	-	-	-	-
MINNESOTA	-	-	-	-	3,529,111	3,529,111
MISSISSIPPI	-	-	-	-	1,319,900	1,319,900
MISSOURI	-	-	-	-	-	-
MONTANA	-	-	-	-	266,946	266,946
NEBRASKA	-	-	-	-	2,119,364	2,119,364
NEVADA	-	-	-	-	692,433	692,433
NEW HAMPSHIRE	-	-	-	-	641,222	641,222
NEW JERSEY	-	-	-	-	460,170	460,170
NEW MEXICO	-	-	-	-	299,999	299,999
NEW YORK	-	-	-	-	3,423,327	3,423,327
NORTH CAROLINA	-	-	204,000	-	299,997	503,997
NORTH DAKOTA	-	-	-	-	-	-
OHIO	-	-	-	-	-	-
OKLAHOMA	311,602	-	-	-	-	311,602
OREGON	-	-	-	-	1,164,064	1,164,064
PENNSYLVANIA	295,562	-	-	-	1,607,910	1,903,472
RHODE ISLAND	-	-	-	-	100,000	100,000
SOUTH CAROLINA	-	-	-	-	-	-
SOUTH DAKOTA	-	-	-	-	1,591,607	1,591,607
TENNESSEE	-	-	-	53,105	-	53,105
TEXAS	-	-	-	45,220	1,403,798	1,449,018
UTAH	-	-	-	-	247,038	247,038
VERMONT	-	-	-	-	814,739	814,739
VIRGIN ISLANDS	-	-	-	-	-	-
VIRGINIA	315,747	-	-	-	1,481,731	1,797,478
WASHINGTON	-	-	-	-	8,412,880	8,412,880
WEST VIRGINIA	-	-	-	-	100,000	100,000
WISCONSIN	350,000	-	-	-	2,213,986	2,563,986
WYOMING	-	-	-	-	-	-
PEER PANEL/CSAA	4,725	-	-	675	277,837	283,237
SUBTOTAL	1,440,000	-	1,200,000	384,000	72,890,770	75,914,770
FEDERAL ADMINISTRATION	60,000	8,357,000	50,000	16,000	5,183,000	13,666,000
SUBTOTAL OBLIGATIONS	1,500,000	8,357,000	1,250,000	400,000	78,073,770	89,580,770
UNOBLIGATED BALANCE	-	-	-	-	31,665	31,665
TOTAL	1,500,000	8,357,000	1,250,000	400,000	78,105,435	89,612,435

TABLE 1 - FISCAL YEAR 2015

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 CITRUS DISEASE RESEARCH AND EXTENSION PROGRAM	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	TOTAL FEDERAL FUNDS
ALABAMA	0	0	0	150,000	0	0	0	0	150,000
ALASKA	0	0	0	170,000	0	0	0	0	170,000
AMERICAN SAMOA	0	0	0	0	0	0	0	0	0
ARIZONA	202,000	0	0	286,000	0	0	0	0	488,000
ARKANSAS	0	0	499,984	106,000	0	0	0	0	605,984
CALIFORNIA	737,223	380,721	0	1,459,998	0	4,593,985	6,262,496	1,098,464	14,532,887
COLORADO	202,000	0	0	92,000	0	46,350	0	0	340,350
CONNECTICUT	0	0	0	165,000	0	0	0	0	165,000
DELAWARE	0	0	0	83,700	0	0	0	0	83,700
DISTRICT OF COLUMBIA	0	0	0	0	0	0	0	0	0
FLORIDA	737,223	523,018	214,782	339,900	0	11,298,872	13,544,458	1,994,559	28,652,812
GEORGIA	202,000	0	0	309,306	0	0	0	2,000,000	2,511,306
GUAM	0	0	0	32,500	0	0	0	0	32,500
HAWAII	0	0	0	0	0	0	0	0	0
IDAHO	0	0	0	274,300	0	0	0	0	274,300
ILLINOIS	0	0	492,596	1,134,600	0	3,672,482	0	0	5,299,678
INDIANA	575,837	0	0	468,767	0	0	0	50,000	1,094,604
IOWA	202,000	0	499,974	587,000	0	0	0	0	1,288,974
KANSAS	590,223	0	0	278,000	0	0	3,734,480	0	4,602,703
KENTUCKY	55,000	0	0	65,000	0	0	0	50,000	170,000
LOUISIANA	202,000	0	0	421,891	0	0	0	0	623,891
MAINE	0	0	0	119,000	0	0	0	999,120	1,118,120
MARYLAND	0	0	0	509,998	0	2,453,498	0	2,901,490	5,864,986
MASSACHUSETTS	0	0	0	194,000	0	0	0	0	194,000
MICHIGAN	610,223	0	0	430,151	237,680	10,542,903	0	0	11,820,957
MICRONESIA	0	0	0	0	0	0	0	0	0
MINNESOTA	55,000	0	0	194,500	0	0	0	0	249,500
MISSISSIPPI	55,000	499,998	0	88,800	237,680	0	0	49,273	930,751
MISSOURI	0	0	0	129,000	0	0	0	0	129,000
MONTANA	0	0	499,990	140,000	0	0	0	0	639,990
NEBRASKA	0	0	0	238,700	0	0	0	0	238,700

TABLE 1 - FISCAL YEAR 2015

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 CITRUS DISEASE RESEARCH AND EXTENSION PROGRAM	ORGANIC AGRICULTURAL RESEARCH AND EXTENSION INITIATIVE	TOTAL FEDERAL FUNDS
NEVADA	0	0	0	128,300	0	0	0	0	128,300
NEW HAMPSHIRE	0	0	498,384	160,000	0	0	0	47,018	705,402
NEW JERSEY	55,000	0	0	845,203	0	0	0	0	900,203
NEW MEXICO	55,000	0	0	0	0	0	0	0	55,000
NEW YORK	813,271	0	0	1,757,657	0	4,009,225	0	1,765,854	8,346,007
NORTH CAROLINA	202,000	0	0	1,812,500	0	6,745,400	0	0	8,759,900
NORTH DAKOTA	0	0	0	62,500	0	0	0	0	62,500
NORTHERN MARIANAS	0	0	0	0	0	0	0	0	0
OHIO	55,000	0	498,658	289,000	0	46,253	0	0	888,911
OKLAHOMA	0	0	0	412,159	0	0	0	0	412,159
OREGON	55,000	0	0	190,000	0	0	0	0	245,000
PENNSYLVANIA	55,000	0	375,243	195,000	237,680	0	0	999,972	1,862,895
PUERTO RICO	0	0	0	0	0	0	0	0	0
RHODE ISLAND	0	0	0	161,000	0	0	0	0	161,000
SOUTH CAROLINA	0	0	0	342,922	0	1,660,791	0	0	2,003,713
SOUTH DAKOTA	0	0	0	97,700	0	0	0	0	97,700
TENNESSEE	55,000	492,450	0	84,000	0	0	0	1,807,044	2,438,494
TEXAS	202,000	0	0	195,000	0	0	0	555,805	952,805
UTAH	0	0	0	105,000	237,680	0	0	0	342,680
VERMONT	0	0	0	192,600	0	0	0	974,720	1,167,320
VIRGIN ISLANDS	0	0	0	0	0	0	0	0	0
VIRGINIA	0	0	0	271,600	0	46,257	0	0	317,857
WASHINGTON	202,000	0	199,367	155,000	0	2,688,111	0	1,994,090	5,238,568
WEST VIRGINIA	0	0	0	84,500	0	0	0	0	84,500
WISCONSIN	202,000	0	0	267,600	0	226,905	0	49,992	746,497
WYOMING	55,000	0	0	66,850	0	0	0	242,908	364,758
BIOTECH	0	0	14,964	2,436	0	157,987	71,813	3,320	250,520
SBIR	0	18,560	37,120	159,616	9,280	709,711	312,918	172,052	1,419,257
PEER PANEL/OTHER	0	5,253	8,938	5,746	0	55,915	0	42,719	118,571
FED ADMIN	268,000	80,000	160,000	688,000	40,000	2,030,355	0	741,600	4,007,955
SUBTOTAL	6,700,000	2,000,000	4,000,000	17,200,000	1,000,000	50,985,000	23,926,165	18,540,000	124,351,165
UNOBLIGATED BALANCE	0	0	0	0	0	0	1,022,599	0	1,022,599
TOTAL	6,700,000	2,000,000	4,000,000	17,200,000	1,000,000	50,985,000	24,948,764	18,540,000	125,373,764

TABLE 2 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH

STATE	HATCH ACT	COOP FORESTRY RSH (MS)	1890 UNIV & TUSK UNIV (EA)	ANIMAL HEALTH & DIS RSCH	SPECIAL AND OTHER GRANTS	COMPETITIVE RESEARCH GRANTS	HIGHER EDUCATION GRANTS	FED ADMIN DIRECT APPROP	TOTAL FEDERAL FUNDS
FEDERAL ADMIN	7,075,419	1,018,830	1,625,550	160,000	2,356,440	17,500,000	2,045,960	20,339,000	52,121,199
SUBTOTAL, OBLIGATIONS	7,075,419	1,018,830	1,625,550	160,000	2,356,440	17,500,000	2,045,960	20,339,000	52,121,199
UNDISTRIBUTED	236,625,581	32,942,170	52,559,450	3,840,000	56,554,560	332,500,000	52,542,040	0	767,563,801
TOTAL	243,701,000	33,961,000	54,185,000	4,000,000	58,911,000	350,000,000	54,588,000	20,339,000	819,685,000

TABLE 3 - FISCAL YEAR 2017
DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH

STATE	HATCH ACT	COOP FORESTRY RSH (MS)	1890 UNIV & TUSK UNIV (EA)	ANIMAL HEALTH & DIS RSCH	SPECIAL AND OTHER GRANTS	COMPETITIVE RESEARCH GRANTS	HIGHER EDUCATION GRANTS	FED ADMIN DIRECT APPROP	TOTAL FEDERAL FUNDS
FEDERAL ADMIN	7,075,419	1,018,830	1,740,000	0	1,987,960	18,750,000	2,284,920	31,421,000	64,278,129
SUBTOTAL, OBLIGATIONS	7,075,419	1,018,830	1,740,000	0	1,987,960	18,750,000	2,284,920	31,421,000	64,278,129
UNDISTRIBUTED	236,625,581	32,942,170	56,260,000	0	47,711,040	356,250,000	50,992,080	0	780,780,871
TOTAL	243,701,000	33,961,000	58,000,000	0	49,699,000	375,000,000	53,277,000	31,421,000	845,059,000

TABLE 2 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR EXTENSION
(dollars in thousands)

STATE	SMITH-LEVER FORMULA	FARM SAFETY YOUTH FARM SAFETY EDUCATION AND CERTIFICATION	1890's UNIV & TUSKEGEE UNIV	FEDERALLY-RECOGNIZED TRIBES	EFNEP	YOUTH AT RISK	New Technologies at Ag Ext	1890 FACILITIES	RENEWABLE RESOURCES
FEDERAL ADMINISTRATION	8,257	184	1,825	122	517	336	62	789	162
UNDISTRIBUTED	291,743	4,426	43,795	2,917	67,417	8,059	1,488	18,941	3,898
TOTAL	300,000	4,610	45,620	3,039	67,934	8,395	1,550	19,730	4,060

	RURAL HEALTH & SAFETY	FOOD SAFETY OUTREACH	FEDERAL ADM	Extension Services at 1994 Institutions	Food Animal Residue Avoidance Database	Women and Minorities in STEM Fields	Mandatory Programs a/	TOTAL FEDERAL FUNDS
FEDERAL ADMINISTRATION	60	200	8,357	178	50	16	2,796	23,911
UNDISTRIBUTED	1,440	4,800	-	4,268	1,200	384	39,144	493,920
TOTAL	1,500	5,000	8,357	4,446	1,250	400	41,940	517,831

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

TABLE 3 - FISCAL YEAR 2017
DISTRIBUTION OF FEDERAL PAYMENTS FOR EXTENSION
(dollars in thousands)

STATE	SMITH-LEVER FORMULA	1890's UNIV & TUSKEGEE UNIV	FARM SAFETY YOUTH FARM SAFETY EDUCATION AND CERTIFICATION	FEDERALLY-RECOGNIZED TRIBES	EFNEP	YOUTH AT RISK	1890 FACILITIES	Home Visits for Remote Areas
FEDERAL ADMINISTRATION	8,257	1,934	184	234	521	336	868	800
UNDISTRIBUTED	291,743	46,416	4,426	5,605	67,513	8,059	20,835	19,200
TOTAL	300,000	48,350	4,610	5,839	68,034	8,395	21,703	20,000

	RENEWABLE RESOURCES	GRANTS TO YOUTH ORGANIZATIONS	FOOD SAFETY OUTREACH	FEDERAL ADM	Extension Services at 1994 Institutions	Mandatory Programs a/	TOTAL FEDERAL FUNDS
FEDERAL ADMINISTRATION	162	40	200	-	269	3,000	16,805
UNDISTRIBUTED	3,898	960	4,800	-	6,455	42,000	521,910
TOTAL	4,060	1,000	5,000	-	6,724	45,000	538,715

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

TABLE 2 - FISCAL YEAR 2016
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED PROGRAMS

STATE	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	18,624	37,248	160,166	9,312	-	173,576	1,041,454	1,440,380
BIOTECH RISK	-	5,489	-	-	-	-	177,471	182,960
FEDERAL ADMIN OBLIGATED	80,000	160,000	688,000	40,000	268,000	745,600	2,982,400	4,964,000
UNDISTRIBUTED	1,901,376	3,797,263	16,351,834	950,688	6,432,000	17,720,824	70,358,675	117,512,660
TOTAL	2,000,000	4,000,000	17,200,000	1,000,000	6,700,000	18,640,000	74,560,000	124,100,000

TABLE 3 - FISCAL YEAR 2017
DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED PROGRAMS

STATE	COMPETITIVE CAPACITY AWARDS PROGRAM	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	-	39,731	200,643	9,933	-	198,656	1,191,936	1,640,899
BIOTECH RISK	-	14,964	2,436	-	-	3,320	229,800	250,520
FEDERAL ADMIN OBLIGATED	-	160,000	808,000	40,000	400,000	800,000	3,200,000	5,408,000
UNDISTRIBUTED	-	3,785,305	19,188,921	950,067	9,600,000	18,998,024	75,378,264	127,900,581
TOTAL	-	4,000,000	20,200,000	1,000,000	10,000,000	20,000,000	80,000,000	135,200,000

Classification by Objects

(Dollars in thousands)

	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Personnel Compensation:				
Washington D.C.				
11 - Full-time employees.....	$34,171	$34,179	$34,288	$34,715
12 - Personnel Benefits.....	9,686	10,221	10,256	10,391
13.0 - Benefits for former personnel.....	45	0	0	0
Total, personnel comp. and benefits.....	43,902	44,400	44,544	45,106
Other Objects:				
21.0 - Travel & Transportation of Persons.....	1,193	2,078	3,617	3,617
22.0 - Transportation of Things.....	4	11	11	11
23.1 - Rent to GSA.....	42	5,114	5,245	5,245
23.2 - Rent Paid to Others.....	1	4	4	4
23.3 - Comm., Util., Misc. Charges.....	1,359	1,215	1,234	1,257
24.0 - Printing and Reproduction.....	147	219	145	145
25.1 - Advisory and Assistance Services.....	312	1,783	1,812	1,844
25.2 - Other Services from non-Federal sources	9,279	11,725	11,913	12,178
25.3 - Purchases of Goods and Services.....	100	687	715	715
25.4 - Oper & Maintenance of Facilities.....	2,019	0	0	383
25.5 - Research & Development Contracts.....	9,131	7,155	7,269	8,229
25.6 - Medical Care.....	60	0	0	0
25.7 - Operation & Maint. of Equipment.....	10	0	0	0
25.8 - Subsistence & Support of Persons.....	45	0	0	0
26.0 - Supplies and Materials.....	197	0	0	0
31.0 - Equipment.....	313	0	0	52
41.0 - Grants, Subsidies & Contributions.....	1,242,193	1,367,349	1,786,737	1,448,102
Total, Other Objects.....	1,266,405	1,397,340	1,818,702	1,481,783
99.9 Total, new obligations.....	1,310,307	1,441,740	1,863,246	1,526,889
DHS Building Security Payments (included in 25	--	687	715	715
Position Data:				
Average Salary (dollars), ES positions.....	$165,740	$192,350	$194,851	$197,968
Average Salary (dollars), GS positions.....	$100,846	$102,600	$103,934	$105,597
Average Grade, GS positions.....	11.8	11.9	11.9	11.9

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Shared Funding Projects

(Dollars in thousands)

	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Working Capital Fund:				
Administration:				
HR Enterprise System Management	-	-	$6	$6
Material Management Service Center	$51	$55	53	69
Mail and Reproduction Management	233	242	293	265
Integrated Procurement System	32	33	37	36
Procurement Operations a/	1	7	-	-
Subtotal	317	337	388	376
Communications:				
Creative Media & Broadcast Center	48	52	76	66
Finance and Management:				
NFC/USDA	102	102	107	101
Financial Systems	584	675	606	603
Internal Control Support Services	140	139	120	133
Subtotal	826	916	832	837
Information Technology:				
NITC/USDA	567	531	138	153
Telecommunications Services	41	173	215	227
Client Technology Service	432	430	349	349
Subtotal	1,041	1,135	702	729
Correspondence Management	62	50	42	41
Total, Working Capital Fund	2,294	2,489	2,040	2,049
Departmental Shared Cost Programs:				
1890's USDA Initiatives	11	11	13	13
Advisory Committee Liaison Services	1	2	2	2
Classified National Security Information	-	4	3	3
Continuity of Operations Planning	8	8	8	8
Emergency Operations Center	9	9	9	9
Facility and Infrastructure Review and Assessment	2	2	2	2
Faith-Based Initiatives and Neighborhood Partnerships	1	2	2	2
Federal Biobased Products Preferred Procurement Program	1	-	-	-
FITARA Administration and Operations	-	-	35	48
Honor Awards a/	0	0	0	0
Hispanic-Serving Institutions National Program	8	7	9	9
Human Resources Transformation (Inc. Diversity Council)	7	7	6	6
Identity & Access Management (HSPD-12)	26	27	27	27
Intertribal Technical Assistance Network	12	12	15	15
Medical Services	15	31	38	38
People's Garden	2	3	3	3
Personnel and Document Security	6	5	4	4
Preauthorizing Funding	14	15	16	16

	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Retirement Processor/Web Application	2	2	2	2
Sign Language Interpreter Services	21	-	-	-
TARGET Center	4	6	6	6
USDA 1994 Program	3	3	5	5
Virtual University	8	8	8	8
Visitor Information Center	1	-	-	-
Total, Departmental Shared Cost Programs	161	163	214	227
E-Gov:				
Budget Formulation & Execution Line of Business a/	0	0	3	3
Enterprise Human Resources Integration	9	8	8	8
E-Rulemaking	4	3	7	13
E-Training	11	11	10	-
Financial Management Line of Business	1	1	1	1
Geospatial Line of Business a/	-	-	7	13
GovBenefits.gov	-	-	-	-
Grants.gov	2	2	166	375
Grants Management Line of Business	-	-	-	-
Human Resources Line of Business	1	1	1	1
Integrated Acquisition Environment - Loans and Grants	7	8	-	-
Integrated Acquisition Environment	3	3	23	54
Recreation One-Stop	-	-	-	-
Total, E-Gov	38	37	226	468
Agency Total	2,493	2,689	2,479	2,744

a/ Less than $500,000

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Status of Programs

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 program for the 1890 Colleges and Tuskegee University 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, pest control 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 change, 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, between 3.0 to 3.2 percent of appropriations for extramural research and development is 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 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; 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 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 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.

- 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 7121of 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.

- Rural Health and Safety Education. The program helps rural residents avoid the numerous obstacles 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 change 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.

- 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:

- Hatch Act. Researchers at the Connecticut Agricultural Experiment Station have conducted field trials on new cultivars of specialty melons, broccoli, and edamame. The experimental trials showed that cultivar selection can dramatically increase yields and profits for the grower. For melons, adoption of a new cultivar will potentially net growers approximately $20,000 more per acre. Adoption of new cultivars of broccoli and edamame were shown to provide profit increases of $23,000 and $32,000 per acre, respectively.

  Another project at the University of Missouri is developing a new system that saves up to 50 percent of energy expenses by recycling heat previously wasted. The Air Heat Recovery System works by capturing the air ventilated from poultry barns. The system can save the typical Missouri poultry operation about half of the 7,000 gallons of propane used each year, which is more than $10,000 in savings at today's prices. The cost reduction would be even greater in colder regions. The recovery system also improves the air quality going into the barn, reducing dust, ammonia and carbon dioxide levels. There is evidence that improved air quality helps birds gain weight faster, have greater feed conversion, and less mortality.

- McIntire-Stennis Cooperative Forestry Research. Forest product researchers at Oregon State University successfully developed cellulose nanocrystals, which hold the potential for increasing the value of forest products. Cellulose nanocrystals are tiny crystalline rods of cellulose that are extracted from trees. This new technology offers a promising alternative to non-renewable based products. Researchers worked to show how this new alternative has a non-toxic nature and can be used for food coatings and additives. Additional research and collaboration with other experts helped refine mathematical models for creating additional products for development, including utilizing the technology for batteries and as a new pill technology, such as a coating, to deliver therapeutic agents.

- Evans-Allen Program. Researchers at Alabama A&M University have established that off-bottom oyster farming is economically viable. Off-bottom farming systems use baskets, rafts, racks or longlines to suspend young oysters in the water instead of growing them on the sea bottom or on oyster reefs. Growing oysters off the bottom of the sea allows growers to farm in areas where coastal erosion prevents successful oyster farming,

protects the oysters from predator, and suspends the oysters in nutrient rich waters. In collaboration with Auburn University and other partners, eight commercial oyster farms were established in Alabama with more than twelve acres in production. Since the aquaculture project began, over one million oysters have gone to market with a wholesale value of at least $500,000. This is expected to more than double in the coming year. The oyster farms created at least six long-term, part-time jobs.

- Special Grants. Global Change UV-B Monitoring Program. University of Colorado scientists developed a geographically distributed cotton growth model from the original GOSSYM (a cotton simulation model) and optimized it for coupling with the regional Climate-Weather Research Forecasting model. The group is examining many aspects of the cotton industry such as model input costs related to altered management regimes, overall losses in U.S. cotton production, regional changes in numbers of cotton producers and production, effects on cotton processing industries, impacts on rural communities that rely on cotton crops and the counterbalancing economic impacts of improved crop varieties or other efficiency advances.

  Minor Crop Pest Management-IR4. The goal of the IR-4 program is to facilitate the provision of safe and economical pest management solutions for growers of minor and specialty crops. Studies funded by regional centers establish tolerances for pesticides and standard methods to support the production of safe, high quality fruits and vegetables. In the Western Region IR-4 Center, located at the University of California, there are over 350 specialty crops and an extensive ornamental industry in need of support. To meet this need, over 160 field residue trial data packages were submitted to the program Headquarters at Rutgers University in New Jersey for submission to the U.S. Environmental Protection Agency. These trials conduct efficacy evaluations of insecticide, herbicide, and fungicides on a variety of specialty and ornamental plants. These regional center programs across the U.S. meet the critical industry need to provide information to regulatory agencies and producers, so they can make the best choices for management of these important minor crops and plants.

  Aquaculture Centers. The Northeastern Regional Aquaculture Center (NRAC) funded a project entitled "Assessment of grow-out strategies for the green sea urchin," with researchers at the University of Maine, University of New Hampshire, Maine Sea Grant, and an industry partner, Friendship International. The research demonstrated to industry that hatchery and nursery production of green sea urchins are reliable sources of green sea urchin 'seed'. The research also showed that out-planted green sea urchins will remain within commercial lease boundaries. This resulted in several industry inquiries regarding hatchery capacity and seed costs, as well as three Maine-based companies applying for sea-bottom leases to culture green sea urchins offshore. Additionally, the project showed that market-sized green sea urchins could be produced in on-land tanks which enables further access to funding to evaluate intensive land-based gonad enhancement aquaculture. Uni sushi, the sea urchin's gonads, can be classified as high-grade or low-grade sushi at market, depending on the development of the animal. To enhance gonad development, farmers can supplement kelp feed, and change the temperature and the amount of light that sea urchins are exposed to during growth. The economic benefits of this research could double the final market value of processed roe for domestic sushi markets. This could revitalize a fishery annually valued at around 5 million dollars in Maine.

  Sustainable Agriculture Research and Education (SARE). In 2015, SARE crossed the milestone of 500 graduate student grants awarded. In total, there are 544 graduate student projects beginning with the Southern region in 2000, the North Central region in 2002, the Western region in 2006, and the Northeast region in 2010. This program funded innovative research projects and encouraged early career scientists in their pursuit of sustainable agriculture research. The SARE graduate student program, which awards approximately 50 grants each year, is just one of SARE's five core grant programs which collectively award approximately 400 grants each year. One example of how graduate grants are contributing to our progress toward sustainable agriculture is shown through student research at North Carolina State University. The research is testing the effectiveness of herbal alternatives to antibiotic treatments for control of mastitis in dairy cows. Mastitis, or inflammation of the mammary gland, is a costly health issue faced by dairy farmers. Ultimately developing alternatives to antibiotics reduces the possibility of antibiotic residues in food products and lowers the selection pressure for antibiotic-resistant bacteria. This program also gives graduate students the opportunity to gain skills and experience to launch their careers in the food and agricultural sciences.

- Agriculture and Food Research Initiative. The University of California-Davis-led Triticeae Coordinated Agriculture Project (T-CAP) and Wheat CAP, and the University of Minnesota-led Barley CAP, used

knowledge gained from the genomes of these crops to develop improved varieties. Approximately 15 percent of the harvested wheat acreage—worth approximately $3.5 billion—and four percent of the harvested barley acreage in the U.S. come from wheat and barley varieties developed by these projects. These new varieties have traits that include improved disease resistance, nutritional value, yield, drought tolerance, and adaptability to a changing environment. The T-CAP team also created a toolbox to provide plant breeders with additional information so they can develop improved wheat and barley lines. Project investigators have mentored 108 undergraduate students, 136 graduate students, and 25 postdoctoral researchers.

The altering of natural fire regimes in the Southwestern U.S. has led to extensive areas of dense, young forests that are susceptible to severe wildfires and mortality from drought and disease. Tribal societies and resources are particularly vulnerable as the climate warms, from the large knowledge gaps that exist when planning for changes to ecosystems across the region. By linking research on forest fire ecology with educational and extension activities, researchers at Northern Arizona University are assisting the Hualapai Tribe in adapting and managing their lands. Through the involvement of the community, teachers, extension educators, tribal and Federal leadership, this Post-Doctoral project will have a long-term impact on the management of tribal and Federal ponderosa pine forests across the Southeast. This study is the first in the region to document fire frequencies that resemble those of a near-historical fire regime using prescribed fire for management, resulting in new strategies for managing the forest and new approaches for projecting fire behavior.

Researchers at the University of California are exploring new ways to produce isobutanol, and gluconate as a co-product, from poplar feedstock which may prove more economical than current production methods. Isobutanol is a potential renewable substitute of gasoline and an intermediate for diesel and jet fuel. Current methods for production involve a five step process involving pretreatment, cellulase production, enzyme treatment to make sugars, fermentation to make gluconic acid from sugar, and anaerobic fermentation to produce isobutanol from sugar. Researchers are testing a new combined method in a three step process which may save production costs. Contributions from this project include the basic understanding of the organisms used for cellulose conversion in bio-fuel production, and application of streamlined processes to other industrially relevant fungi for cellobionic acid production from cheap feedstocks.

Producers face knowledge gaps and a lack of outreach resources to respond appropriately to increasing public concern regarding livestock production practices. Researchers at Kansas State University are working to fill these gaps with targeted applied research to start effective communication with cattle producers on small and medium-sized farms. Both the economics and well-being of animal welfare issues are being addressed to produce better strategies that are responsive to both producers and the general public through survey analysis, and studies to show the farmers the most effective and practical ways to improve the welfare of beef and dairy cattle. Implications of this research as participants deliver the results are still being realized as they continue to inform the community about how the beef-cattle industry can tackle the economics of evolving technology and regulations effectively.

- Small Business Innovation Research Program. Whole Trees, LLC, a four-time grantee in Wisconsin, developed a new market for small-diameter round timber, which is a waste product of well-managed forests. By 2016, this business is projected to increase its local revenue from $150,000 to $4 million and double its staff. Construction projects that use Whole Trees products receive triple the amount of Leadership in Energy and Environmental Design credits for green structural material. Their current project is targeting the supply chain needs of the forestry industry as it meets a growing demand for structural round timber.

- Biotechnology Risk Assessment Research Grants Program. The Biomedical Research Institute of New Mexico is working to advance methods for environmental monitoring and transmission blocking – a dual risk mitigation strategy for biotechnology products. Conventional methods to control vector-borne diseases with chemical pesticides often cause adverse effects on human health and the environment. Vector-borne diseases are diseases that are transmitted by a specific agent, such as the malaria transmitting mosquito. This research collaboration with the University of New Mexico, University of California, and Queen Mary College University of London is developing an advanced approach using transgenic antibodies directed at the agent that causes Pierce's disease in grapes. Creating a transgenic control for Pierce's disease may have far-reaching applications in the control of other agricultural vector-borne diseases currently under development. The researchers have developed a new way to encapsulate and contain transgenic controls released into the environment. Researchers are working to

test these new technologies under controlled circumstances after demonstrating how encapsulated delivery to the agent can work to combat the disease.

- Tribal Colleges Research. Northwest Indian College (NIC) in Washington is partnering with Oregon State University to study manila clams (Venerupis philippinarum) in order to gain insight on why populations of this culturally important aquatic species appear to be declining. Researchers seek to determine how elevated levels of hydrogen sulfide in sediment affect the growth rate of manila clams. The college will use a gas chromatograph to analyze chemical components in the diet of manila clams. Since this is the first time the instrument will be used, the project will greatly build NIC's capacity by increasing the number of students and faculty on campus who can conduct analysis with it. It will also increase the chances that students working on the project can obtain additional internships or jobs in a research field.

  Another project at Blackfeet Community College (BCC) in Montana used funding to teach students how to establish and monitor water quality in key Blackfeet waterways. By establishing a baseline for water quality on these rivers, the Blackfeet reservation will now be able to detect changes in water quality caused by hydraulic fracturing near the reservation. The students learned field research techniques and how to calibrate and read data from hydrocarbon analyzer sensors. In the future, BCC hopes to find the source of contamination of the northernmost watershed of the Blackfeet Tribe, which has the highest concentration of hydrocarbons.

- Higher Education Programs. 1890 Institutions Capacity Building Grants Program. South Carolina State University educators are promoting agricultural careers among youth attending Orangeburg Consolidated School District Five and Felton Laboratory School District in South Carolina. The project attracts and exposes 6th - 8th grade students to careers in Agricultural, Food and Environmental Sciences, and Natural Resources. Thirty-two students from underrepresented groups in the surrounding Orangeburg County rural school districts attended a summer camp. Survey results from summer camp participants revealed success for the program. Ninety-seven percent of the attendees reported they plan to attend college. Of those students, 53 percent reported wanting to know more about agriculture; 50 percent considered majoring in agriculture; and 69 percent contemplated taking agriculture courses at the Technology Center.

  Hispanic Serving Institutions Education Grants Program. University of Texas-Pan America staff are training underrepresented students, especially Hispanic Americans, at state-of-the-art research facilities in food safety and security research. Six research mentors trained twelve undergraduate students and six graduate students in laboratory skills needed for entering advanced graduate degree programs or obtaining the necessary experience to join the USDA food safety and security workforce. The program successfully transitioned three of the undergraduate student participants from undergraduate studies to Masters studies, and one graduate student successfully completed his Masters in Science degree. Another graduate student also was able to disseminate his research by attending the 2013 meeting of the American Phytopathological Society in Austin, TX. Students reported being able to apply lessons learned in the classroom to lab work. Students also reported enjoying the research experience, working with others, and that participation in the training program will enhance their progression toward attaining a degree and in career success.

  Tribal Colleges Education Equity Grants Program. A project run by Diné College in Arizona helped students in the Navajo Nation to achieve their potential in mathematics. The project was in response to results in an Arizona's state school standardized test that indicated Native American students were at the bottom on math achievement. Diné College students and other Navajo Nation community-based organizations held the Baa Hozho Engineering Festival for 6-to-12th-grade students drew 298 youth and 26 teachers for 15 sessions on science, technology, engineering and mathematics (STEM). The college provided teachers with STEM instructional kits and robotics activities for their students. The project director held youth STEM camps, festivals and math educators' workshops where mathematicians provided teaching strategies targeting specific grade levels. The college helped primary school teachers start math circles to introduce games and activities that promote problem solving abilities.

  Alaska Native Serving and Native Hawaiian Serving. The University of Hawaii's Agribusiness Education, Training, and Incubation (AETI) project develops and expands the local agricultural and food production workforce through education and training, and works to help agribusiness be more productive. Twenty-one new courses and five new degree and certificate programs increased the University of Hawaii's capacity to

educate students in areas related to agriculture. As a result, 324 students of AETI-supported programs found employment. In addition, more than 80 new agribusinesses opened their doors, and existing businesses reported an average profit increase of 290 percent, with an employment increase of 29 percent each year.

Grants for Insular Areas. The Caribbean and Pacific Consortium program was developed to provide higher education in Agriculture and Food Science, within the Insular Areas. New curriculum and undergraduate agriculture and food science courses were developed, and recruitment and retention efforts were implemented as a result of this program. As a result, admissions to insular colleges and universities increased by 10 percent and 85 percent of students were retained. The program provided 53 scholarships to associates degree students, to support advancement toward degree fulfillment. The University of the Virgin Islands reported that seven undergraduates participated in research projects in animal science, horticulture, aquaculture, biotechnology, and agroforestry. Those students presented their research findings at the Student Research Symposium and other national conferences.

Veterinary Medicine Loan Repayment Program (VMLRP). The VMLRP makes it possible for NIFA to repay up to $25,000 each year of student loan debt to eligible veterinarians. In return, qualified veterinarians must agree to provide food animal medical care for three years in certain high-priority veterinary shortage situations. Under current funding levels, NIFA is able to offer awards to an average of 50 veterinarians each year making it possible for them to pursue a career in food animal veterinary medicine, a career that is financially out of reach for most early career veterinarians due to soaring levels of educational debt. Forty states currently have at least one awardee. For one VMLRP awardee, located in Georgia, USDA assistance made it possible for him to become a partner in a veterinary clinic, open up a satellite office about 50 miles away, and hire two veterinary graduates.

- Smith-Lever 3(b) and (c). The Iowa Beef Center, along with numerous industry partners, sponsored two series of heifer development programs. Topics included the latest technologies in beef reproduction, genetics and nutrition. Workshop participants managed more than 51,000 cows and 14,000 heifers. Post-program surveys found that 63 percent of participants implemented at least one of the best management practices presented. Sixty-seven percent of participants reported increasing pregnancy rates by an average of 4.8 percent for their replacement heifers, resulting in a minimum economic benefit of $262,000 per year over marketing the open replacement heifer. Forty-seven percent of participants expanded their cow herd, and 38 percent retained additional replacement heifers. Participants also reported an average financial impact to individual operations of $1,170, a total of $553,000 in added economic value to the participants in this program.

  The European Grapevine Moth (EGVM) has had negative effects on vineyard acreage since its introduction in 2010. Supported by recent applied research efforts, Cooperative Extension programs run by the University of California have provided information on insect identification, biology, life cycle, and appropriate treatments in a timely fashion to growers, managers, and advisers. These programs contributed to the following environmental improvements: 150,760 California vineyard acres were affected by EGVM regulatory program in 2010; by the fall of 2014, that number had been reduced to 49,312 acres. At the peak of the EGVM regulatory program, it affected growers in 10 California counties; as of 2014, that number has been reduced to two counties. In 2010, a total of 100,959 moths were captured in traps across California; in 2014, only one moth was caught in traps across California.

- Smith-Lever 3(d). The Expanded Food and Nutrition Education Program (EFNEP) addresses some of the most pervasive societal challenges—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. More than 80 percent of EFNEP families report living at or below 100 percent of the poverty level. The 2014 EFNEP Impact Report, released in March 2015, showed that 94 percent of EFNEP adult graduates improved the quality of their diets, 89 percent improved their nutrition practices, 84 percent stretched their food dollars farther, 66 percent of adults handled their food more safely, and 39 percent increased their physical activity by at least 30 minutes each day. Collectively, program graduates reported over $1 million in food cost savings. State success examples include: The EFNEP program in Kentucky reported that of the 2,443 adults participating, 94 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, and sugars to help guard against chronic diseases and encourage healthy food

choices. Moreover, 39 percent of adult participants showed an increase in physical activity.
The average savings per month per household reported in Maryland was $23 which equals a total cost savings of more than $18,000 per year, while improving the quality of food consumed.

Farm Safety and Youth Farm Safety Education and Certification. Vermont Extension conducted a pilot test of "Play It Farm Safe". The "Play It Farm Safe" game, specifically the Tractor and Machinery module, was tested to evaluate knowledge gained among users. All of the participants reported they "learned something" from the game and also found it to be entertaining. Extension workers also developed and promoted collaborative relationships between numerous farm-focused organizations around the issue of youth farm safety; providing tractor safety, farm first aid, and CPR trainings. The tractor and machinery training program was provided and 100 percent of the participants are now certified. The project reached the target audience of youth, particularly girls and young women, who were working or planning to work on small, diversified farms. Training also was offered to youth living on operating farms as well.

Children, Youth and Families at Risk (CYFAR). The CYFAR program is based on research of effective programs for at-risk youth and families and on the human ecological principle of working across the lifespan in the context of the family and community. In North Carolina, the Juntos program has been an invaluable asset to the Latino communities it serves by providing Latino parents and their youth with the information and resources needed to pursue academic success and combat the high school dropout rate among Latino students. Through successful coaching/mentoring, family workshops, 4-H club meetings and educational and leadership camps, the organization closed the educational achievement gap for thousands of Hispanic students in the U.S. Juntos students experience improvements in their homework and study behaviors, communication with peers, parents and school staff, parental involvement, and college preparedness. Additionally, students experience a positive sense of community, are given rewarding volunteer opportunities, and are assisted in developing their education and career paths. Results showed: 91 percent of participating youth improved their high school GPA, 87 percent of youth said Juntos motivated them to graduate from high school, and 79 percent of youth said Juntos motivated them to go to college. There also was a 17 percent increase in the number of participating youth taking or planning on taking the Scholastic Aptitude Test or American College Testing exam, with 87 percent of the participants feeling like they now belong in school.

Federally-Recognized Tribes Extension Program (FRTEP). North Dakota State University (NDSU) collaborated with the Fort Berthold Diabetes Program to offer "Dining with Diabetes" where the participants learn to manage their condition through meal planning. NDSU is the only extension office to offer this program on a reservation in North Dakota. This demonstrates the FRTEP mission of providing equality in access to informal learning for Indian Country.

New Technologies for Agricultural Extension. On the 10th Anniversary of eXtension's founding, the Initiative led by the University of Nebraska is growing and changing. The eXtension 3,184 Experts increased the number of questions answered by 29 percent over 2012, answering 48,008 questions. Of the questions answered, 54 percent of users had never heard of or use Cooperative Extension before asking the question; 44 percent of the users questions had some significant economic value and 78 percent were satisfied or completely satisfied with their answers. The top 25 performing Communities of Practice (CoP) had 1.3 million total views on YouTube; reached 5 million users on Facebook and engaged 400,000 users. The Top 25 performing CoPs were: Livestock and Poultry Environmental Learning Centers (Animal Manure Management); HorseQuest; Imported Fire Ants; eOrganic; Military Families; Plant Breeding and Genomics; DaireXnet; Entrepreneurs and Their Communities; Farm and Ranch eXtension Safety and Health; Farm Energy; Healthy Food Choices in Schools; Network Literacy; Bee Health; Feral Hogs; Extension Disaster Education Network; eXtension's Alliance for Better Child Care; Diversity, Equity and Inclusion; Personal Finance; Small and Backyard Flocks; For Youth, For Life; Home Energy; Cooperatives; Families, Food and Fitness; Beef Cattle; and Geospatial Technology.

- Extension 1890 Institutions. Alabama Agricultural and Mechanical University uses educational resources such as rain barrel workshops, rain catchment systems, and a 36-foot mobile lab to inform consumers about the importance of water conservation. In 2012, the Home Grounds team educated more than 18,520 adults about the importance of water conservation. Due to these efforts, approximately 50,825 gallons of water was collected from rainwater saving more than $50,000. In addition, 5,439 pounds of produce was harvested from rainwater

dependency, and 475 adults adopted xeriscaping management practices by incorporating desert landscapes or drought tolerant plants such as the rainwater project on the Jack-O-Lantern Farms.

- 1890 Facilities. At Alcorn State University, in Mississippi, the final construction and equipping of the Environmental Ecology and Natural Resources Center was completed. This facility is being used by research scientists, agricultural science faculty, and cooperative extension professionals to conduct research, provide instruction, and provide extension and outreach services to meet the needs of internal and external stakeholders of the university. Additionally, conversion of an existing research facility to a food processing lab and product development center was completed. The Product Development Center is used to cultivate the products of both the university and the surrounding communities, for mass production and marketing to the public. The Center collaborates with the Natchez Farmers Market, which serves as the site of a new kitchen incubator facility. The incubator, a prerequisite to the product development center, serves as a product laboratory allowing the University to assist the creator in perfecting his or her design and presentation. A purpose of the Center is to produce Alcorn brand products, such as its famous hot sauce, soynut cookies, various jams and jellies, among other products. Another purpose is to assist individuals and small businesses in value-added production.

- Renewable Resources Extension Act (RREA). Forests cover about 67 percent of Mississippi with around 72 percent held by nonindustrial private owners. Mississippi State University Extension is educating family forest owners and managers about the economic opportunities and benefits of forest stewardship. Through extension programs, owners and managers learn the skills needed to manage forestlands for maximum benefit. Extension specialists delivered sixty educational events and twenty educational communication products through RREA funds, leveraged by funding from State, Federal and Private sources. Workshops like "Understanding Global Position," teach landowners how to use geospatial and sensor technology to measure forestland boundaries, mark timber harvesting areas, roads, points of entry, and special sites. Through this work they reached over 2,500 contacts who learned ways to manage their land to maximize both private economic opportunities, and the public benefits through enhanced resource management. In one year they estimate forest management was improved on over 3.5 million acres.

- Extension Services at 1994 Institutions. At Fort Berthold Community College in North Dakota, the equine therapy program works with youth in juvenile detention and with youth identified as disruptive and at risk by school counselors. The equine therapy program draws on the cultural significance of horses in the Three Affiliated Tribes culture and builds youth self-esteem while restoring their confidence as learners. Members of the Three Affiliated Tribes embraced this program and Horse Fun Days, a community event. Both build the reputation of the school and recruit students to the college. Moreover, Extension educators provide ten hours of nutrition education to 200 students in five reservation school districts based on traditional gardening. And through their livestock project 50 youth learn about animal care and participate in the local fair.

- Section 406 Programs. <u>Organic Transition Program</u>. The fertility of organic agro-ecosystems is dependent upon soil organic matter, an indicator of soil health, which supplies much of the nitrogen (N) and carbon in organic agriculture systems. Few data sets compare different organic systems. Researchers at North Dakota State University are comparing the effects of key best management practices including disturbance, amendment type, and livestock integration, across five organic cropping systems. The research will determine how these types of organic systems effect carbon sequestration, nitrogen cycling, and greenhouse gas emissions. The research also is contributing to our understanding of how microbial community members controlling reactive N (nitrates, nitrous oxide) and carbon cycling contribute to or reduce greenhouse gas emissions. These activities support the potential of reduced tillage organic systems to lower greenhouse gas emissions when nitrogen is coupled with carbon derived from organic materials such as compost, cover crops, residues and animal manure. The results also may indicate the types and quantities of nitrogen cycling organisms can be used as indicators of soil health to assess the impact of short and long-term management on soil processes such as the transformation and cycling of elements between non-living and living matter, which reduce or contribute to global climate change in long term organic vegetable and pasture systems.

  <u>Crop Protection/Pest Management</u>. The Crop Protection/Pest Management Program was established two years ago. Within this timeframe, the program has provided approximately $32 million for 35 new Applied Research and Development projects on agriculturally important insect pests, crop diseases, weeds in cropping systems, and urban pests; four Regional Coordination awards for the Regional IPM Centers to increase regional

coordination and collaboration for integrated pest management; and awarded 49 continuation awards for Extension Implementation Program Area programs for implementation of integrated pest management in state-based programs. A California project has documented Integrated Pest Management (IPM) adoption and impacts in reducing pest-management risks to people and the environment.

- Regional Rural Development Centers. The Regional Rural Development Centers, NIFA, and USDA's Rural Development improved regional coordination of economic development activities in rural America through the launch of the Stronger Economies Together (SET) Initiative, Led by the Southern Rural Development Center located at Mississippi State University. SET advances new ways of thinking by bringing together an inclusive mix of local representatives to plan for their regional possibilities. Currently 54 regions in 30 states are engaged in, or have completed, the SET planning processes. Measurable outcomes realized to date include $112 million leveraged in grants and resources in SET regions, and 30 newly aligned regional planning teams and counties working together for the first time. Over 1,500 organizations are engaged in the planning process across 54 local regions, creating implementation region-specific plans to strengthen rural healthcare, agritourism, broadband access, entrepreneurism, agribusiness, and transportation.

- Food and Agriculture Defense Initiative Programs. National Plant Diagnostic Network (NPDN). NPDN is a 50-state network of land-grant university-based plant diagnostic laboratories. The network is led by diagnostic laboratory centers at Cornell University (New York), University of Florida, Kansas State University, Michigan State University, and University of California at Davis. These institutions receive direct funding from NIFA and provide support to the other land-grant plant diagnostic laboratories in their region through subcontracts, training, and leadership resulting in Federal funding in every state. All 50 States and many U.S. territories are connected to the NPDN through digital distance diagnostics, used throughout the Nation to speed early detection of high consequence plant pathogens and solve other agricultural problems. This web-based diagnostics system allows plant diagnosticians in one location to transmit a digital image across the country to someone with special expertise. Plant disease (and insect) detection criteria have been developed for Soybean Rust, Sudden Oak Death, Ralstonia Stem Rot, Plum Pox Virus, Pink Hibiscus Mealybug, Potato Wart, Huanglongbing (Citrus Greening), Potato Cyst Nematode, Late Blight, Beet Curly Top, Citrus Leprosis, Citrus Blackspot, and Wheat Stem Rust variants, especially Ug99. In FY2015, the NPDN diagnosed nearly 100,000 samples from homeowners, crop consultants, producers, public and regulatory officials, maintaining a broad survey of current issues and providing reliable, unbiased recommendations to the submitter. Three labs have been fully accredited through the System for True Accurate and Reliable laboratory accreditation system and another eight labs are in process. These new lab accreditations increase the credibility of the network and bring the quality of lab processes into International Organization for Standardization or ISO-like alignment. The three labs are certified to assist with Phytophthora ramorum screening, which causes Sudden Oak Death. In 2015, those three labs, along with other triage labs, screened more than 750 samples from at least three incidents or activities to reduce the risk to public plantings and those in the general public, the specialty crop industry, and our natural areas. Emerald Ash Borer was identified outside the quarantine area in New York during a training session for nursery and garden professionals. The discovery was significant from a training perspective, but also created an advantage in defining the new distribution of the pest and triggering a response and recovery plan for the region.

  National Animal Health Laboratory Network (NAHLN). NAHLN is a national network of non-Federal public animal diagnostic laboratories under the leadership of NIFA and the Animal and Plant Health Inspection Service (APHIS), in partnership with State participants. The network is part of a national strategy to coordinate the Nation's Federal, State and university animal diagnostic laboratory resources to combat high consequence foreign animal disease threats. Numbers of diagnostic laboratories at each of three merit-based levels of participation depend upon the ability of each lab in the network to meet standards and criteria established by APHIS and NIFA, in consultation with the Network's Coordinating Council (CC). NAHLN CC membership includes Federal oversight by APHIS and NIFA agro-security program leaders, and rotating representation by state and university NAHLN lab directors and State Animal Health Officials. NIFA anticipates supporting approximately 11 high capacity (level-1) NAHLN labs and 10 Level-2 NAHLN labs in FY-2017. APHIS supports additional Level-2 and Level-3 NAHLN laboratories depending on available funding. Animal disease-detection criteria have been developed for the following high-consequence foreign animal diseases: Foot-and-Mouth Disease, Exotic Newcastle Disease, Classical Swine Fever (or hog cholera), Highly Pathogenic Avian Influenza (HPAI), Low Pathogenic Avian Influenza, Bovine Spongiform Encephalopathy, Scrapie, Chronic

Wasting Disease, Rift Valley Fever, African Swine Fever, Swine Influenza Virus, Swine Pseudorabies Virus, and Vesicular Stomatitis Virus. In addition to providing protection against these well-known high-consequence diseases, NAHLN resources and capabilities are also engaged to evaluate assays (e.g., for Foot-and-Mouth disease virus in milk), to respond to new emerging diseases such as the Porcine Epidemic Disease Virus (PEDv), and to surveil for antimicrobial resistance in support of the National strategy to combat antibiotic resistant bacteria (CARB). During 2015, the NAHLN played a critical role in the detection, containment, and control of the Avian Influenza (H5N2 HPAI) outbreak in U.S. backyard poultry, and scores of commercial chicken and turkey production facilities. Several NAHLN laboratories were activated, especially in the most severely impacted states of Minnesota and Iowa. The networks' diagnostic capacity was challenged but not exceeded; test results were routinely provided within 24 hours of sample receipt. Efficient sample collection and processing, high through-put assay capabilities, and rapid test result reporting by the NAHLN was key to eventual containment of the 2014-15 cycle of this disease. The NAHLN is well positioned, with procedural improvements based on lessons-learned from this recent outbreak, to respond even more effectively should HPAI return during the 2015-16 influenza season.

Extension Disaster Education Network (EDEN). EDEN partnered with the Federal Emergency Management Agency (FEMA) to help emergency managers across the nation increase preparedness for an agricultural disaster. EDEN specialists worked with FEMA's Emergency Management Institute to develop the first national, virtual, agricultural table top exercise held in June 2015, which was implemented at a community fair. More than 250 people participated, including representatives from state Departments of Agriculture, state and community fair planning teams, veterinarians, state and local emergency management agencies, and farming communities. Participants included the states: Alaska, Arizona, Colorado, Florida, Maine, Michigan, Mississippi, Montana, Nebraska, North Dakota, Oklahoma, Pennsylvania, South Dakota, Texas, Vermont, Virginia, and Wyoming, and the city of Washington DC. Emergency responders in Nebraska conducted a follow-up exercise where more than 140 people from multiple agencies in the state attended. As a result, emergency responders in multiple states, including 29 agencies, are better prepared for an agricultural disaster.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Summary of Budget and Performance

Statement of Department Goals and Objectives

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 success depends on our core values which include:

- Integrity: We value individual and organizational diversity and transparency; we honor our promises and follow through on our commitments; and we promote ethical, inclusive and unbiased behavior internally and with partners.
- Transformation: We are forward-looking, creative visionaries and problem-solvers; we encourage risk-taking that leads to new ideas and innovative solutions; and we are committed to the next generation and dissemination of new knowledge.
- Engagement: We work with partners and other stakeholders to identify and address programmatic needs; and we work with partners to implement and improve programs.
- Impact: We are passionate about promoting relevant, value-added programs and services; we are action-oriented and accountable for exemplary performance in all we do; and we are committed to driving outcomes that matter to the American people and to the world through service.

NIFA has four strategic goals and eleven strategic objectives (Sub-goals) that contribute to the five USDA Strategic Goals and provide research, education, and extension to support the Department in meeting Agency Priority Goals.

USDA Strategic Goal 1: *Assist rural communities to create prosperity so they are self-sustaining, repopulating and economically thriving*

USDA Strategic Objective 1.1: *Enhance Rural Prosperity, Including Leveraging Capital Markets to Increase Government's Investment in Rural America*

Due to the vast number of budget line items, NIFA assesses its programs around ten program portfolios. NIFA program portfolios which primarily support this objective include Agricultural Systems, Education and Multicultural Alliances, Youth Development, and Family and Consumer Science, although others may also support it. Annually, NIFA staff assess funding programs and monitor progress towards our strategic goals through these portfolios. In 2015, each portfolio is reporting progress toward the applicable sub-goals of our strategic plan internally. These internal progress reports are published on the agency intranet for all science staff to respond.

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.1. Advance our Nation's ability to achieve global food security and fight hunger.	• Extension • Research • Integrated • Higher Education	Expanded economic opportunities in Rural America and increased knowledge pertaining to economic diversification, community planning, service infrastructure, local government, youth/adult workforce planning, and civic engagement through innovative integrated research and extension projects targeted to regional business, economic and business development.

Key Performance Measure:

Annual Performance Goals, Indicators, and Trends	Actual				Target	Actual Estimate	Result	Estimated Target	
	2011	2012	2013	2014	2015			2016	2017
1.1 Number of college graduates prepared for the professional and technical workforce in the food and agricultural industry	N/A	29,300	29,300	30,700	35,400	35,400	Met	35,400	35,800
Allowable Data Range for Met – The tolerance range for the measure to be "met" is 95 percent.									
Assessment of Performance Data									
Data source – The Purdue University report, "Employment Opportunities for College Graduates – in Food, Agriculture, Renewable Natural Resources, and the Environment." The source for the 2014 numbers is http://www3.ag.purdue.edu/USDA/employment/pages/default.aspx. A new study was published in 2015 which can be found at https://www.purdue.edu/usda/employment/.									
Completeness of Data – The study is published once every five years, including in 2010 and 2015. N/A denotes the fiscal years before this performance measure was put in place, therefore the data is not available.									
Reliability of Data – Data from published years represents actual information, which is used for estimates during interim years, and adjusted based on changes in education budgets.									
Quality of Data – This 3rd party evaluation is funded by NIFA and is considered reliable and accurate.									

Analysis of Results

Selected Past Accomplishments Toward the Achievement of the Key Outcome FY 2015:

- Met the agency expected compliance rates. The new report from Purdue University published in 2015 indicated that there were more graduates than estimated. Future targets for graduation rates have been adjusted to use the 2015 actual number as the base target and adjusted according to any changes in the budget for education programming.

- Of the many outcomes reported in the NIFA portfolios, results reported by grantees include: NIFA National Program Leaders serve as leaders and positive youth development experts for other federal agencies including the Department of Defense and the Department of Health and Human Services. 4-H participation results in high levels of civic engagement such as a program that established a framework for a network of youth 4-H ambassadors and teen teachers across the 4-H system. Learning and engagement in food and agricultural sciences through programs and opportunities at secondary and postsecondary institutions. Researchers developed online educational modules and in-person training and mentoring to underserved groups which has been used by 25,823 people. Extension leaders from the twelve North Central 1862 land grant universities developed common indicators for reporting the impacts of community development educational programs. Last year North Central Extension Community Development Programs measured over $360M of impacts and 25,470 jobs created or saved. Other programs train local governments to respond to agricultural disasters.

- In Hawaii, Windward Community College's (WCC) Certificate of Achievement (CA) in Agripharmatech program addresses an area of emerging technology that has been identified by the College, the University, and

the State as being of great strategic merit, emphasizing technology-related workforce development initiatives. The CA certificates were designed to substantially boost food security, nutritious food/health consciousness, high-tech farming, in vitro culture, transgenic orchids, plant-based product manufacturing and post-harvest technology. Within one year, the number of Agripharmatech certificates awarded increase by 100 percent. The number of Plant-Food Production and Technology certificates award increase over 100 percent, within a year. A high percentage of CA Agripharmatech graduates are pursuing Baccalaureate degrees in plant and health-related sciences, entering globally competitive workforce, and becoming successful agribusiness entrepreneurs, helping to promote the State's economic development.

- Funding through the Multicultural Scholars Program awarded scholarships to outstanding students from groups traditionally underrepresented in the food and agricultural sciences, to encourage these students to pursue and complete their education at the baccalaureate and/or Doctor of Veterinary Medicine (D.V.M.) degree level. The Multicultural Scholars Program provided five awards to support 28 Multicultural Scholars throughout the Nation. One of the awards is to Alcorn State University, an 1890 Land-Grant Institution and Historically Black Colleges and Universities (HBCU).

- During the summer of 2014, students from the Hispanic Serving Institutions Experiential Learning collaborative projects participated in 388 internships. USDA agencies hosted 130 students and non-USDA institutions hosted 258. The number of career experiences has increased for participants each year, from 234 the first year to 375 the second year to 388 the third year. Of the students participating in seven collaboration projects from forty institutions, 47 percent are first generation college students. Projects focus on watershed management, sustainable agriculture, natural resources, sustainable energy, and other approaches to help meet the need for agriculture to increase production while decreasing its' carbon footprint. One experiential learning project analyzed intercropping systems for soil carbon sequestration in Washington through an internship with the Agricultural Research Service. This project studies integrated nutrient management using natural fertilizer byproducts from the conversion of animal waste to produce energy on farms. The student plans to pursue a higher degree in Agricultural Engineering.

- There is a dire need for an educated and dedicated workforce to tackle critical challenges facing sustainable forest tree industries. In response, an Agriculture and Food Research Initiative (AFRI) project supported travel for students and young scientists to attend the Southern Forest Tree Improvement Conference held at Clemson, South Carolina. This provided young scholars a unique opportunity to 1) experience presenting their data in a scientific meeting; 2) receive feedback on their research from leading scientists; 3) network with senior professionals and meet with potential employers from industries, government, and academia; and 4) learn about new technologies. Also, a Career Development Workshop was held for the students and postdoctoral fellows to ask professionals from academia, industry, and government questions. Without this funding, the fifteen participating students could not afford to attend and would have missed out on the educational opportunities provided by the conference. The society also benefited from the influx of new talent and new ideas.

<u>Selected Accomplishments Expected at the FY 2017 Proposed Resource Level/Challenges for the Future:</u>
The changes in demographics of the school age population is a challenge for the future. Minorities are underrepresented in STEM, especially agricultural sciences. The program is increasing its focus on all underrepresented groups. Therefore, the goal is to maintain the number of graduates we have had in the recent past.

There are several factors that affect graduation rates. These include population growth rates, school enrollment, college enrollment, enrollment in agriculture, and retention in agriculture, among others. Some factors are influenced by budget constraints, including enrollment in agriculture and retention, due to the availability of scholarships and fellowships, for example. However, there is no direct one-to-one increase. We do make adjustments to target projections based on budget changes because there is no accurate method to make adjustments for increases in population or graduation rates. Other graduation data sources are unreliable or may not yield compatible results due to differences in how to measure an issue. However, we are working with the Food and

Agricultural Education Information System (FAEIS) to improve and increase the frequency of reporting in this system for the future.

Recent analyses undertaken by the Food and Ag STEM Council reveals that over 11,500 jobs needed to be filled each month from January to August in 2014, with nearly 34,000 people hired in these fields each month in the United States, during the same period. However, only approximately 32,000 degrees are being granted annually in the food, agricultural, natural resources, and human sciences. The Purdue University report, "Employment Opportunities for College Graduates in Food, Agriculture, Renewable Resources and the Environment," projects that there will be 57,900 jobs, on average, available annually during the next five years for graduates with bachelor's or higher degrees; only 61 percent of these jobs will be filled by graduates with a background in these disciplines. There are significant shortages in several areas, including, for example, plant and animal breeding, crop and animal sciences, entomology and plant pathology, weed science, soil science, food science and engineering, natural resources engineering, and agribusiness. Additionally, with the aging farm population (the current average age of the American farmer is 58.3 year) there's a critical need to attract young people to produce food. Nearly a quarter of industry professionals in agricultural disciplines are approaching retirement age. Similarly, we have lost over 30 percent of extension positions across the United States, and extension is critically important to translate knowledge into innovations and solutions, which farmers, livestock producers, and others need. To address these needs, new education and training grants to students, scientists, and education professionals will help to develop the highly skilled workforce and the next generation of scientists capable of leading a strong production agriculture enterprise.

Grant programs will focus on the education pipeline continuum using the following approach:

- Develop pathways to engage K-14 students and promote positive youth development by providing professional development opportunities for K-14 education professionals;
- broaden experiential learning opportunities for undergraduates to address the 21st century workforce skills necessary to advance relevant professions; and
- advance science and promote innovation by supporting graduate and postgraduate education to cultivate future leaders who are able to address and solve emerging agricultural challenges of the 21st century.

The AFRI Food, Agriculture, Natural Resources and Human Sciences Education and Literacy Initiative will provide learning opportunities for undergraduate research and extension experiential learning such that upon graduation, students may enter the agricultural workforce with exceptional skills. Experiential learning will provide opportunities for undergraduate students at colleges and universities, including those from underrepresented ethnicities and economically disadvantaged groups at minority-serving institutions, community colleges, and other institutions to:

- obtain hands-on experience at land-grant and non-land-grant universities and USDA laboratories;
- obtain training to join the agricultural workforce or pursue graduate studies in food, agriculture, natural resources and the human sciences; and
- provide undergraduate students with the strong mentoring and research and/or extension experiences required to be successful as upperclassmen and graduate students in the food, agriculture, natural resources, and human sciences.

This initiative aligns with the recommendations regarding the importance of undergraduates made in the December 2012 President's Council of Advisors on Science and Technology (PCAST) report to the President on Agricultural Preparedness and the Agriculture Research Enterprise. The offering of undergraduate fellowships is also consistent with the National Research Council's 2009 report, Transforming Agricultural Education for a Changing World, which recommends that academic institutions should broaden the undergraduate student experience by integrating opportunities to participate in research, education, and extension. Furthermore, four-year colleges and universities should enhance connections with community colleges, 1890, and 1994 land-grant institutions.

Predoctoral and postdoctoral fellowships serve as a conduit for new scientists and professionals to enter research, education, and extension fields within the food, agriculture, natural resources, and human sciences. The aim of these fellowships is to cultivate future leaders who are able to address and solve emerging agricultural challenges of the 21st century. These fellowships are consistent with the recommendations of the 2012 President's Council of

Advisors on Science and Technology (PCAST) report, Agricultural Preparedness and the Agriculture Research Enterprise.

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;
- 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;
- and helping families, youth and individuals to become physically, mentally, and emotionally healthy.

Additional Performance Measures

USDA Strategic Objective 1.1: *Enhance Rural Prosperity, Including Leveraging Capital Markets to Increase Government's Investment in Rural America*

1.1	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						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Cumulative number	12,800	13,905	14,775	15,461	16,172	16,922	17,758

1.1	The number of individuals with prior military service who participate in research and educational initiatives that lead to increased farm-related opportunities for military Veterans						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Cumulative number	--	--	--	--	--	--	500

USDA Strategic Objective 1.2: *Increase Agricultural Opportunities by Ensuring a Robust Safety Net, Creating New Markets, and Supporting a Competitive Agricultural System*

1.2	The number of new drought and disease resistant varieties of wheat and barley to reach commercialization.						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Number Per Year	--	3	4	4	5	5	6

USDA Strategic Objective 1.3: *Contribute to the Expansion of the Bioeconomy by Supporting Development, Production, and Consumption of Renewable Energy and Biobased Products*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.4. 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.	• Extension • Research • Integrated • Higher Education	Expanded science-based knowledge and technologies to generate high-quality products and processes by: (1) increasing knowledge of bioenergy and biomass conversion, (2) creating new commercially viable and marketable alternative crops, and alternative markets for non-food products from existing crops.

1.3	Number of new bio-based products successfully patented.						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Number Per Year	N/A*	6	5	5	9	6	6

*Data is not available for years prior to implementation of this performance measure.

Selected Past Accomplishments Toward the Achievement of the Additional Measures FY 2015:

Micronic Technologies is working to make clean and safe drinking water from well water with unsafe nitrate levels using their new product "MicroDesal." Nitrates are unsafe for humans – especially children and pregnant women – and livestock. This new technology produces a tornado-like effect that creates mini water droplets, and quickly evaporates the water to separate impurities. Clean water is recaptured for use, and early results show the successful removal of heavy metals, nitrates, phosphorus, and bacteria. The company recently moved from Delaware to an economically-depressed area of rural southwest Virginia and formed a new partnership with the University of Virginia's College at Wise. The goal of this collaboration is to bring more jobs and boost the local economy while playing a role in cleaning up water from rural coal mines. Micronic Technologies is a woman-owned, family business which employs military veterans and provides student interns with real-world experiences.

The 14R cooperative, a non-profit organization on the Navajo Nation, and the Navajo Beef marketing initiative resulted in Navajo ranchers going from earning $400 to $1,400-$1,500 per beef carcass. The project led to a 343 percent growth in cattle purchases over less than three years. The project director at the University of Arizona in Tucson used distributed funding among seven reservations to help foster the partnership with Labatt Foods Inc., BK Cattle Company, and Padres Mesa to help make this project a success, and now Jicarilla Reservation producers are joining the project, too.

State and local extension staff and 4-H volunteers provide training for military staff, and teen and adult volunteers. Training, along with 4-H youth curriculum, helps military staff deliver life-changing experiences to military youth. Nearly 5,000 military personnel and volunteers participated in professional development opportunities, provided primarily through face-to face opportunities and distance education. In Pennsylvania, 4-H worked across the state to bring together more than 600 military-youth and 4-H youth to engage in community service projects. Together, they worked 213 community service hours at local food banks, Ronald McDonald House, and various community based events. "4-H has helped my kids grow in ways I never imagined."—Service Member

4-H STEM programming helps youth take positive steps in high school toward a future that includes science literacy and in some cases, STEM careers. The Offutt 4-H club in Massachusetts included 323 youth participating in two separate 10-week programs focused on STEM activities in rocketry, electricity, and engineering. More than 80 percent of the youth reported they liked learning about the content areas (polymers and growing grass), like science,

and get excited about new discoveries. “The youth have really taken off with 4-H and enjoy the wide variety of educational learning.”—Air Force staff. In Massachusetts, a new science club called “Take a Club Outside” was formed after 81 percent of military families and community members indicated they had little knowledge about the outdoors. Six educational lessons focusing on safety, backpacking, survival skills, and first aid were completed before the group went on their first backpacking trip. Youth camp safety knowledge increased from 15 to 90 percent and showed that youth learned to read a compass to navigate, gained confidence in setting up camp with a team, and know how to follow the “leave no trace” philosophy when hiking.

The Kansas AgrAbility project worked with the Kansas State Extension Office connected with the Warrior Transition Battalion at Fort Riley to increase knowledge of work opportunities available to soldiers after discharge, and to change attitudes concerning disabilities. Working with the Kansas Beginning Farmers Coalition this project renewed consultations with Fort Riley Soldiers, Family Assistance Center occupational therapists and social workers. Through this work and participation in other outreach efforts, including the Assistive Technology and Ergonomics Communities of Practice, they reached out to military veterans by providing information on accommodating disability in agriculture. Forty-six military veterans were reached directly through AgrAbility programming which is designed to help people with limitations or disability safely farm. This program trains community advocates and community members, provides individualized consultative services, conducts on-farm assessments, and helps identify sources of funding for farmers focusing on accommodating disability in agriculture while avoiding secondary injuries.

The Northwest Advanced Renewables Alliance (NARA), a sustainable bioenergy coordinated agricultural project at Washington State University, is working to convert wood waste to renewable aviation fuel. Their industrial partner, Gevo, adapted their Integrated Fermentation Technology and hydrocarbon technology to successfully convert the waste wood cellulosic sugars to Gevo’s alcohol-to-jet-fuel. NARA’s airline partner, Alaska Airlines, plans to fly a demonstration flight using 1,000 gallons of alternative biofuel next year. Sustainable biofuels are critical in helping the airline industry reduce its carbon footprint and reduce dependence on fossil fuels.

Iowa State University worked to develop a supply chain to move corn stover to a new generation of ethanol plants that produce ethanol from plant cellulose, which proved to be a different task from the normal corn gain supply chain already in place. Their project developed supply chain training sessions to educate more than 70 employees of companies created to serve the supply chain, producing a supply of high quality, economically viable product for biorefineries while maintaining soil health.

Hundreds of farmers and ranchers lend their expertise to the USDA-SARE program, pioneering sustainable farming practices to learn about best practices and passing that information to other farmers and ranchers. Three of those pioneers were among the twelve men and women that were honored this year by the White House as Champions of Change for Sustainable and Climate-Smart Agriculture. One honoree first tested cover crops on their farm in Bladen, Nebraska using a farmer/rancher grant, and now is a national leader in the advancement of cover crops. His website offers practical information about his research, cost calculators to determine the results for mixes and quantities of seed, and other factors such as nitrogen-fixation potential and carbon-to-nitrogen ratios for mixes for nearly 40 cover-crop species. The farmer now manages a seed business with 3,500 customers who plant cover crops on one million acres across the country.

Pasture-raised poultry can be environmentally beneficial to produce. Organic producers particularly value chicken litter for fertilizing fields, and research has shown that appropriate rotational grazing of livestock, including poultry, can improve pasture quality and increase animal health. Poultry production can provide a cost-effective way to enhance and diversify crop-based farm operations. However, in New England, poultry enterprise budgets have higher costs imposed by the regulatory environment, feed inputs, and access to premium markets. One SARE Partnership Project worked with six farmers to collect information related to their poultry enterprises to identify challenges and best practices to produce published case study guides for farmers. Five workshops were held relating to production and marketing, drawing over 100 participants. Cost savings were identified and implemented including the use of a Mobile Poultry Processing Unit to process and market their product, adoption of mesh fencing which reduced predation losses by five percent, and on-farm innovations to reduce egg collection time by at least 10 minutes per day. Five of the six participating farmers already are working to scale up their poultry enterprises, and the resources produced will help others to enter this niche market.

The University of California-Davis-led Triticeae Coordinated Agriculture Project (T-CAP) and Wheat CAP, and the University of Minnesota-led Barley CAP have used knowledge gained from the genomes of these crops to develop improved varieties. Approximately 20 percent of the harvested wheat acreage—worth approximately $3.5 billion—and four percent of the harvested barley acreage in the United States come from wheat and barley varieties developed by these projects. These new varieties have traits that include improved disease resistance, nutritional value, yield, drought tolerance, and adaptability to a changing environment. The T-CAP team also created a toolbox to provide plant breeders with additional information so they can develop improved wheat and barley lines. Project investigators have mentored 108 undergraduate students, 136 graduate students, and 25 postdoctoral researchers.

With crop production costs at record highs, producers must get the most out of every bag of seed, every jug of crop protection product and every tank of fuel. To get the highest return on investment, farmers can adopt precision agriculture technology. Alabama Cooperative Extension assembled a curriculum to teach farmers how to incorporate precision agriculture into their farming operations. The classes were conducted online and included video presentations and tests on yield monitoring and mapping, site specific management, soil fertility, global positioning system (GPS) technologies, Variable Rate Technology, and Automatic Section Control Technology. The course can be accessed through the Alabama Precision Agriculture homepage. Over six thousand students from around the globe have already participated. After completing the course, students estimate they will save an average of 3.4 gallons per acre and reduce fertilizer and crop protection chemical usage by 13.57 percent.

Ohio State University scientists conducted a pre- and post-assessment of producers and a survey of meat processors. The producer surveys identified the barriers to entry into grass-based production based on the perceptions of the producers who need to implement the changes. The meat processor survey will allow for Extension programs aimed at educating both producers and processors about production costs and desires of consumers wanting meat products from grass-fed animals. The knowledge gained from the beef and sheep experiments allow for timely, scientifically valid information to update recommendations for management practices that relate to forage-based production of grass-fed animals. Fifty-four percent of Ohio's 26 million acres are in farms, and the livestock sector is an important component of Ohio's agriculture. Growing consumer interest in localized food production and Ohio's strong agricultural base combined with a population of more than 11.5 million people provides livestock producers' opportunities to diversify production and marketing strategies. This project has shown both the production and processing opportunities, and limitations, to grass-based production in the Midwest, and gives new insights into the perceptions of beef and sheep producers as well as provides a greater understanding of their decision making strategies.

USDA Strategic Goal 2: *Ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources*

USDA Strategic Objective 2.1: *Improve the health of the nation's forests, grassland, and working lands by managing natural resources*

USDA Strategic Objective 2.2: *Lead Efforts to Mitigate and Adapt to Climate Change, Drought, and Extreme Weather in Agriculture and Forestry*

USDA Strategic Objective 2.3: *Ensure U.S. agricultural resources contribute to enhanced global food security*

NIFA program portfolios which primarily support this objective include Climate Change, Agricultural Systems, Environmental Systems, Bioenergy and Education and Multicultural Alliances, although others may also support it. The complex feedback between climate and production system dynamics, indicates a need for long-term, decadal, research programs to address this issue fully. The Climate Change portfolio is currently working with the National Science Foundation (NSF) to support an interagency program on carbon, and focusing on gaps in the portfolio. One of these gaps focuses on better understanding of the strategic consequences of potential or projected agriculture, range and forestry-related shifts in land use with respect to climate mitigation and resilience of production systems at a national level.

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.2. Advance the development and delivery of science for agricultural, forest, and range systems which are adapted to climate variability and change and can mitigate climate impacts.	• Extension • Research • Integrated • Higher Education	Expanded and disseminated science-based knowledge and information for management of the nation's natural resources and environment, including soil, air and water, in agricultural, forest, and range working lands and ecosystems.

Key Performance Measure:

2.2 Annual Performance Goals, Indicators, and Trends	Actual				Target	Actual	Result	Estimated Target	
	2011	2012	2013	2014	2015			2016	2017
Percentage of metric tons of CO2 equivalents sequestered per hectare per year by U.S. cropping agriculture	N/A	0.2	0.2	0.3	0.4	0.4	Met	0.4	0.4
Allowable Data Range for Met – The tolerance range for the measure to be "met" is 80 percent.									
Assessment of Performance Data									
Data source – The data was collected by the U.S. Environmental Protection Agency (EPA) Greenhouse Gas inventory available at http://www3.epa.gov/climatechange/ghgemissions/usinventoryreport/archive.html.									
Completeness of Data – The data collected is considered complete and final. N/A denotes the fiscal years before this performance measure was put in place, therefore the data is not available.									
Reliability of Data – Data is collected by the EPA then analyzed by the USDA and normalized to hectares. This data is considered reliable.									
Quality of Data – The data is regarded as being accurate and satisfactory.									

Analysis of Results

Selected Past Accomplishments Toward the Achievement of the Key Outcome FY 2015:

- Met the agency expected compliance rates.

- Analysis for this performance measure was conducted using information and analytical tools from the National Greenhouse Gas Emissions Data at the EPA. Analyses also stem from current scientific literature, USDA reports and unpublished data on greenhouse gas emissions in agriculture, as well as from reports provided by NIFA funded projects. In addition, extensive synthesis documents such as the National Climate Assessment provide information on current trends in greenhouse gas sinks in the U.S. according to sector. Note that future metrics under this performance measure may need to change the units of measurement, as the EPA prefers to use Teragram CO_2 equivalents at a national scale, rather than on a per hectare basis. This portfolio is working to develop new metrics to assess the success of overall programming.

- The climate change team continues to work on a contributed book entitled "Agriculture and Natural Resources Science for Climate Variability and Change: Transformational Advancements in Research, Education and Extension." As a result of research, more robust models are enabling better forecasting of climate change

impacts on production systems, forests are better managed to increase carbon sequestration, and a web-based plant breeding network has been successfully implemented.

- Human activities related to agriculture over the past century have resulted in climate change with detrimental effects across the agricultural landscape, including decreased water availability, soil degradation, changes in cropping patterns, reduced crop productivity, increased pest pressures and food insecurity. The sequestration of carbon through the use of conservation systems may help to mitigate these effects. A Kansas State University AFRI project examined small and medium agricultural crop producers' ability and willingness to intensify on-farm conservation efforts to provide carbon offsets in an established carbon market in the Midwestern United States. A natural resource farm management tool was developed that allows small and medium size farmers to assess on-farm conservation practices and systems, including carbon sequestration potential; on-site environmental benefits; production costs and returns; and optimal economic management strategies. The project has led to the development of conservation budgets for conservation practices, including conservation tillage practices; cover crops; crop nutrient management practices; precision agriculture; and crop rotations. Moreover, a set of recommendations for future development will help to reduce farmers' risk in adopting conservation contracts. For example: conservation programs should promote the impact of off-farm benefits; consider offering higher incentives for new and innovative on-farm conservation practices, such as cover crops; not reward practices already adopted, such as no tillage; allow farmers to adopt practices over a specified timeframe one at a time; and consider the risk faced by farmers entering into conservation contracts.

- The Regional Approaches to Climate Change in the Pacific Northwest (REACCH) coordinated agricultural project led by the University of Idaho is working to reduce the vulnerability of cereal production systems in the northwest region through decision support tools. Their team worked with producers to achieve a four-fold increase in the adoption and effective use of precision agriculture equipment leading to increased nitrogen use efficiency and reduced emissions from wheat production areas across the study region. Other accomplishments include increases of 50 percent in acreage planted using soil and soil carbon conservation methods including direct seeding or reduced tillage, and doubling the acreage planted to rotations including legumes, resulting in reducing applied nitrogen requirements. The project supports 34 graduate students, 28 student interns, and has worked with high schools and teachers across the region to incorporate climate change and agriculture information into curricula. Project information and tools, including over 100 datasets, is presented on their public website.

- Weather and climate patterns are a driving force behind the success or failure of Corn Belt cropping systems. "Useful to Usable' (U2U) is a collaboration among nine North Central universities led by Purdue University designed to improve the resilience and profitability of U.S. farms in the Corn Belt amid a variable climate. The U2U initiative has launched several new decision support tools in the past two years to help farmers and agricultural advisors manage increasingly variable weather and climate conditions. For example, "Corn Split N" combines historical weather data and fieldwork conditions with economic considerations to determine the feasibility and profitability of completing a post-planting nitrogen application for corn production. These new digital tools will help farmers adapt to changing weather conditions.

- University of California scientists identified adaptive solutions to changes in pest pressure for perennial woody crops (in particular almond, walnut, and grape) under climate change by examining conditions that may be more favorable for pest feeding and development. One practical outcome of this study is the identification of the almond variety, "Marcona", as especially good at resisting mites and dry conditions. Interviews suggested that growers are reluctant to use this variety, due to lower yields. However, as growers become aware of the pest resistance and increased Water Use Efficiency that this variety possesses, they may be more likely to adopt it. These findings will provide growers with increased knowledge when making cultivar selections so that they are better able to make adaptive decisions. By linking pest management with plant and soil health, this research provides holistic recommendations of how to manage above- and below ground ecological interactions to create robust ecosystems that are resilient to climate change.

- Cornell University researchers are building tools for both small and large-scale corn growers with low-cost soil carbon assessment greenhouse (GHG) accounting tools, and will provide policymakers with an evaluation of the current and long-term costs and benefits of policy incentives for this sector of the agricultural economy. Researchers have developed two new web-based tools, Comet Farm and Adapt-N, for farmers, extension

agents, crop consultants, and academics to evaluate simulations of proposed scenarios for specific locations. Their Adapt-N tool was commercialized this year, and voted as the new product of the year by growers in Agroprofessional magazine. This new tool includes new output information for growers about greenhouse gas emissions, including nitrous oxide emissions (N2O), for corn growers in 26 states, with additional interest from industry and environmental protection groups. Nitrous oxide is emitted from synthetic fertilizer production and use, and N2O molecules stay in the atmosphere for an average of 114 years before being removed or destroyed. The crop-soil biogeochemical model outputs developed by researchers are linked to economic performance and mitigation policy effectiveness at nationally integrated scales. Collectively, soil carbon assessment results indicate that tillage has a greater impact on soil organic carbon in the top 30 cm, than crop rotation or residue removal. Through this and other information now available for farmers, potential increased carbon sequestration in corn cropping systems would help decrease greenhouse gases to mitigate climate change.

Selected Accomplishments Expected at the FY 2017 Proposed Resource Level/Challenges for the Future:

The US Environmental Protection Agency (EPA) maintains the Greenhouse Gas Reporting Program. Challenges for meeting future targets include the voluntary reporting of emissions and sinks from the agricultural sector. In addition, current models and standard methods for greenhouse gas measurements need to be implemented on a national basis. A recent USDA report, titled Quantifying Greenhouse Gas Fluxes in Agriculture and Forestry: Methods for Entity-Scale Inventory will help USDA evaluate current and future greenhouse gas conservation programs, as well as develop new tools and update existing ones to help farmers, ranchers and forest landowners participate in emerging carbon markets.

The AFRI Climate Variability and Change Challenge Area will support the President's Global Climate Change Initiative (OMB m-15-16) by supporting development of new scientific knowledge for mitigating atmospheric greenhouse gases and adapting agriculture to climate variability and change, and work to make this knowledge usable in decision-making. Among other issues, this program will focus on the impact of climate on food and fiber systems; climate resilient land use for agriculture and forestry; and the effects of climate on microbial communities and how this impacts their interactions with soil, food, plants, and animals. The program provides agricultural and forestry producers, land managers, and other decision-makers with information, technologies, and decision-support tools about greenhouse gas mitigation, adaptation strategies, and policy outcomes. In turn, these allow crop, animal, forest, rangeland and even urban managers to develop approaches that take climate variability into account when implementing adaptation strategies to improve long-term sustainability of food and fiber production. Through the USDA Global Change Task Force, shared objectives and common interests with USDA agencies and offices for agriculture and forestry are accomplished. Federal agency collaborations for climate science take place through the U.S. Global Change Research Program.

The overall goals of the Climate Change program include:

- Reduce energy, nitrogen, carbon, and water footprints in agriculture production systems.
- Develop and implement new nitrogen fertilizer recommendations that optimize yield while reducing greenhouse gas emissions.
- Improve agricultural and forest sector inputs to climate change models.
- Identify new production practices that increase soil carbon while reducing GHG emissions.
- Translate genomics research and resulting technologies to the agricultural and forestry production sector to adapt to climate vagaries.

The AFRI Agriculture and Natural Resources Science for Climate Variability and Change (AFRI ANRCVC) Challenge Area will support research to facilitate the adaptation of agroecosystems and natural resource systems to climate variability, and the implementation of mitigation strategies in those systems. Focus areas include:

- Climate and Microbial Processes in Agroecosystems
- Climate Resilient Land Use for Agriculture and Forestry
- Synthesis and Assessment of USDA NIFA's Climate Investments

The program will provide opportunities for the development of new scientific knowledge for adaptation to climate variability and change, mitigate atmospheric greenhouse gases, and make this knowledge accessible and usable in decision-making. Increased funding will support critical research on the effects of climate on microbes, pathogens, arthropods, weeds, and other pests. Future opportunities are anticipated to include an emphasis within the microbial community research area on mitigating enteric methane emissions. This will provide process- level knowledge of the impact of climate on the environmental-microbial matrices and host-pest interactions in food, plants, animals, and aquatic and soil ecosystems.

In addition, the program has identified the following as priorities for the future:

- A National Legume Germplasm program that provides new knowledge and tools for conventional breeders to use the nation‘s legume germplasm efficiently and to design new varieties adapted to changing climates;
- Regional coordination of networks, consortia, and operational systems addressing climate science and science delivery for agricultural and forestry development and, advancing a bio-based economy that has emerged as an urgent need for increased efficiency of operation and sharing of resources. (The USDA Climate Hubs are an example of this);
- Understanding and enhancing animal physiology and production efficiency, including livestock and aquaculture. This topical area could potentially provide for a set of projects in collaboration with animal production and agricultural systems;
- Understanding and predicting the transboundary movement and proliferation of invasive species and diseases in cropping and livestock systems impacted by climate variability and change. This topical area could potentially provide for a set of projects in collaboration with plant and animal production and protection, and natural resources and environment;
- Understanding climate change impacts on the prevalence and prevention of food and water-borne diseases. This topical area could potentially provide for a set of projects in collaboration with plant and animal production and protection, food safety, and nutrition.
- Integrating climate education for sustainable production and consumption of agricultural products and services for public engagement and workforce development. This topical area could potentially provide for a set of projects in collaboration with community and education, 4-H, youth, and consumer science.
- Understanding the adaptive capacity of rural communities to climate change. The focus would be on: i) the food and national security implications of the vulnerability of rural communities to climate change; and ii) the role of adaptation in the country’s rural development process based on an understanding of where and how climate change might affect rural households and whole communities. This program could focus primarily on the vulnerability and adaptation of rural communities to climate variability and change, and develop an understanding of complex issues at a level that would enable policy and decision makers to resolve them with the precision that is necessary for rural America.

These priorities will move the portfolio forward, building upon a plan of growth and expansion into food, feed, fiber and fuel production systems and invest in new areas of agroclimate science and science delivery. Targeted areas will focus on adaptation and mitigation strategies for major regional cropping, livestock and forestry production systems that have not yet been covered by the program, including legumes, horticulture crops, swine, cultured fin and shellfish, and hardwood forests.

Additional Performance Measures

USDA Strategic Objective 2.1: *Improve the health of the nation's forests, grassland, and working lands by managing natural resources*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.3. Optimize the production of goods and services from working lands while protecting the Nation's natural resource base and environment	• Extension • Research • Integrated • Higher Education	Expanded and disseminated science-based knowledge and information for management of the nation's natural resources and environment, including soil, air and water, in agricultural, forest, and range working lands and ecosystems.

2.1	Percentage of farmers using best management practices on major cropping systems to conserve, protect and/or manage their water resources						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Percentage	N/A*	13	14	14	14	14	14

*Data is not available for years prior to implementation of this performance measure.

Selected Past Accomplishments Toward the Achievement of the Additional Measures FY 2015:

Nonpoint source pollution from farms can be significantly reduced by creating local watershed alliances to develop and implement integrated watershed management plans. Researchers from the University of Missouri developed an integrated model to assist in the development of watershed management plans. University of Missouri Extension specialists worked with citizens in two Missouri watersheds to collaboratively develop and implement these plans, resulting in a reduction in pesticide, nutrient, and soil runoff into the watersheds. Researchers from the University of Vermont led a coordinated program to develop stakeholder-driven, performance-based nonpoint source controlling water quality programs. This program effectively trained farmers how to implement best practices to achieve lower nitrogen abatement at minimal costs, while maximizing results for the farmer.

A team from the University of Maine increased community awareness of salinity in drinking water wells in watersheds in Vermont, New Hampshire, Connecticut, Rhode Island, Massachusetts and Maine. Extension efforts targeted K-12 schools and 4-H afterschool programs to deliver a comprehensive groundwater quality curriculum to improve citizen science knowledge among a variety of stakeholders, increase awareness and involvement in water quality issues and create opportunities for change at the community level. Ten percent of parents who participated in the program with their child in a 4-H program tested their private wells within 6 months of the program, and results show an increased resilience in groundwater communication networks and an increase in community social networks in all five New England states.

Researchers at the University of Florida are focusing on the Lower Suwannee and Santa Fe River Basin to estimate the economic value of water in agricultural and recreational uses by examining the feasibility of a market-based payment program for ecosystem services. The project is determining the potential water use reductions and water quality improvements that could occur at different levels of payment for ecosystem services.

Nitrogen loading from the atmosphere to surface waters can account for as much as one-third of the total nutrient load going to impaired surface waters. The National Atmospheric Deposition Program (NADP) now provides a new assessment tool to track total nitrogen deposition for the United States. NIFA also supports and coordinates

NADP's federal funding through one of its National Research Support Projects (NRSP-3). This project has created the Ammonia Monitoring Network providing consistent, long-term records of ammonia gas concentrations across the country. This vital first step could help to someday enable the mitigation of the cause of the hypoxic "dead zone" in the Gulf of Mexico. Additionally, a new multi-state land grant university science committee (SERA-46) will coordinate and facilitate the research and extension needs across 12 states to reduce nutrient loading from agricultural sources to the Mississippi River Basin.

Texas A&M University scientists developed an Early Warning System/Decision Making (EWS/DM) tool based on science-based, field-derived threshold values of drought indicators for specific crops. The EWS/DM tool has three integrated components; 1) a drought forecast program, 2) a hydrologic forecast model, and 3) in-field crop stress monitoring program. The drought forecast program utilizes real-time data and ensemble (probabilistic) forecasts to identify regions facing impending droughts, and provides information about the possible and probable areal extent, duration, and severity of the drought. The EWS/DM tool gives agricultural producers hydrologic forecasts for impending droughts enabling early and appropriate responses to maximize production and minimize risk. The methodology developed in this study can be used to provide agricultural producers information about crop specific soil moisture conditions, drought conditions, and yield trends to aid in management decisions. For example, a low moisture ranking may prompt an irrigation event, or very low predicted yields may prompt an alternative crop to be planted given enough warning.

The Nitrate Elimination Company, Inc. (NECi) located in the rural Upper Peninsula region of Michigan, developed nitrate test kits that allow farm managers to determine nitrate accumulation levels on the farm. Nitrate is an essential nutrient for plant growth but at high concentrations in drinking water, it can be a serious health problem for humans and livestock. At high concentrations in forage it can also pose serious problems for livestock. The traditional method for measuring nitrate makes use of cadmium chemistry, but cadmium is a heavy metal that can easily become toxic in the environment. This company has developed a new type of nitrate test kit based on the use of the enzyme nitrate reductase that can be used to measure nitrate levels either in water or in forage. This new test kit will help agricultural producers manage nitrate concentrations, reduce costly nitrogen fertilizer applications, and protect the environment from pollution. An optimized formulation for the disposable Nitrate Sensor and hand-held Nitrate Meter component of the NECi Ag Nitrate Biosensor System Prototype (ANS) was developed along with computer software for reporting nitrate content of samples. Key evaluations for the product will be based on ease of use of the system in the field. This year the company entered into the final stages to receive EPA certification as a standard method for all nitrate testing under the Clean Water Act. Additionally, the nitrate test kits are used as the standard method within all U.S. Geological Survey (USGS) soil laboratories.

Florida citrus growers and production managers can't grow citrus successfully and competitively without supplemental irrigation. Extension agents from Florida A&M University, leveraging support from the University of Florida, have conducted educational programs on water management to conserve water and protect water quality. All participants in the programs increased their knowledge on the importance of well-designed, uniform irrigation systems, accurate irrigation scheduling and proper irrigation system maintenance that would increase irrigation efficiency and uniformly minimize waste. Putting this knowledge into practice (adequately maintaining the uniformity of their irrigation systems and properly scheduling their irrigation) saved growers $10,303 million per year in the state of Florida.

USDA Strategic Goal 3: *Help America Promote Agricultural Production and Biotechnology Exports as America Works to Increase Food Security*

USDA Strategic Objective 3.1: *Ensure U.S. Agricultural Resources Contribute to Enhanced Global Food Security*

USDA Strategic Objective 3.2: *Enhance America's Ability to Develop and Trade Agricultural Products Derived from New and Emerging Technologies*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.1. (Continued) Advance our Nation's ability to achieve global food security and fight hunger.	• Extension • Research • Integrated • Higher Education	Expanded international economic development and trade capacity building through: (1) partnerships between U.S. and counterpart faculty in developing or transitioning countries to strengthen science applications and (2) technical assistance provided to these countries to support market and agricultural sector development.

Analysis of Results

Selected Past Accomplishments toward Achievement of this Objective FY 2015:

The Solanaceae Coordinated Agricultural Project (SolCAP) at Michigan State University has been transformative for the potato breeding and genetics community. In the U.S. most potato breeding programs have used and continue to use the technology designed and developed by SolCAP collaborators to 'fingerprint' collections of potato varieties using single nucleotide polymorphism (SNP) arrays. These genome-wide markers are now a standard that have been integrated into further USDA grants beyond SolCAP because of the reliability of genome-wide technology, and because they provide visualization of all five genotypic classes of the SNP markers in the complex potato genomes. Currently, researchers in Europe are using the information to develop mapping software and analyze their collections of germplasm. This technology has become the worldwide standard used in South America, Europe, Africa, China, and New Zealand.

The USDA recently entered into a partnership with Ireland and Northern Ireland that will allow the three countries to maximize investments in research. If finalized, this partnership will leverage resources to focus on understanding plant associated microorganisms and plant-microbe interactions; plant-associated insects and nematodes; animal health and disease; and animal nutrition, growth, and lactation. Projects will be funded through AFRI programs and would require collaborative applications through U.S. scientists.

NIFA's Climate Change Portfolio has developed a strategy for global engagement to connect climate change award recipients to other centers that can advance U.S. research in agriculturally-related fields. USAID offers the Partnerships for Enhanced Engagement in Research (PEER) program. In 2015, NIFA joined other U.S. Government funding organizations as a PEER partner. PEER is a competitive grants program that invites scientists in developing countries to apply to USAID for funds to support research and capacity-building activities that will be conducted in partnership with U.S. Government (USG)-funded scientists. These developing country scientists would seek out partners that are currently-active NIFA award recipients. The current PEER request for application (RFA) calls for research proposals spanning nine different areas; NIFA will be focusing on climate change and water management during the first year.

Through a partnership with USDA's Foreign Agricultural Service and the University of California-Davis, Haiti's Minister of Agriculture, Natural Resources and Rural Development is able to work to reinvigorate agricultural vocational education in Haiti. Haiti had a strong network of agriculture extension in the past. This program is designed to reestablish that program as part of a larger U.S. effort to support Haiti in strengthening its agricultural sector. University staff helped train twelve agronomists who will enable the country to reopen three training centers and offer courses at these schools for additional training.

Through the Food Aid Nutrition Enhancement Program (FANEP), NIFA-funded scientists at the Center for Human Nutrition at the Johns Hopkins School of Public Health tested ready-to-use, fortified complementary food products for their impact on childhood growth and stunting in Bangladesh. Growth faltering in the first two years of life is

high in South Asia, where prevalence of stunting is estimated at 40-50 percent. Nutrition counseling has shown modest benefits, and few intervention trials of food supplementation exist. This project conducted trials to test the effect of two local, ready-to-use foods, and a fortified blended food supplement, with and without counselling on outcomes in children 6-18 months old. Their results found a 4-6 percent stunting reduction showing small amounts of daily fortified foods, provided with nutrition counselling, can provide some modest increases in growth for young children in the region.

Bean root rot disease is the major obstacle in most bean production areas, occurring mainly due to improper crop rotations and less fertile soils. In Africa, root rot problems have been associated with multiple plant pathogens. With USAID funding, NIFA awarded five grants in support of research to improve production of the common bean among small holder producers in food insecure countries, with a particular focus on Feed the Future countries in East and Southern Africa. As an example, NIFA funded a project entitled "Developing and Delivering Common Bean Germplasm with Resistance to the Major Soil Borne Pathogens in East Africa" coordinated by Michigan State University (MSU) and in collaboration with the International Center for Tropical Agriculture (CIAT). In addition to identifying bean germplasm resistant to root rots, MSU and CIAT's bean scientists joined together to improve capacities in disease identification with national partners from Uganda and Rwanda through a workshop. The guidelines developed will provide support for disease identification in the field and in the lab in these countries.

The NC-140 Multistate research project has forged an effective and award winning international partnership between universities and the tree fruit community to produce improved temperate-zone rootstocks for fruit trees. The rootstock used to grow fruit trees influences the productivity, fruit quality, pest resistance, and stress tolerance of the trees. With a highly competitive international market, consumer demand for high quality fruit, and strong pressure to reduce chemical use, fruit tree growers are seeking economical and environmentally sustainable production schemes. Many growers are adopting high-density systems which take up less land, increase production efficiency, accommodate automation technology, and rely on fewer chemicals. To meet this need, researchers collaborated to evaluate rootstocks around the world, evaluating tree growth, root anchorage, size control, soil and climate adaptability and pest and disease resistance. Through this collaboration, the time to evaluate new rootstocks was reduced from more than 40 years to just 10 years. Improved rootstocks, detailed recommendations and techniques, and facilitated acquisition of the rootstocks to accelerate adoption among growers have produced significant early results. Researchers, Extension educators and industry partners have produced recommendations that have resulted in earlier returns, greater yields, and higher fruit quality with a financial benefit to U.S. fruit tree producers of $250 million. With a combined investment from state and federal institutions of $10 million, the cumulative measurable benefits to the industry will be more than $400 million. Less easily measured benefits, such as averted losses and enhanced environmental quality, will increase the financial value of this project to well beyond $500 million over the next five years.

Selected Accomplishments Expected at the FY 2017 Proposed Resource Level/Challenges for the Future:

There is mounting concern that changes in our climate may hamper agricultural productivity in the U.S. and around the world. Abiotic stresses are the most important factors limiting crop productivity in contemporary environments. Climate modeling studies suggest that drought and high temperatures will become more common in the future and will represent a tremendous environmental hurdle to global food production. A team of researchers at Purdue University are focusing their efforts to develop agronomic crops with enhanced stress tolerance. Specifically, germplasm and trait development efforts in maize and sorghum are focused on use of natural and induced genetic variation for abiotic stress to improve stress tolerance. This is an international and trans-disciplinary collaboration that couples efforts to genetically dissect and deploy genes for high-temperature and drought stress tolerance. With the development of crop modeling and climate assessment tools to study impacts of scaling-up new, stress- tolerant cultivars, this research will contribute to adaptation of agriculture to warmer and drier environments around the globe.

Grants to higher education institutions will train students at the baccalaureate, masters and doctorate level to expand human capital development in emerging areas (i.e. biotechnology, food systems, economics and marketing, etc.). As a result, workforce ready graduates with core competencies in sustainable sciences will be able to respond to the national needs in the Economics and Trade arena through the AFRI Program.

USDA Strategic Goal 4: *Ensure that all of America's children have access to safe, nutritious, and balanced meals*

USDA Strategic Objective 4.1: *Improve Access to Nutritious Food*

USDA Strategic Objective 4.2: *Promote Healthy Diet and Physical Activity Behaviors*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.5. Combat childhood obesity by ensuring the availability of affordable, nutritious food and providing individuals and families science-based nutritional guidance.	• Extension • Research • Integrated • Higher Education	New knowledge that clarifies dietary health relationships in order to support better dietary recommendations and improved food products.

Key Performance Measure:

NIFA program portfolios which primarily support these objectives include Human Nutrition and Food Safety, although others may also support it.

4.2 Annual Performance Goals, Indicators, and Trends	Actual				Target	Actual	Result	Estimated Target	
	2011	2012	2013	2014	2015			2016	2017
4.2.1 Percent of EFNEP participants making dietary improvements	94	95	95	95	95	94	Met	95	95
4.2.2 Number of Adult Program Participants in EFNEP	134,446	130,485	121,025	121,850	133,000	119,288	Unmet	125,000	131,000
4.2.3 Number of Youth Program Participants in EFNEP	506,156	479,398	418,961	392,563	491,400	376,521	Unmet	386,000	405,000
Allowable Data Range for Met – The tolerance range for the measure to be "met" is 95 percent.									
Assessment of Performance Data									
Data source – The data was collected at the local level through the Web-based Nutrition Education Evaluation and Reporting Systems (WebNEERS).									
Completeness of Data – The data received from recipients is considered complete and analyzed, including individual diet recalls and behavioral checklists, at the point it is received it is aggregated by university, and is then further aggregated for the Nation. 2015 figures are estimates. FY2015 EFNEP data is still under review; final figures will be available February 2016.									
Reliability of Data – The data received is analyzed and considered reliable.									
Quality of Data – The data is generally regarded as being accurate and satisfactory. Data quality/error checks are built into WebNEERS. Data is reviewed by university and federal level staff prior to aggregation.									

Analysis of Results

Selected Past Accomplishments Toward the Achievement of the Key Outcome FY 2015:

- For measure 4.2.1, the program met the agency expected compliance rates. For measures 4.2.2 and 4.2.3, the program did not met the agency expected compliance rates. The reach of the EFNEP program has been declining. Rising costs and staffing issues continue to affect the results. In addition, we have raised our expectations for program duration and integrity. The new National Goal to increase the reach of the program by 5 percent was presented at the National Conference in March, which was late in the year. Therefore, we expect to see results starting in 2016. This is projected in the targets for adults and youth in future years.

- North Carolina A&T University scientists' treatment of roasted peanuts with an enzyme under experiment condition did not cause significant loss of nutrients and did not have a negative effect on the color and flavor of peanuts and defatted peanut flour. This project demonstrated that enzyme-base post-harvest technology has great potential to reduce the allergenic properties of peanuts and wheat, thus improving the food safety and adding value to the peanuts and wheat products. The results of this project strongly supported the licensing of their hypoallergenic peanut technology. The results of this research project are being brought to the marketplace for the benefit of individuals and families whose lives are affected by peanut allergies.

- Native communities in the U.S.-Affiliated Pacific region are seriously underrepresented in obesity research despite a high prevalence of obesity and related behavioral and environmental risk factors. According to the few available data for the region, prevalence of overweight and obesity has been estimated at 60 to 90 percent of the adult population and 15 to 45 percent of 2-8 year olds. These rates exceed the contiguous United States. Preventing obesity in children requires education, community based intervention research, outreach, and policy change to ensure the activities are sustainable at the local and regional level. Researchers, educators, and extension staff at the University of Hawaii and their partners are using these principles to promote active play and healthy foods in the Pacific Region working with communities in Alaska, American Samoa, the Commonwealth of the Northern Mariana Islands, the Freely Associated States of Micronesia, Guam, and Hawaii. This program has reached 4,350 children and helped train 18 college scholarship students across the region. Pilot programs at the Guam Head Start for example, include a complementary nutrition education program to teach students how to prepare healthy foods and grow foods in gardening workshops. These programs are designed so that parents and children learn the same concepts and activities to reinforce behaviors at home. Nutrition courses offered online reached 96 students including scholarship students, Foreign Agricultural Service (FAS) employees, and others based in Hawaii, Yap, Pohnpei, Chuuk, Marshall Islands, Colorado, California, and Montana. Participants at all locations are engaging hundreds of children and adults to help these underserved communities build the cultural change needed to improve their health outcomes.

- The natural pigment industry is an economically valuable market in the U.S. and abroad with companies searching for stable and affordable crop alternatives to synthetic red and the insect-derived carminic acid. Anthocyanins are excellent color alternatives and are derived from both fruit and vegetable crops, but purple sweet potato (PSP) is among the most desirable for its superior color properties and excellent bioactive properties. Raw PSP are widely considered to be difficult to extract and concentrate, an effect that may be due to pre- or post-harvest handling factors influencing pigment recovery. Researchers at Texas A&M University worked with industry partners to find a more efficient process to process PSP into highly concentrated pigment extracts. They identified processing treatments and extraction methods that increased pigment yields by up to 25 percent more than with the combination of heat and solvent modifiers alone. This increase in yield and processing efficiency likely translates into a profitable processing scenario for the U.S. pigment extraction industries. The last goal of this project was to evaluate the bioactive properties of purple sweet potato pigment extracts. Researchers showed that extracts display anti-inflammatory effects on colon cells, and a 40 percent cell inhibition was observed for HT-29 cancer cells under certain conditions. Results indicate that there is an anti-inflammatory benefit to the changes of this pigment during digestion, which provides valuable knowledge about the role of acylated natural colors as healthy alternatives to synthetic food colors. Lastly, researchers modeled the stability of acylated purple sweet potato anthocyanins during simulated digestions against other acylated and non-acylated anthocyanin sources (i.e. pomegranate, grape, raspberry, blackberry, black carrot,

and red cabbage). Their results showed that acylated anthocyanin may have less impact on cell viability than other extract compounds, but they were more stable and persisted in the digestion system longer, therefore exerting a greater overall benefit.

- A research faculty member at Tennessee State University's department of Agricultural and Environmental Sciences earned a research grant to study the economics of food deserts and demand for fruits and vegetables. Food deserts are defined by USDA as low-income communities where at least 500 citizens or 33 percent of the community live a mile or more away from a supermarket or grocery store with fresh produce. This study focused on Davidson County, the second largest food desert cluster with a high obesity rate of 37 percent in Tennessee. By understanding how this community differs from neighboring towns and community factors such as poverty and nutritional awareness, the project seeks to help the community improve its food access and nutritional status. The project director successfully recruited a graduate student in Agribusiness to work for the project for two years and for a thesis. Together, the research and student conducted surveys, food assessments and statistical analyses. Their findings lead to the development of a new graduate-level course entitled "Food Marketing and Retail Management." The course has been approved and was offered the following spring semester. In addition, the project director recruited a new student who has enrolled in the master degree program in Agribusiness.

Selected Accomplishments Expected at the FY 2017 Proposed Resource Level/Challenges for the Future:

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. NIFA is examining the feasibility of updating the current EFNEP formula to better reach targeted populations given changes in national demographics and poverty rates since the formula was developed in 1981. Additional funding will support the inclusion of Central State University, a newly-eligible 1890 Institution. In FY2013 EFNEP suffered its first significant decrease in funding since FY2004. Sequestration and a rescission led to an ~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 FY2014 because of carryover funds and then there was likely trickle down effects into FY2015. 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 FY2010 with the exception of FY2013. 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 quality and quantity are important and believe that we can meet our goal and get back on track in the coming year.

Additional Performance Measures

USDA Strategic Objective 4.3: *Protect Public Health by Ensuring Food is Safe*

USDA Strategic Objective 4.4: *Protect Agricultural Health by Minimizing Major Diseases and Pests to Ensure Access to Safe, Plentiful, and Nutritious Food*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 1: Catalyze exemplary and relevant research, education and extension programs.	Sub-goal 1.6. Reduce the incidence of food-borne illness and provide a safer food supply	• Extension • Research • Integrated • Higher Education	Reduced incidence or prevalence of food borne illnesses and contaminants through increased knowledge and/or the development of mitigation, intervention, or prevention strategies via research or integrated research, education, and extension projects in the following food safety areas: pre-harvest food production and transportation, post-harvest processing and distribution, retail preparation and distribution, and consumer preparation, consumption, and behavior.

4.3	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.						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Number Per Year	--	--	--	5	6	5	7

4.4	The cumulative number of specific plant diseases labs are prepared to detect						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Cumulative number	11	11	12	12	13	13	13

4.4	The cumulative number of specific animal diseases labs are prepared to detect						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Percentage	10	11	11	12	13	13	14

Analysis of Results

Selected Past Accomplishments Toward the Achievement of the Additional Measures FY 2015:

- Antibiotics are used in agricultural production practices not only for growth promotion but also for the overall health of food animals. However, the use of antibiotics in food animal production is thought to negatively impact human health and well-being in that many bacteria species are resistant to these lifesaving drugs. To address the issue, a research, education and outreach Coordinated Agricultural Project (CAP) being conducted at Washington State University is focusing on balancing the needs of producers and public health and well-being, by reducing unnecessary use of antibiotics on dairy farms. The investigators seek to mitigate antibiotic resistance by changing antibiotic use behaviors and managing prevalence of antibiotic traits and residues in the animal production environment. Since starting in January 2015, the scientists created a project website in March that has been viewed by 196 stakeholders, and have conducted a "Motivation for Decisions on Dairy Farms" survey that reached 28 dairy operations across California, Idaho, Oregon, and Washington. The scientists have already proved that the abundance of antimicrobial resistant (AMR) *E. coli* is greater where the animals are treated and lower outside of the treatment areas. They also discovered that the decisions of animal care workers are driven by their beliefs, or are based on farm goals, which will increase the difficulty of extension and outreach approaches. These workers also rely on a Herdsman or Calf Manager for their information, indicating that extension and outreach efforts must also target Herdsmen and Calf Managers. Because many animal care workers are Latinos, the scientists conduct their extension and outreach programs in English and Spanish, a strategy that will have far more significance in the battle to mitigate AMR.

- American foulbrood disease is a contributor to the declining honeybee population in the United States. American foulbrood is a honeybee disease caused by the spore forming bacteria, Paenibacillus, which infects and kills developing broods. Antibiotics can eliminate the active infections, but the spores are easily transferred between colonies and can remain viable for decades, re-infecting generations of bees. American foulbrood is highly regulated and requires the use of confirmatory diagnostics. This often results in the forced incineration of the bees and equipment, making it a costly disease. However, University of Nevada-Las Vegas researchers have discovered a groundbreaking prophylactic treatment of honeybee larvae using a cocktail of phage—or anti-bacterial viruses considered safe to humans—that increased bee survival up to 70 percent following exposure to American foulbrood.

- University of Missouri scientists enhanced understanding of how vector-borne plant pathogens may respond to the loss of predator diversity in managed ecosystems. They found that the presence of predators in wheat systems reduces the abundance of the aphid vector of barley yellow dwarf virus and decreases the proportion of plants infected. However, promoting predator diversity only benefits aphid suppression, and does not further reduce pathogen prevalence. In fact, there is no relationship between the magnitude of aphid suppression and the proportion of plants infected with the virus. The lack of correspondence between aphid suppression and pathogen reduction is due to the over-riding strength of the non-consumptive effects of predators on vector behavior, with vectors moving more, feeding less, and therefore exhibiting less efficient transmission in the presence of predators. These results have important implications for conservation biological control in wheat systems, since conserving predator diversity may be important for aphid suppression, but not for management of the pathogen.

- The Western IPM Center, located in Arizona and California, has signature food security programs to foster the sustainability of integrated pest management in the western region. One of these programs, the Crop Pest Losses and Impact Assessment Program, conducts Crop Pest Losses workshops for cotton in Arizona that generates annual data for a large a multiyear data set. An analysis of trends in integrated pest management for cotton in Arizona examined the impact of integrated pest management on cotton production in Arizona. The analysis indicates that reductions in control costs and yield losses to arthropods through integrated pest management have saved Arizona cotton growers more than $451,000,000 since 1996. Over the same period, risks to human health and the environment were reduced by preventing 21 million pounds of insecticide active ingredient from reaching the environment.

- Researchers from North Carolina State University have found that urban environments increase pathogen abundance in honey bees (Apis mellifera) and reduce honey bee survival. Their research is exploring the effects of urban settings on insects, which may be exposed to the increased temperatures and impervious surface areas in and near cities. Results showed that both managed bee colonies and those closer to urban areas experience a higher pathogen pressure than colonies in suburban and rural areas. Pathogen pressure accounts for both the types and the number of pathogens the insects are exposed to in their environment. This finding raises significant questions as urban areas continue to grow at the expense of rural environments, and urban beekeeping becomes more popular. However, the researchers also found that the immune response of the bees was not affected by urbanization; instead, the results indicate that urbanization may favor viability and transmission of some disease agents. This finding is an important step; the next step is to begin work on understanding why it is happening and if the same negative effects of urbanization are hurting solitary, native bee species that are presumably more sensitive to their local environment.

- Researchers at the University of Maine ran barley trials aimed at improving grain yields and malting quality through disease control. In cooperation with local grain elevators, contractors, and growers, researchers sought to identify when, and if, fungicide was necessary to protect the crop, given interactions between weather and plant development stage. Based on the research results, a disease control program for barley growers was developed and put in place on 13,000 acres of feed barley and 3,000 acres of seed and malting barley. More than 75 barley growers adopted the disease control program in 2014 and realized over $200,000 in increased revenue from greater barley yields and grain quality compared to 2013. Growers, grain contractors, and elevators are planning to continue the disease control program, and in some cases, to make the practices mandatory.

- Channel catfish is the most important fish species farmed in the United States. Catfish production represents the majority of the US aquaculture output and accounts for 46 percent of the monetary value of US aquaculture. To help protect the health of the US catfish industry and better understand how catfish defend themselves against viral diseases, researchers at Mississippi State University studied the cells of the catfish immune system. Specifically, their project investigated catfish immune system response to a major viral disease, channel catfish virus (CCV), as a model pathogen. CCV is a major pathogen of catfish fry and fingerlings with the potential to kill up to 100 percent of infected fish. Very little is known about how the fish immune system responds to viral infections and what types of immune cells are responsible for killing virus-infected cells and controlling infections. Until now it has been assumed that the immune system in fish works like in humans, however, this project identified marked differences unique to catfish. These findings significantly impact and change not only the way we think about immune cells in catfish, but also the ways researchers throughout the world monitor catfish anti-viral responses in research and vaccine development. Five peer reviewed research publications describe the results so that this ground-breaking information is available and known to the larger science community.

USDA Strategic Goal 5: *Create a USDA for the 21st Century that is high-performing, efficient, and adaptable*

USDA Strategic Objective 5.1: *Develop a customer-centric, inclusive, and high-performing workforce by investing in and engaging employees to improve service delivery*

USDA Strategic Objective 5.2: *Build a safe, secure, and efficient workplace by leveraging technology and shared solutions across organizational boundaries*

USDA Strategic Objective 5.3: *Maximize the return on taxpayer investment in USDA through enhanced stewardship activities and focused program evaluations*

Agency Strategic Goals	Agency Objectives	Programs that Contribute	Key Outcomes
Agency Goal 2: Transform NIFA into a model agency with a highly motivated workforce.	Sub-goal 2.1: Enhance Accountability by providing the infrastructure and oversight necessary to achieve high-performance human capital management and extend human capital responsibility and accountability to all levels. Sub-goal 2.2: Establish a world-class workforce through innovative talent management, targeted at attracting, selecting, engaging, developing and retaining talented individuals with the right technical and professional skills needed to meet our mission. Sub-goal 2.3: Build a high-performing, results-oriented performance culture. Sub-goal 2.4: Cultivate effective leadership practices that permeate the organization, promote continuous learning and innovation, and develop the next generation of food and agricultural scientists.	NIFA Institutes and Offices	Functionally staffed with talented people with the right skills in the right positions to carry out the Agency's mission.
Agency Goal 3: Institutionalize streamlined, effective technology, policies, and processes.	Develop consistent review processes and procedures for all programs (competitive and non-competitive) and develop enhanced business practices for managing and processing grants across the agency.	NIFA Institutes and Offices	Reduce operational costs and improve customer service through the use of a grant processing model to schedule workload while optimizing workflow and reducing bottlenecks (e.g., year-end award processing).

Additional Performance Measures

5.1	Percentage positive responses to the Federal Employee Viewpoint Survey question #18: My training needs are assessed.						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Percentage of Positive Responses	50.9	49.3	34.1	33.3	40.5	40.5	44.0

5.1	Percentage of negative responses to the Federal Employee Viewpoint Survey question #63: How satisfied are you with your involvement in decisions that affect your work?						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Percentage of Negative Responses	27.4	20.1	29.5	29.0	25.6	25.6	25.0

5.2	Efficiency Measure: Competitive grant proposal review time in days (from receipt of proposal to award)						
	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Actual	2016 Target	2017 Target
Number of Days	N/A*	N/A*	N/A*	170	172	160	155

*Data is not available for years prior to implementation of this performance measure.

Selected Past Accomplishments toward Achievement of this Objective FY 2015:

NIFA is working to both increase employee engagement and modernize our systems and processes. Activities this year include the first year of continuous process improvement efforts, using lean six sigma (LSS) methodology. During this first year several projects were conducted that address the efficiency measure. These projects conducted the first phase of LSS methodology to analyze processes, and piloted improvements on 27 awards representing several competitive programs. These results will allow NIFA to conduct the next phase of the project resulting in improvements in this measure next year.

NIFA improved training availability for staff, offering more paid training opportunities in addition to competency assessments and online training programs. Staff responded resulting in a 7 percent increase in our training measure. Likewise, employee response to the Federal Viewpoint Survey (FEV) showed a decrease in the percentage of negative response to the employee engagement measure of 4.6 percent. NIFA improved engagement through the following actions:

- Strategic Plan town hall meetings were held to engage employees in discussions about agency progress toward each goal.
- All-hands meetings and quarterly updates for each Division to update employees about the grants modernization process.
- Performance Management training for employees and supervisors.
- Implementation of continuous process improvement projects across the agency. Two cohorts of employees are engaged in training and the certification process at the LSS Green Belt level.

Additional Performance Information

Changed Key Performance Measures

Measure 4.3: 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, was added this year.

The previous measure for USDA Strategic Goal 5: Percentage of NIFA staff engaged in NIFA Management Initiatives, was replaced by two measures for USDA Strategic Objective 5.1. Officials state that the previous metric did not represent the best measure or data available. These two new measures address “investing” and “engaging” better, and with data that is measureable and repeatable.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Full Cost by Department Strategic Goal

(Dollars in thousands)

Department Strategic Goal 1: Assist Rural Communities to Create Prosperity So They Are Self Sustaining, Repopulating, and Economically Thriving

Program / Program Items	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Discretionary				
Program	$640,051	$656,178	$674,751	$671,132
Administrative costs (direct)	17,068	17,498	17,993	17,897
Indirect costs	9,601	9,843	10,121	10,067
Total Costs	666,720	683,519	702,865	699,096
FTEs	198	196	206	203
Endowment Funds				
Hispanic Serving Ag Colleges and Univ. Endowment Fund	-	-		10,000
Program	11,880	11,880	11,880	11,880
Total Costs	11,880	11,880	11,880	21,880
Mandatory Programs:				
Food Insecurity Nutrition Incenive Program				
Program	31,500	-	17,895	19,200
Administrative costs (direct)	2,240	-	477	512
Indirect costs	1,260	-	268	288
Total Costs	35,000	-	18,640	20,000
Risk Management Education				
Program	4,454	4,450	4,474	4,800
Administrative costs (direct)	119	119	119	128
Indirect costs	67	66	67	72
Total Costs	4,640	4,635	4,660	5,000
Beginning Farmers and Ranchers Program				
Program	19,200	17,798	17,895	19,200
Administrative costs (direct)	512	475	477	512
Indirect costs	288	267	268	288
Total Costs	20,000	18,540	18,640	20,000
Total Costs, Strategic Goal 1	738,240	718,574	756,685	765,976
Total FTEs, Strategic Goal	198	196	206	203

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Full Cost by Department Strategic Goal

(Dollars in thousands)

Department Strategic Goal 2: Ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources

Program / Program Items	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Discretionary				
Program	179,706	186,414	191,689	223,712
Administrative costs (direct)	4,792	4,971	5,112	5,966
Indirect costs	2,696	2,796	2,875	3,355
Total Costs	187,194	194,181	199,676	233,033
FTEs	55	56	58	69
Total Costs, Strategic Goal 2	187,194	194,181	199,676	233,033
Total FTEs, Strategic Goal	55	56	58	69

Department Strategic Goal 3: Help America promote agricultural production and biotechnology exports as America works to increase food security

Program / Program Items	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Discretionary				
Program	$2,461	$2,486	$2,556	$3,971
Administrative costs (direct)	66	66	68	106
Indirect costs	37	38	38	59
Total Costs	2,564	2,590	2,662	4,136
FTEs	1	1	2	2
Mandatory Programs:				
Biomass Research and Development				
Program	2,880	2,670	2,684	2,880
Administrative costs (direct)	77	71	72	77
Indirect costs	43	40	40	43
Total Costs	3,000	2,781	2,796	3,000

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Full Cost by Department Strategic Goal

(Dollars in thousands)

Organic Research Initiative Sec. 7206				
Program	19,200	17,798	17,895	19,200
Administrative costs (direct)	512	475	477	512
Indirect costs	288	267	268	288
Total Costs	20,000	18,540	18,640	20,000
Biodiesel Fuel Education Program				
Program	960	890	895	960
Administrative costs (direct)	26	24	24	26
Indirect costs	14	13	13	14
Total Costs	1,000	927	932	1,000
Community Food Projects Competitive Grants Program				
Program	4,800	8,640	8,640	8,640
Administrative costs (direct)	128	230	230	230
Indirect costs	72	130	130	130
Total Costs	5,000	9,000	9,000	9,000
Specialty Crop Grant Programs Sec. 7311				
Program	52,800	48,946	49,210	52,800
Administrative costs (direct)	1,408	1,305	1,312	1,408
Indirect costs	792	734	738	792
Total Costs	55,000	50,985	51,260	55,000
Emergency Citrus Research and Extension Program				
Program	24,000	22,248	22,368	24,000
Administrative costs (direct)	640	593	596	640
Indirect costs	360	334	336	360
Total Costs	25,000	23,175	23,300	25,000
Total Costs, Strategic Goal 3	111,564	107,998	108,590	117,136
Total FTEs, Strategic Goal	1	1	2	2

Department Strategic Goal 4: Ensure that all of America's children have access to safe, nutritious and balanced meals

Program / Program Items	2014 Actual	2015 Actual	2016 Enacted	2017 Estimate
Research				
Program	408,647	397,684	408,940	424,919
Administrative costs (direct)	10,897	10,605	10,905	11,331
Indirect costs	6,130	5,965	6,134	6,374
Total Costs	425,674	414,254	425,979	442,624
FTEs	126	118	124	127
Total Costs, Strategic Goal 4	425,674	414,254	425,979	442,624
Total FTEs, Strategic Goal	126	118	124	127

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Full Cost by Department Strategic Goal

(Dollars in thousands)

Total Cost, All Strategic Goals.....	1,462,672	1,435,007	1,490,930	1,558,769
Total FTEs, All Strategic Goals.....	380	371	390	401

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

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 2016 House Report on the Agriculture Appropriations Bill and the 2014 Farm Bill. The scope of the final RFA 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 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 2017 RFA Publication Dates for AFRI are 9/1/2016 through 12/31/2016. Funding amounts reflect funding amounts anticipated for programs excluding Interagency programs, and legislative set asides for programs such as the Small Business Innovation Research program.

FY 2017 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 (RFA) 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 more than double food production for a burgeoning population, projected to exceed nine 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 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 is 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, adaptation to impacts of climate change, 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 Program, the Challenge Areas, and the Education and Literacy Initiative (ELI). Research, education, and extension work is supported by AFRI in the six primary Farm Bill program priorities: 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.

Fundamental research that aligns with the six Farm Bill priority areas is supported by the AFRI Foundational Program. The Foundational 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 Program also will increase the 12 percent funding rate (i.e., the number of grants awarded), especially for new investigators, which is critically needed for sustaining a vigorous research enterprise in agricultural sciences. Discoveries made through research supported by the Foundational 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 Challenge Areas) that aim to solve applied problems in the food and agricultural sciences. Thus, the Foundational Program is both complementary and essential to the success of the Challenge Area programs.

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 will continue to support government-wide initiatives on antimicrobial resistance (AMR), pollinator health, the bioeconomy, and climate change, as described below. This request in FY 2017 seeks to invest AFRI funding at the level of $375,000,000, including an increase of $25 million for clean energy as detailed by program below.

Agriculture and Food Research Initiative Requests for Applications

In FY 2017 the AFRI program will issue seven Requests for Applications (RFA) to solicit new grant awards: five separate RFAs will be issued for each of the Challenge Areas. One RFA will be issued for the Foundational Program, and one RFA will be issued for the Education Initiative. All seven 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 2017 President's Budget			
Program	**New Grant Awards**	**Existing Grant Awards**	**Total**
Agriculture and Food Research Initiative	$321,642,703	$53,357,297	$375,000,000

The NIFA 2017 budget proposes to increase the AFRI program by $25,000,000. The increase is for clean energy research. In addition, there are other increases from reprioritization. These increases include:

- The government-wide initiative on Pollinator Health to be included in the Foundational Program;
- The government-wide initiative on Antimicrobial Resistance to be included in both the Food Safety Challenge Area and Foundational Program;
- The CARE program area initiated in FY 2014 as part of the Foundational Program;
- 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 of the Food Security and Water for Agriculture Challenge Areas are into a new Challenge Area, Water for Food Production Systems, which is focused on critical water and water resources problems impacting food production systems;
- The Exploratory Research program area that was initiated in FY 2014 as part of the Foundational Program;
- The Food, Agricultural, Natural Resources, and Human Sciences Education and Literacy Initiative that was initiated in FY 2015; and
- Fostering inter-agency collaborations to leverage greater investment in agriculturally-relevant areas of science, and attract new communities of scientists to address challenging agricultural issues.

AFRI Request for Applications (RFA):

Foundational Program RFA: The AFRI Foundational Program RFA is organized by, and directly aligns with, the Farm Bill AFRI priority areas. The Foundational Science priorities are designed to include the scope of topics listed within each of the six Farm Bill Priority Areas. NIFA will invest $185,934,000 of appropriated AFRI funds to support new grants in the Foundational Program. In support of Presidential initiatives, approximately $3,798,300 will be for new grants on antimicrobial resistance (AMR; OMB M-15-16 and M-15-18), $10,000,000 will be for new grants on pollinator health to support the government-wide pollinator initiative, and $10,000,000 will be for new grants to support the President's Clean Energy Initiative (OMB M-15-16). In addition, the agency will support other Presidential initiatives and OSTP priorities. For example, the Animal Health and Production and Animal Products program area supports research on the emergence of zoonotic diseases (OMB M-15-18), innovation in life sciences, biology and neuroscience (OMB M-15-16), and the microbiome of agricultural animals. The Plant Health and Production and Plant Products program area supports efforts in synthetic biology for agriculture and other innovations in life sciences and biology (OMB M-15-16). Additionally, the Agriculture Economics and Rural Communities program area supports regulatory science for future products of the bioeconomy (OMB M-15-18). In this display, the Foundational Program includes funding for interagency programs.

Request for Applications (RFA)	New Grant Awards	Total
Foundational Program	$185,934,000	$185,934,000

Challenge Area RFAs:

- **Water for Food Production Systems Challenge Area:** In FY 2017, the AFRI Food Security and Water for Agriculture Challenge Areas will be consolidated into a new Challenge Area, Water for Food Production Systems, in which NIFA will invest $70,000,000 of appropriated AFRI funds to support projects that address current challenges in agriculture to ensure sustainable production of safe and nutritious food. Globally, we will need to produce 70 percent more food than current levels in order to feed the projected population of 9.5 billion people in 2050. However, ongoing drought and extreme weather events, along with excess moisture and flooding, pose critical challenges to meeting the food production demands in our nation. Thus, continued funding of research, education, and extension is critical for development of solutions to water availability issues that impact food production. To address these urgent challenges, AFRI will invest $47,960,000 in new grants addressing regional- and national-scale issues using systems approaches. Such projects will address improved water availability and conservation, use of alternative water sources, and decreased water requirements for food production systems. Approximately, $22,040,000 will continue support of existing grants, of which $11,040,000 will be for grants to improve the health and production of crops and livestock, and $11,000,000 will be for grants to continue research, education, and extension work on water for agriculture initiated in previous years. This work will increase the array of technological and strategic solutions to critical water problems in food production systems and will address the social and economic barriers for adoption of water conservation technologies and practices. 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 Awards[1]	Total[1]
Water for Food Production Systems Challenge Area	$47,960,000	$22,040,000	$70,000,000

[1] Funding includes existing grants awarded in previous years in the Food Security and Water for Agriculture Challenge Areas.

- **Food Safety Challenge Area RFA:** In FY 2017, the agency will invest approximately $15,000,000 of appropriated AFRI funds in the Food Safety Challenge Area to support integrated research, education, and extension projects that protect consumers from microbial and chemical hazards that may be present from "farm-to-fork" along the food chain. The Centers for Disease Control and Prevention estimate that 48 million Americans get sick, 128,000 are hospitalized, and 3,000 die of foodborne illnesses every year. As part of the President's National Strategy for Combating Antibiotic Resistant Bacteria (CARB), USDA is also charged with development of practical mitigation strategies to limit or reduce the prevalence of AMR. In support of CARB (OMB M-15-16 and M-15-18), approximately $10,229,000 will support new grants that use a systems approach to investigate AMR and the microbiome of soil, air, water, production agriculture, and aquaculture. Approximately $4,771,000 will provide continued support for existing grants that use integrated approaches to address food contamination by pathogens, toxins, and chemicals occurring through natural or intentional causes along the entire food chain.

Request for Applications (RFA)	New Grant Awards	Existing Grant Awards	Total

Food Safety Challenge Area	$10,229,000	$4,771,000	$15,000,000

- **Childhood Obesity Prevention Challenge Area RFA:** In FY 2017, NIFA will invest $25,100,000 of appropriated AFRI funding in the Childhood Obesity Prevention Challenge Area to support innovative and integrated research, education, and extension projects focused on reducing the number of overweight and obese children and adolescents aged 2-19 years. Prevalence rates of overweight and obese children and adolescents have tripled during the past 30 years. Approximately $13,288,500 will be for new grants to identify and implement effective family, peer, community, and school-based interventions to prevent and reverse overweight and obese trends, and to promote healthy behaviors in children and adolescents. Funding of approximately $11,811,500 will be for existing grants that provide long-term and sustained strategies to prevent childhood obesity by improving access to healthy food and enhancing the physical activity environments of communities of greatest need.

Request for Applications (RFA)	New Grant Awards	Existing Grant Awards	Total
Childhood Obesity Prevention Challenge Area	$13,288,500	$11,811,500	$25,100,000

- **Agricultural Science for Climate Variability and Change Challenge Area RFA:** In FY 2017, the agency will invest $15,400,000 of appropriated AFRI funds in the Agricultural Science for Climate Variability and Change Challenge Area to support the President's Global Climate Change Initiative (OMB M-15-16) by funding research in greenhouse gas mitigation and adaptation of agriculture to climate change variability. This program provides the information, technologies, and decision-support tools to enable crop, animal, forest, rangeland, and urban managers to account for climate variability and achieve long-term sustainability of food and fiber production. Approximately $10,708,000 in funds will be for new projects that will focus on climate-resilient land use for agriculture and forestry as well as the impact of climate on the microbiome of in agricultural production systems. Funding for existing grants of approximately $4,692,000 will continue to support research, education, and extension projects that will advance understanding on how interactions among climate variability, human activities, and land use will impact the U.S. food and fiber system.

Request for Applications (RFA)	New Grant Awards	Existing Grant Awards	Total
Agricultural Science for Climate Variability and Change Challenge Area	$10,708,000	$4,692,000	$15,400,000

- **Sustainable Bioenergy Challenge Area RFA:** For FY 2017, NIFA will invest $42,566,000 of appropriated AFRI funds in the Sustainable Bioenergy Challenge Area to support the President's Clean Energy and Advanced Manufacturing Initiatives (OMB M-15-16). NIFA's Sustainable Bioenergy and Bioeconomy portfolio links feedstock development, production, conversion, and markets in the creation of commercial-scale, advanced non-ethanol biofuels and biobased products that are compatible with existing infrastructure. Approximately $32,523,200 will be available for new grants that focus on biomass crop protection, risk mitigation, and integrating feedstock production with existing production systems. Additionally, new grants will focus on improving feedstock handling logistics and pre-processing technologies, improved water-efficiency and plant breeding in biomass crop production, preprocessing, and conversion of biomass to fuels, chemicals, and products with focus on reducing system-wide water use and efficient wastewater treatment. Approximately $10,042,800 for existing grants will continue research, education, and extension work on grasses, willow, and beetle-killed trees as feedstocks for biofuels.

Request for Applications (RFA)	New Grant Awards	Existing Grant Awards	Total
Sustainable Bioenergy Challenge Area	$32,523,200	$10,042,800	$42,566,000

Food, Agriculture, Natural Resources, and Human Sciences Education and Literacy Initiative RFA: NIFA will invest $21,000,000 of appropriated AFRI funding in ELI for new education and training grants that provide opportunities for students, scientists, and education professionals in order to develop a highly skilled workforce and the next generation of scientists. Recent analyses undertaken by the STEM Food and Ag Council suggest that over 30,000 jobs need to be filled each month in the U.S.; however, only 32,000 degrees are being granted annually in the food, agricultural, natural resources, and human sciences. Yet another study by Purdue University indicates an average of 35,400 new U.S. graduates with expertise in food, agriculture, renewable natural resources, or the environment are expected to fill only approximately 60 percent of the anticipated 57,900 average annual openings. NIFA's approach is to promote the education pipeline continuum by focusing on the following priority areas: (a) provide professional development opportunities for K-12 and community college education

professionals to promote engaged learning and positive youth development in their classrooms; (b) broaden experiential learning opportunities for undergraduates to address the 21st century workforce skills necessary to succeed in the food, agriculture, natural resource, and human sciences professions; and (c) support graduate and postgraduate education to cultivate future leaders who are able to address and solve emerging agricultural challenges of the 21st century through innovative solutions. A new addition to the graduate and post-graduate fellowships program are the grants to enhance recruitment and retention of the talented students through peer mentoring and hands-on training. Program areas in ELI collectively support the Presidential initiative on STEM Education (OMB M-15-16) as well as the OSTP priorities for Training Grants in Basic Agricultural Sciences and Research Courses.

Request for Applications (RFA)	**New Grant Awards**	**Total**
Food, Agricultural, Natural Resources, and Human Sciences Education and Literacy Initiative	$21,000,000	$21,000,000

Table 1. Funding allocations by Request for Applications for the FY 2017 President's Budget for the Agriculture and Food Research Initiative (AFRI).

FY 2017 President's Budget			
Program	**New Grant Awards**	**Existing Grant Awards**	**Total**
Agriculture and Food Research Initiative	$321,642,700	$53,357,300	$375,000,000[1]
Request for Applications (RFA)[2]			
Foundational Program	$185,934,000	$ -	$185,934,000
Education and Literacy Initiative	$21,000,000	$ -	$21,000,000
Water for Food Production Systems Challenge Area[3]	$47,960,000	$22,040,000	$70,000,000
Climate Variability and Change Challenge Area	$10,708,000	$4,692,000	$15,400,000
Food Safety Challenge Area	$10,229,000	$4,771,000	$15,000,000
Sustainable Bioenergy Challenge Area	$32,523,200	$10,042,800	$42,566,000
Childhood Obesity Prevention Challenge Area	$13,288,500	$11,811,500	$25,100,000

[1] Includes set-asides.
[2] Funding for interagency programs is included within the Foundational Program or various Challenge Areas, as appropriate.
[3] The Water for Food Production Systems Challenge Area results from consolidation of the Water for Agriculture Challenge Area and Food Security Challenge Area.

Table 2. Funding allocations by Farm Bill Priority Area for the FY 2017 President's Budget for the Agriculture and Food Research Initiative.

FY 2017 President's Budget								
Farm Bill Priority Area	Agriculture and Food Research Initiative	**RFA Topic Area**						
				Challenge Area				
		Foundational Program	Education and Literacy	Water for Agriculture	Climate Variability and Change	Food Safety	Sustainable Bioenergy	Childhood Obesity Prevention
A. Plant Health and Production and Plant Products	24%	30%	25%	21%	20%	5%	25%	-
B. Animal Health and Production and Animal Products	18%	24%	20%	13%	20%	40%	-	-
C. Food Safety, Nutrition, and Health	19%	15%	20%	9%	5%	50%	-	100%
D. Bioenergy, Natural Resources, and Environment	17%	11%	20%	17%	40%	3%	50%	-
E. Agriculture Systems and Technology	11%	8%	8%	26%	5%	2%	10%	-
F. Agriculture Economics and Rural Communities	11%	12%	7%	13%	10%	-	15%	-

Table 3. Funding allocations by Request for Applications for FY 2013 to FY 2016 appropriations and the FY 2017 President's Budget for the Agriculture and Food Research Initiative (AFRI).

AFRI Program Areas	**2013 Enacted**	**2014 Enacted**	**2015 Enacted**	**2016 Enacted**	**2017 President's Budget**
Sustainable Bioenergy Challenge Area	42,730,000	39,561,000	36,682,000	27,566,000	42,566,000[2]
Climate Variability and Change Challenge Area	41,642,000	34,117,000	9,862,000	15,312,000	15,400,000
Water for Food Production Systems Challenge Area[1]	37,555,000	43,750,000	56,166,000	69,917,000	70,000,000
Childhood Obesity Prevention Challenge Area	15,591,000	27,631,000	22,870,000	25,049,000	25,100,000
Food Safety Challenge Area	22,770,000	22,806,000	23,839,000	14,309,000	15,000,000
SUBTOTAL	***160,288,000***	***167,865,000***	***149,419,000***	***152,154,000***	***168,066,000***
Foundational Program	108,419,000	140,634,000	158,543,000	177,029,000	185,934,000[3]
Education and Literacy Initiative	6,862,000	7,910,000	17,038,000	20,818,000	21,000,000
Total	***275,569,000***	***316,409,000***	***325,000,000***	***350,000,000***	***375,000,000***

[1] Funding levels for FY 2013 through FY 2016 represent the total for the Food Security and Water for Agriculture Challenge Areas, which are consolidated in FY 2017 into the new Water for Food Production Systems Challenge Area.
[2] Includes $15 million for clean energy.
[3] Includes $10 million for clean energy.

Other Competitive Programs

Non-AFRI competitive programs included in the Congressional Directive and/or Farm bill language are listed below. FY 2016 discretionary funding is based on the Consolidated Appropriations for FY 2016. Programs funded by mandatory funding are included based on the Agricultural Act of 2014 (2014 Farm Bill). FY 2016 mandatory funds include the impact of a 6.8 percent sequestration order. FY 2017 Budget estimates are the estimated resources based on the President's budget request and FY 2017 funding amounts provided in the 2014 Farm Bill, and may differ from final FY 2017 funding amounts appropriated by Congress.

Program	Authority	Scope of RFA and Budget Justification	2016 Estimate ($000s)	2017 Budget ($000s)	RFA Dates
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)	The FY 2016 and 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.	$24,667	$29,967	2016: March 2016 2017: March 2017
Methyl Bromide	7 U.S.C. 7626	The FY 2016 RFA will focus 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. The President has not requested funding for this program in FY 2017.	2,000	0	2016: Winter, 2016
Minor Crop Pest Management Program – Interregional Research Project #4	7 U.S.C. 450i(e)	The FY 2016 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. The FY 2017 RFA will focus on funding projects that provide safe, effective, and economical pest management solutions for minor	11,913	11,913	December 10, 2015 Fall 2016

Program	Authority	Scope of RFA and Budget Justification	2016 Estimate ($000s)	2017 Budget ($000s)	RFA Dates
		agricultural uses and specialty crops. NIFA anticipates funding one national headquarters and four regional centers.			
Organic Transition Program	7 U.S.C. 7626	The FY 2016 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 FY 2017 RFA will continue to 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.	4,000	4,000	2016: January 2016 2017: January 2017
Crop Protection/Pest Management	7 U.S.C. 7626	The FY 2016 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 2016 only the Applied Research and Development program area will be solicited competitively. The Extension Implementation program area and the Regional Coordination program area will be funded as continuation awards.	17,200	20,200	Winter 2016

Program	Authority	Scope of RFA and Budget Justification	2016 Estimate ($000s)	2017 Budget ($000s)	RFA Dates
		The FY 2017 RFA will focus 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 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.			Winter 2017
Specialty Crop Research Initiative	7 U.S.C. 7632	The FY 2016 and FY 2017 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 Huonglongbing (HLB, citrus greening) and the insect that vectors the pathogen causing this disease.	74,560	80,000	2016: pre-applications due December 3. Invitations for full applications: Jan 29; 2017: Sept release for pre-application RFA, full invitations Jan 2017

Program	Authority	Scope of RFA and Budget Justification	2016 Estimate ($000s)	2017 Budget ($000s)	RFA Dates
					Citrus 2016: RFA release spring 2016 Citrus 2017: RFA release spring 2017
Beginning Farmer and Rancher Development Program	7 U.S.C. 3319f(c)(1)	The FY 2016 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). Topical priorities may be adjusted based on stakeholder input received in FY 2015 and to complement and avoid duplicating the work funded in FY 2015.	18,640	20,000	2016: January 2016
Organic Agriculture Research and Extension Initiative	7 U.S.C. 5925b(a)	The FY 2016 RFA will focus 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. The FY 2017 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	18,640	20,000	2016: December 10 2015 2017: December 2016

Program	Authority	Scope of RFA and Budget Justification	2016 Estimate ($000s)	2017 Budget ($000s)	RFA Dates
		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.			
Food Insecurity Nutrition Incentive Program	7 U.S.C. 7517	The FY 2016 and FY 2017 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.	18,640	20,000	2016: October 6, 2015 2017: Fall