

**2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE**

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**PREFACE**

This publication summarizes the fiscal year (FY) 2024 Budget for the U.S. Department of Agriculture (USDA). Throughout this publication any reference to the “Budget” is in regard to the 2024 Budget, unless otherwise noted. All references to years refer to fiscal year, except where specifically noted. The budgetary tables throughout this document show actual amounts for 2021 and 2022, enacted levels for 2023, and the President’s Budget request for 2024. Amounts for 2023 estimated levels include: non-enacted amounts such as Full-Time Equivalent levels, fleet levels, information technology investment levels, recovery levels, transfers in and out, balances available end of year, and obligation levels.

Throughout this publication, the “2018 Farm Bill” is used to refer to the Agriculture Improvement Act of 2018. Most programs funded by the 2018 Farm Bill are funded through 2023. Amounts shown in 2024 for most Farm Bill programs reflect those confirmed in the baseline.

Pursuant to the Balanced Budget and Emergency Deficit Control Act of 1985, sequestration is included in the numbers for mandatory programs in 2021, 2022, 2023 and 2024.

**AGENCY-WIDE****PURPOSE STATEMENT**

Section 7511(f)(2) of the Food, Conservation, and Energy Act of 2008 (FCEA) amended the Department of Agriculture Reorganization Act of 1994 (7 U.S.C. 6971) by establishing 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 programs propel cutting-edge discoveries from research laboratories to farms, classrooms, communities, and back again. Through three main federal-funding mechanisms, NIFA supports programs that address key national challenges. NIFA’s mission is to invest in and advance agricultural research, education, and extension to solve societal challenges.

**Research and Education Activities**

Research and Education programs administered by NIFA are the U.S. Department of Agriculture's (USDA) principal entrée to the university system of the United States for the purpose of conducting agricultural research and education programs as authorized by:

- Hatch Act of 1887, as amended ([7 U.S.C. 361a-361i](#));
- McIntire-Stennis Cooperative Forestry Act of 1962, as amended ([16 U.S.C. 582a et seq.](#));
- Evans Allen Act, as amended (7 U.S.C 3222 et seq.)
- Competitive, Special, and Facilities Research Grant Act, as amended ([7 U.S.C. 3157](#)) (Note: 7 U.S.C. 450i was transferred to 7 U.S.C. 3157) (the 1965 Act);
- National Agricultural Research, Extension, and Teaching Policy Act (NARETPA) of 1977, as amended ([7 U.S.C. 3101 et seq.](#));
- Small Business Innovation Development Act of 1982 (Pub. L. 97-219), as amended ([15 U.S.C. 638](#));
- SBIR and STTR Extension Act of 2022 (Pub. L. 117-183);
- 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;
- Equity in Educational Land-Grant Status Act of 1994 ([7 U.S.C. 301 note](#)) (the 1994 Act);
- Agricultural Research, Extension, and Education Reform Act of 1998 (Pub. L. 105-185), as amended (AREERA);
- Food, Agriculture, Conservation, and Trade Act of 1990 (Pub. L. 101-624) (FACT Act);
- Farm Security and Rural Investment Act of 2002 (Pub. L. 107-171) (FSRIA);
- Food Conservation, and Energy Act of 2008 (Pub. L. 110-246), as amended (FCEA);
- Agricultural Act of 2014 (2014 Farm Bill, Pub. L. 113-79);
- Agriculture Improvement Act of 2018 (2018 Farm Bill, Pub. L. 115-334);
- Infrastructure Investment and Jobs Act (Pub. L. 117-58);
- American Rescue Plan Act of 2021 (Pub. L. 117-2);
- Inflation Reduction Act of 2022 (Pub. L. 117-169);
- And the Research Facilities Act (7 U.S.C 390 et seq.).

Through these authorities, the USDA participates with State and other cooperators to encourage and assist the State institutions in agricultural research and education through the State Agricultural Experiment Stations (SAES) of the 50 States and territories; by approved Schools of Forestry; 1890 Land-Grant Institutions and Tuskegee University, West Virginia State College, and Central State University (7 U.S.C. 321 et seq., as amended); 1994 Land-Grant Institutions (7 U.S.C. 301 note, as amended); by Colleges of Veterinary Medicine; and other eligible institutions. 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 perpetuating 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 people in rural communities in individual States naturally look to their SAES, universities, and colleges for solutions to the State and local problems and request services and solutions to address these problems.

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. 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. Food Security Act of 1985 (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).

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

### ***Hatch Act***

Funds under the Hatch Act of 1887 as amended ([7 U.S.C. 361a-361i](#)) 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 actively participates in the planning and coordination of research programs between the States and the Department at the regional and national levels.

### ***McIntire-Stennis Act***

The McIntire-Stennis Act ([16 U.S.C. 582a et seq.](#)) as amended 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 7604 of the 2018 Farm Bill (Pub. L. 115-334) amended the McIntire-Stennis Act to include 1994 Institutions (as defined in section 532 of the Equity in Educational Land-Grant Status Act of 1994 ([7 U.S.C. 301](#) note; Pub. L. 103-382)) that offer an associate's degree or a baccalaureate degree in forestry.

Section 7101 of the 2014 Farm Bill (Pub. L. 113-79) which allowed 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 remained in effect until September 30, 2018. In accordance with Section 7102 of the 2018 Farm Bill, cooperating forestry schools will no longer have to opt out of that status to be considered as Non-Land-Grant Colleges of Agriculture (NLGCAs) because the definition of a NLGCA no longer excludes the cooperating forestry schools.

### ***Payments to 1890 Colleges, including Tuskegee University, West Virginia State College, and Central State University***

Section 1445 of NARETPA; Food and Agriculture Act of October 28, 1978, (Pub. L. 95-547); and subject to provisions of Agriculture and Food Act of 1981 (Pub. L. 97-98); Food Security Act of 1985 (Pub. L. 99-198); FACT Act; FAIR Act; AREERA; FSRIA; FCEA; Section 7129 of the 2014 Farm Bill (Pub. L. 113-79), and Section 7115 of the 2018 Farm Bill (Pub. L. 115-334), 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 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2002 (Pub. L. 107-76) makes West Virginia State College eligible to receive funds under this program. Section 7129 of the 2014 Farm Bill makes Central State University eligible to receive funds under this program beginning in fiscal year 2016 and Section 7115 of the 2018 Farm Bill establishes a minimum additional funding amount for eligible entities in the fiscal years following certain eligible entities' qualification should the funding level increase by \$3 million. If there are insufficient funds appropriated for Section 1445 (or Section 1444) to continue the minimum additional funding amounts for eligible institutions, the provision provides for a reduction in allocations made to eligible institutions. 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 underprivileged people in rural areas 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, unless the funding amount is increased by \$3 million in particular fiscal years, in which case Section 7115 of the 2018 Farm Bill includes additional directives regarding allocation of that increase:

- 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 of NARETPA ([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.

#### ***Tribal Colleges Education Equity Grants Program***

The 1994 Act ([7 U.S.C. 301 note](#)) 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 2014 Farm Bill (Pub. L. 113-79) 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 if the Institution declines to accept funds or fails to meet the accreditation requirements of section 533. Section 7502 of the 2018 Farm Bill (Pub. L. 115-334) amended section 532 of the 1994 Act by updating eligible institutions' names and adding Red Lake Nation College.

#### ***1890 Institution Teaching, Research, and Extension Capacity Building Grants Program***

Pursuant to 1417(b)(4) of NARETPA stimulates the development of high quality teaching, research, and extension programs at the 1890 Land-Grant Institutions and Tuskegee University, West Virginia State College, and Central State University (per Section 7129 of the 2014 Farm Bill (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.

#### ***Scholarships for Students at 1890 Institutions***

Section 1446 of the 2018 Farm Bill (Pub. L. 115-334) provides mandatory funding in the enacted amount of \$40 million, until expended, to carry out this program, authorized by [7 U.S.C. 3222a](#). The purpose of the program is to award grants to each of the eligible 1890 Land-Grant Institution, including Tuskegee University. The general

provisions, section 753, of Pub. L. 107-76 designated West Virginia State College as eligible to receive funds under any Act of Congress authorizing funding to 1890 Institutions. Section 7129 of the 2014 Farm Bill (Pub. L. 113-79) designates Central State University as an eligible 1890 Land-Grant Institution. The grants are for awarding scholarships to individuals who have been accepted for admission to such college or university; will be enrolled at such college or university not later than one year after the date of such acceptance; and intend to pursue a career in the food and agricultural sciences, including a career in agribusiness, energy and renewable fuels; or financial management.

### ***1890 Institutions Centers of Excellence***

The Centers are designed to supply the country with a globally diverse workforce and support critical global development needs, thereby supporting U.S. national security, address trans-boundary research and education challenges including climate change, conservation, biodiversity, and development, or strengthening of teaching curricula and student recruitment. The 1890 Universities have a long history of working on these topics but the small size of their individual programs and lack of sufficient investment in infrastructure have hampered their contributions. These Centers help the institutions increase their effectiveness in serving the nation. Section 1673 of the Food, Agriculture, Conservation and Trade Act of 1990, as amended by Section 7213 of the 2018 Farm Bill ([7 U.S.C. 5926\(d\)](#)) authorizes funding for the recognition of Centers of Excellence at 1890 Institutions to focus on Student Success and Workforce Development; Nutrition, Health, Wellness, and Quality of Life; Farming Systems, Rural Prosperity, and Economic Sustainability; Global Food Security and Defense; Natural Resources, Energy, and Environment; and Emerging Technologies.

### ***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 agricultural science and agribusiness. This competitive program expands and strengthens academic programs in the agricultural sciences, natural resources, forestry, veterinary medicine, home economics, and disciplines allied closely to the food and agriculture production and delivery systems 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 of NARETPA 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). Funds may support: 1) curricula design, degree programs, materials development, and library resources; 2) faculty preparation and enhancement for teaching; 3) instruction delivery systems; 4) scientific instrumentation for teaching; 5) student experiential learning; and 6) student recruitment and retention.

### ***Alaska Native Serving and Native Hawaiian-Serving Institutions Education Grants***

The 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 re-designated 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.

### ***1994 Institutions Research Grants***

The 1994 Act ([7 U.S.C. 301 note](#)), as amended by the 2014 Farm Bill (Pub. L. 113-79) and the 2018 Farm Bill (Pub. L. 115-334), 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 the 2014 Farm Bill (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 eligible to receive funds under McIntire-Stennis Cooperative Forestry Act; (7 U.S.C. 3103).

### ***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 the 2014 Farm Bill (Pub. L. 113-79) defined eligibility for this program and a certification process was implemented accordingly. Section 7102 of the 2018 Farm Bill (Pub. L. 115-334) amended the definition of NLGCA to clarify that eligible entities must offer study of agricultural sciences, forestry, or both in any of 32 specified areas of study or any other area determined appropriate by the Secretary.

### ***New Beginning for Tribal Students***

Section 1450 of the National Agricultural Research, Extension and Teaching Policy Act of 1977 ([7 U.S.C. 3222e](#)), as added by section 7120 of the 2018 Farm Bill (Pub. L. 115-334) established this program to make competitive grants to land-grant colleges and universities to provide identifiable support specifically targeted for Tribal students, through recruiting, tuition and related fees, experiential learning, and student services (including tutoring, counseling, academic advising, and other student services that would increase the retention and graduation rate of Tribal students enrolled at the land-grant college or university, as determined by the Secretary). All grantees are required to provide a 100 percent match in the form of cash or in-kind contributions. The program includes an annual limitation of \$500,000 that may be awarded to Institutions located in the same State.

### ***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 and Agriculture and Food Science Facilities and Equipment 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 in the insular areas. Funds may be used to enhance programs in agriculture, natural resources, forestry, veterinary medicine, home economics, and disciplines closely allied to the food and agriculture production and delivery systems. Funds also may be used to acquire, alter, or repair facilities or relevant equipment necessary for conducting agricultural research. Funds are awarded on a competitive basis under the program.

#### ***Distance Education Grants***

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

### ***Agriculture and Food Research Initiative***

Subsection (b) of the 1965 Act ([7 U.S.C. 3157\(b\)](#)) as amended by section 7406 of FCEA (Pub. L. 110-246), section 7404 of the 2014 Farm Bill (Pub. L. 113-79), and section 7504 of the 2018 Farm Bill (Pub. L. 115-334) 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, and any group consisting of two or more of these 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:



- 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.

Of the 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 the 2014 Farm Bill (Pub. L. 113-79), entities established under a commodity promotion law or a State commodity board (or other equivalent State entity) may directly submit to the Secretary for consideration proposals for requests for applications that specifically address particular issues related to the priority areas. Accepted topics are incorporated, as appropriate, into AFRI requests for applications. Eligible applicants include State agricultural experiment stations, colleges and universities, university research foundations, other research institutions and organizations, Federal agencies, national laboratories, private organizations or corporations, individuals, and any group consisting of two or more entities identified in this sentence.

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

#### ***Veterinary Medicine Loan Repayment Program***

The 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. Section 7105 of FCEA amended section 1415A of NARETPA (7 U.S.C. 3151a) 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.

#### ***Veterinary Services Grant Program***

The 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. Section 7106 of the 2018 Farm Bill (Pub. L. 115-334) amended section 1415B of NARETPA (7 U.S.C. 3151b) to give priority to grant awards for programs or activities with a focus on the practice of food animal medicine.

#### ***Animal Health and Disease Research***

Section 1433 of NARETPA, as amended by Pub. L. 113-79 and 115-334 ([7 U.S.C. 3195](#)), 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 the 2014 Farm Bill (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 the 2014 Farm Bill 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.

### ***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.

### ***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) of NARETPA ([7 U.S.C. 3152\(b\)\(1\)](#)) supports competitive 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.

#### ***Higher Education Multicultural Scholars Program***

Pursuant to section 1417(b)(5) of NARETPA ([7 U.S.C. 3152\(b\)\(5\)](#)) provides competitive grants to institutions for scholarships that attract and educate more students from groups currently underrepresented in the food and agricultural sciences for careers in agriscience and agribusiness.

#### ***Higher Education National Needs Graduate Fellowship Grants***

Pursuant to section 1417(b)(6) of NARETPA ([7 U.S.C. 3152\(b\)\(6\)](#)) are competitive awards to provide 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 new graduate students for critical food and agricultural scientific positions.

### ***Secondary Education, Two-year Postsecondary Education, and Agriculture in the K-12 Classroom***

This 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.

### ***Aquaculture Centers***

Pursuant to section 1475(d) of NARETPA ([7 U.S.C. 3322\(d\)](#)) 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.

### ***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.

### ***Farm Business Management and Benchmarking Program***

Section 1672D of the FACT Act ([7 U.S.C. 5925f](#)), as amended by Section 7211 of the 2018 Farm Bill (Pub. L. 115-334) authorizes a competitive program to make research and extension grants for the purpose of improving the farm management knowledge and skills of agricultural producers by maintaining and expanding a national, publicly available farm financial management database to support improved farm management.

### ***Sun Grant Program***

Section 7526 of FCEA ([7 U.S.C. 8114](#)), as amended by section 7516 of the 2014 Farm Bill (Pub L. 113-79) and reauthorized by section 7414 of the 2018 Farm Bill (Pub. L. 115-334), established this program for grants to sun grant centers and subcenters for competitive awards to enhance national energy through the development, distribution, and implementation of biobased energy technologies. Through biobased energy and product technologies, activities are supported that promote diversification, and the environmental sustainability of, agricultural production in the U.S., and economic diversification in rural areas of the U.S. Funds are also used to enhance the efficiency of bioenergy and biomass research and development programs through improved coordination and collaboration among USDA, Department of Energy, and land-grant colleges and universities.

### ***Research Equipment Grants Program***

Section 1462A of the National Agricultural Research, Extension and Teaching Policy Act of 1977 ([7 U.S.C. 3310](#)), as added by section 7126 of the 2018 Farm Bill (Pub. L. 115-334) established this program for competitive grants to eligible institutions for the acquisition of special purpose scientific research equipment for use in the food and agricultural sciences programs of eligible institutions. Grants may not exceed \$500,000.

### ***Alfalfa Seed and Alfalfa Forage Systems Program***

Pursuant to Section 1672 of the FACT Act ([7 U.S.C. 5925](#)) and as amended by the 2018 Farm Bill (Pub. L. 115-334), supports research for the purpose of studying improvements in alfalfa and forage yields, biomass and persistence, pest pressures, the bioenergy potential of alfalfa seed and other alfalfa forages, and systems to reduce losses during harvest and storage.

***Minor Crop Pest Management (IR-4)***

Pursuant to Section 2(c) of the 1965 Act ([7 U.S.C. 3157\(e\)](#)), 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.

***Agricultural Genome to Phenome Initiative***

Section 1671 of the Food, Agriculture, Conservation, and Trade Act of 1990 ([7 U.S.C. 5924](#)), as amended by section 7208 of the 2018 Farm Bill (Pub. L. 115-334) authorizes a program for competitive awards to build on genomic research and expand knowledge concerning genomes and phenomes of crops and animals of importance to the agriculture sector of the United States.

***Laying Hen and Turkey Research Program***

Section 1672 of the Food, Agriculture, Conservation, and Trade Act of 1990 ([7 U.S.C. 5925](#)), as amended by section 7209 of the 2018 Farm Bill (Pub. L. 115-334) authorizes a program for competitive awards to research institutions who support research into laying hen and turkey disease prevention for the purpose of improving the efficiency and sustainability of laying hen and turkey production through integrated, collaborative research and technology transfer.

***Open Data Standards***

Solutions are desired to preserve and share big data generated by technological advancements in the agriculture industry and for the preservation and curation of data in collaboration with land grant universities. A public-private cooperative framework will be developed based on open data standards for neutral data repository.

***Research Facilities Act***

Pursuant to Section 4 of the Research Facilities Act ([7 U.S.C. 390 et seq.](#)) and as amended by the 2018 Farm Bill (Pub. L. 115-334), supports competitive grants to college, university, or nonprofit institution that have a facility supportive of research in food and agricultural sciences to assist in the construction, alteration, acquisition, modernization, renovation, or remodeling of the facility.

***Special Grants***

Section 2(c) of the 1965 Act ([7 U.S.C. 3157\(e\)](#)), 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:

***Global Change UV-B Monitoring***

Pursuant to Section 2(c) of the 1965 Act ([7 U.S.C. 3157\(e\)](#)), 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. 3157\(e\)](#)), 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 Research*

Pursuant to Section 2(c) of the 1965 Act ([7 U.S.C. 3157\(c\)](#)), as amended supports aquaculture research to address issues related to genetics, disease, systems, and economics.

#### ***Federal Administration (direct appropriation)***

Authority for direct appropriations is provided in the annual Agriculture 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, Department of Homeland Security facility security services, and General Services Administration rent.

#### ***Native American Institutions Endowment Fund***

The program, authorized by the 1994 Act ([7 U.S.C. 301 note](#)), 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 adjusting 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.

#### ***Small Business Innovation Research (SBIR) Program / Small Business Technology Transfer (STTR) Program***

The Small Business Innovation Development Act of 1982 (Pub. L. 97-219, as amended) ([15 U.S.C. 638](#)), Section 630 of the Act making appropriations for Agriculture, Rural Development and Related Agencies' programs for fiscal year ending September 30, 1987, and for other purposes, as made applicable by Section 101(a) of Pub. L. 99-591, 100 Stat. 3341 authorizes a competitive program for SBIR. The Small Business Innovation Development Act was designed to strengthen the role of small, innovative firms in Federally funded research and development. The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) reauthorizes SBIR and STTR programs and pilot programs thru 2025 with a set aside of not less than 3.2 percent of appropriations in fiscal year 2017 and each fiscal year thereafter for the SBIR program and a set aside of not less than 0.45 percent for fiscal year 2016 and each fiscal year thereafter for the STTR program for extramural research and development for awards to eligible small firms.

The SBIR/STTR Programs are 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/STTR programs 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, water, and soil resources; food and nutrition sciences; rural and community development; biofuels and biobased products; aquaculture; and small and mid-sized farms. NIFA administers the SBIR/STTR programs for USDA, including the funds set aside from other USDA agencies.

#### ***Biotechnology Risk Assessment Research Grants Program (BRAG)***

Section 1668 of FACT Act ([7 U.S.C. 5921](#)) as amended 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 fundamental risk assessment research, which is defined as the science-based evaluation and interpretation of information in which a given hazard, if any, is identified, and the consequences associated with the hazard are explored.

### ***Inflation Reduction Act from Learning to Leading***

The primary goal of the From Learning to Leading: Cultivating the Next Generation of Diverse Food and Agriculture Professionals Program (NEXTGEN) is to enable 1890 institutions, 1994 institutions, Alaska Native-serving institutions and Native Hawaiian-serving institutions, Hispanic-serving institutions and insular area institutions of higher education located in the U.S. territories to build and sustain the next generation of the food, agriculture, natural resources, and human sciences (FANH) workforce including the future USDA workforce primarily through providing student scholarship support, meaningful paid internships, fellowships, and job opportunity matching, and also facilitating opportunities to learn the processes and pathways leading to training and employment in the federal sector. Section 22007(d) of the Inflation Reduction Act appropriated \$250 million in funding for 1890 Institutions, 1994 Institutions, Alaska Native serving institutions and Native Hawaiian serving institutions, Hispanic-serving institutions and insular area institutions of higher education located in the U.S. territories.

### ***American Rescue Plan NEXTGEN Technical Assistance and Outreach***

Approximately \$2.5 million of American Rescue Plan Section 1006 funding will support Next Generation of Diverse Food and Agriculture Professionals Program (NEXTGEN) Technical Assistance and Outreach, to provide funding for minority-serving institutions to support and supplement agricultural research, education, and extension, as well as scholarships and programs that provide internships and pathways to Federal employment.

### ***American Rescue Plan Meat and Poultry Processing (MPP) Workforce Development (WFD) Sustainable Agriculture Research and Education (SARE)***

Approximately \$2.625 million of American Rescue Plan Section 1001(b)(4) is to be allocated to the National Institute of Food and Agriculture (NIFA) to support funding solely for the existing SARE National Reporting, Coordinating, and Communications Office, in collaboration with the four regional SARE host institutions, to apply for funds to carry out meat and poultry processing research and educational activities. Work in this program will support the development of training and educational materials in meat and poultry processing for place-based needs, particularly relevant to the workforce needs of small farmers and ranchers. Additionally, training local and/or regional meat and poultry workers has the unique opportunity to address the demand from niche markets including but not limited to small flocks/herds, mobile processing units that will fulfill market demand from fresh markets, on-site processing, farm-to-fork (restaurateurs), and boutique grocers. Additional resources were allocated to NIFA to support the operational expenses for administration of this program.

### ***American Rescue Plan Meat and Poultry Processing (MPP) Workforce Development (WFD) Agricultural Workforce Training***

Approximately \$21 million of American Rescue Plan Section 1001 is be allocated to the National Institute of Food and Agriculture (NIFA) to support Agriculture and Food Research Initiative's Agricultural Workforce Training - Meat and Poultry Processing Workforce Training Program Area Priority 2022 Meritorious Grants. Safe and resilient meat and poultry supply chains require a trained, credentialed, and diverse workforce with the right skills at the right location. Based on stakeholder feedback, an expanded workforce is one of the most common and persistent needs across the beef, pork, poultry, and other specialty meat sectors. The goals for the meat and poultry processing workforce development program are to build a pipeline of well-trained workers and support safe workplaces with fair wages. Creating the pipeline of well-trained workers requires the development, expansion, and standardization of training and job-readiness; therefore, competitive grants made through this investment will support such development, expansion and/or improvement of workforce training programs or stackable-credential frameworks at

community, junior, and technical colleges supportive of workforce development for the meat and poultry processing sector. These frameworks will include experiential learning opportunities that will provide on-the-job training, and exposure to work environments. Projects that involve partnerships with industry, local government, economic development organizations, and/or workforce-focused nonprofit organizations will be encouraged as well as those targeting high-unemployment geographic areas or underrepresented groups. Additional resources were allocated to NIFA to support the operational expenses for administration of this program.

#### ***American Rescue Plan Meat and Poultry Processing (MPP) Workforce Development (WFD) Centers of Excellence***

Approximately \$15 million of American Rescue Plan Section 1001 is allocated to the National Institute of Food and Agriculture (NIFA) to support the Meat and Poultry Processing Workforce Development Centers of Excellence at Minority-Serving Institutions. Safe and resilient meat and poultry supply chains require a trained, credentialed, and diverse workforce with the appropriate skills. Based on stakeholder feedback, an expanded workforce is one of the most common and persistent needs across the beef, pork, poultry, and other specialty meat sectors. The goal for the meat and poultry processing workforce development program is to build a pipeline of well-trained workers and support safe workplaces with fair wages at Minority-Serving Institutions (MSIs). The MSIs receiving funding include 1890s Land Grant Universities, 1994 Tribal Colleges and Universities, Hispanic-Serving Institutions, Alaska Native-Serving and Native Hawaiian-Serving Institutions, and Institutions of Higher Education in the Insular Areas. Creating a pipeline of well-trained workers requires the development, expansion, and standardization of training and job-readiness; therefore, grants made through this investment will support such development, expansion and/or improvement of workforce training programs supportive of workforce development for the meat and poultry processing sector. Grants will be made through competitive Requests for Applications, non-competitive Directed Supplemental Requests for Applications, and supplements to existing awards. These frameworks will include experiential learning opportunities that will provide on-the-job training, and exposure to work environments. Projects that involve partnerships with industry, local government, economic development organizations, and/or workforce-focused nonprofit organizations will be encouraged as well as those targeting high-unemployment geographic areas or underrepresented groups.

#### ***American Rescue Plan Centers of Excellence for Meat and Poultry Processing and Food Safety Research and Innovation Phase III***

Approximately \$15 million of American Rescue Plan Section 1001(b)(4) is allocated to the National Institute of Food and Agriculture (NIFA) to support Phase III funding of 15 competitive grants pre-selected from previous Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) Phase I and Phase II awards to small businesses with promising technology efficacy. The Phase III award will provide grants as equity-free (non-diluted) funding to promote private sector companies with Phase II or Phase I success to translate and integrate technology that has been developed, with minimal additional research, for advancement and adoption to benefit supply chain resilience of Small and Mid-size Meat and Poultry processors. Solicited technologies will fit three priorities to enable supply chain resiliency: Monitoring and improving complex processes, Worker safety, and Food safety. Awards made to eligible Phase III companies require cooperation with eligible meat and poultry processing channels which include independent business owners, entrepreneurs, producers, and other groups, such as cooperatives and worker associations who are less resourced.

#### ***American Rescue Plan Centers of Excellence for Meat and Poultry Processing and Food Safety Research and Innovation***

Approximately \$5 million of American Rescue Plan Section 1001(b)(4) is allocated to the National Institute of Food and Agriculture (NIFA) to support funding of one competitive grant as a Center of Excellence for Meat and Poultry Processing and Food Safety Research and Innovation awarded through the Agriculture and Food Research Initiative (AFRI) program. The Center of Excellence award will integrate innovative research on advance technology in meat and poultry processing and food safety with extension outreach to the meat and poultry processing community. Through translation of research to the end-user, the AFRI Center of Excellence award will enhance supply chain resilience of small and medium-size meat and poultry processors while also improving food safety and worker safety. Innovative research in meat and poultry processing will emphasize development of scale-neutral technologies that are affordable and adaptable for use by small and medium-size meat and poultry processors.

### ***American Rescue Plan Community Foods Projects***

Approximately \$10 million of American Rescue Plan Section 1001(b)(4) is allocated to the National Institute of Food and Agriculture (NIFA) to support funding 27 additional competitive, highly ranked Community Foods Projects competitive grant applications received in 2022, which could not be funded in 2022 due to NIFA's budget constraints. Community Foods Projects have a maximum budget of \$400,000 over 4 years with a 1:1 matching requirement. The additional 27 CFP awards will support projects that reduce or alleviate food and nutrition insecurity, with a long-term goal of reducing reliance on emergency food assistance. Projects include work in rural and urban farming, sustainable landscaping, and sustainable building technologies to support a more holistic, healthy, and resilient food systems. Projects also support small or disadvantaged farmers and/or processors, reduce language access disparities, increase local food access, increase consumption of nutritious foods, enhance workforce development, support entrepreneurship, and strengthen the support structures for agricultural producers. Overall, this program provides communities a voice in food system decisions, and an opportunity for local food markets to fully benefit the community, increase food and nutrition security, and stimulate local economies.

### **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 ([7 U.S.C. 341 et seq](#)). 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 U.S. 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 the 3,143 counties or county equivalents in the United States.

Thousands of Extension employees and 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.

### ***Smith-Lever 3 (b) & (c)***

Smith-Lever 3 (b) & (c) formula funds of the Smith-Lever Act, [7 U.S.C. 343\(b\)\(c\)](#), as amended, comprise approximately two-thirds of the total Federal funding for extension activities. These funds are allocated to the States based on 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.

### ***Extension Services at 1890 Colleges and Tuskegee University, West Virginia State College, and Central State University***

Section 1444 of NARETPA, ([7 U.S.C. 3221](#)), 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 College as eligible to receive funds under any Act of Congress authorizing funding to 1890 Institutions, including Tuskegee University. Section 7129 of the 2014 Farm Bill (Pub. L. 113-79) designates Central State University as an eligible 1890 Land-Grant Institution and Section 7115 of the 2018 Farm Bill (Pub. L. 115-334) establishes a minimum additional funding amount for eligible entities in the fiscal years following certain eligible entities' qualification should the funding level increase by \$3 million. If there are insufficient funds appropriated for Section 1444 (or Section 1445) to continue the minimum additional funding amounts for eligible institutions, the provision provides for a reduction in allocations made to eligible institutions. 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, unless the funding amount is increased by \$3 million in any fiscal years, in which case Section 7115 of the 2018 Farm Bill includes additional directives regarding allocation of that increase:

- 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. Section 7114 of the 2018 Farm Bill amends section 1444(a) of NARETPA to allow 1890 colleges to carry forward to the succeeding fiscal year 100 percent of the funds they receive under this program in a given fiscal year. 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.

### ***Extension Services at the 1994 Institutions***

The 1994 Act ([7 U.S.C. 301 note](#)) 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 as authorized ([7 U.S.C 343\(b\)\(3\)](#)). Section 7402 of the 2014 Farm Bill (Pub. L. 113-79) amended section 532 of the 1994 Act by adding College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College, effective October 2014. Section 7502 of the 2018 Farm Bill (Pub. L. 115-334) amended section 532 of the 1994 Act by updating eligible institutions' names and adding Red Lake Nation College.

***Facility Improvements at 1890 Facilities (Sec. 1447)***

Section 1447 of NARETPA, [7 U.S.C. 3222b](#), funds are used to upgrade research, extension, and teaching facilities at the eligible 1890 land-grant colleges, including Tuskegee University, West Virginia State College, and Central State University (per Section 7129 of the 2014 Farm Bill (Pub. L. 113-79)).

***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.

***Rural Health and Safety Education***

Rural Health and Safety Education Act of 1990, section 2390 of the FACT Act ([7 U.S.C. 2662\(i\)](#)). Per authorizing language, this program competitively awards projects that focus on issues related to 1) individual and family health education; 2) farm safety education; and/or 3) rural health leadership development. Per section 6101 of the 2018 Farm Bill (115-334), priority is to be given to an applicant that will use the grant for substance use disorder education and treatment and the prevention of substance use disorder. 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 College, 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.

***Food Animal Residue Avoidance Database Program (FARAD)***

Section 7642 of AREERA ([7 U.S.C. 7642](#)) 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.

***Women and Minorities in Science, Technology, Engineering, and Mathematics Fields***

Section 7204 of FCEA amended section 1672 of the FACT Act ([7 U.S.C. 5925\(d\)\(7\)](#)), 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.

***Food Safety Outreach Program***

Section 405 of AREERA ([7 U.S.C. 7625](#)) authorizes this program. The Food Safety Outreach Program awards competitive grants to eligible recipients for projects that develop and implement Food Safety Modernization Act-related food safety training, education, extension, outreach, and technical assistance to owners and operations of small and medium-sized farms, beginning farmers, socially disadvantaged farmers, small processors or small fresh fruit and vegetable merchant wholesalers. Section 7301 of the 2018 Farm Bill strikes the prohibition on funding that restricts USDA from providing additional grant funding once an entity has received three years of grant funding.

***Food and Agriculture Service Learning Program (FASLP)***

Section 413 of AREERA ([7 U.S.C. 7633](#)) authorizes this program. FASLP awards competitive grants to increase the knowledge of agriculture and improve the nutritional health of children and to bring together stakeholders from the distinct parts of the food system to increase the capacity for food, garden, and nutrition education within host organizations or entities, such as school cafeterias and classrooms, while fostering higher levels of community engagement between farms and school systems. The initiative is part of a broader effort to not only increase access to school meals for low-income children, but also to dramatically improve their quality.

***Farm and Ranch Stress Assistance Network (FRSAN)***

Section 7412 of the Agricultural Improvement Act of 2018 amended ([7 U.S.C. 5936](#)), which authorizes competitive grants to establish a FRSAN that provides stress assistance programs to individuals who are engaged in farming, ranching, and other agriculture-related occupations. Funds will be used to initiate, expand, or sustain programs that provide professional agricultural behavioral health counseling and referral or other forms of assistance as necessary through farm telephone helplines and websites and training programs and workshops for a) advocates for individuals who are engaged in farming, ranching, and other occupations relating to agriculture; and b) other individuals and entities that may assist individuals who are engaged in farming, ranching, and other occupations relating to agriculture; and are in crisis. Funds also may be used in the dissemination of information and materials.

***Enhancing Agricultural Opportunities for Military Veterans Competitive Grants Program***

Section 739 of the Consolidated Appropriations Act, 2023 ([Pub. L. 117-328](#)) provides \$5 million through September 30, 2023 for competitive grants to non-profit organizations to increase the number of military veterans gaining knowledge and skills through comprehensive, hands-on and immersive model farm and ranch programs offered regionally that lead to successful careers in the food and agricultural sector. The program encourages the development of training opportunities specifically designed for military veterans. The projects will offer onsite, hands-on training and classroom education leading to a comprehensive understanding of successful farm and ranch operations and management practices. Projects also may offer workforce readiness and employment prospects for service-disabled veterans.

***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 amended 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. Section 7609 of the 2018 Farm Bill (Pub. L. 115-334) provided 1994 Institutions as eligible for certain competitively awarded Smith-Lever 3(d) programs (see below). 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](#)) as amended. 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) 1981 bases; (2) \$100,000 to each institution; (3) a percentage of the increase in funding that exceeds the 2007 appropriated level (i.e., 14 percent for 2014 and thereafter) distributed to the 1890 Land-Grant Institutions according to the pro rata population for each institution at or below 125 percent of the poverty level; and the remainder to the 1862 Land-Grant Institutions according to the pro rata population for each institution at or below 125 percent of the poverty level.

***Farm Safety and Youth Farm Safety Education and Certification Program***

The Rural Health and Safety Education Act of 1990, section 2390 of the FACT Act ([7 U.S.C. 2662i](#)) – 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. Section 7214 of the 2018 Farm Bill reauthorizes appropriations through fiscal year 2023 for demonstration grants to provide agricultural education and assistance to individuals with disabilities engaged in farming or farm-related occupations. It adds language to clarify that this provision applies to veterans engaged in farming or farm-related occupations, or who are pursuing new farming opportunities.

*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.

*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 includes early childhood, school age youth, teens, and parent/family outcomes with emphasis on science and reading literacy and building youth and family programs and community capacity. Section 7609 of the 2018 Farm Bill provided 1994 Institutions as eligible to receive funds from this program by amending [7 U.S.C. 343\(d\)](#).

*Federally Recognized Tribes Extension Program (formerly Extension Indian Reservations)*

Section 1677 of the FACT Act, [7 U.S.C. 5930](#) as amended, authorizes 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. Section 7609 of the 2018 Farm Bill deemed 1994 Institutions as eligible to receive funds from this program.

***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)*

Funds are appropriated under the administration line to support the AITC program administered under [7 U.S.C. 3152\(j\)](#). AITC advances agricultural literacy through a grassroots network of State coordinators, schoolteachers, 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.

***Beginning Farmer and Rancher Development Program***

Section 12301 of the 2018 Farm Bill (Pub. L. 115-334) amended Section 2501 of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 U.S.C. 2279) and made available the enacted amount of \$15 million for 2019 and 2020, \$17.5 million for 2021, \$20 million for 2022, and \$25 million for 2023 and each year thereafter to carry out the program. In addition to the mandatory funds provided under the 2018 Farm Bill, Section 747 of the Consolidated Appropriations Act, 2022, provided \$2 million for the program. The purpose of this 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 non-governmental organization; a college or university (including an institution offering associate's degree) or a foundation maintained by a college or university; or any other appropriate partner.

All grantees are required to provide a 25 percent match in the form of cash or in-kind contributions. The maximum amount of an award is \$250,000 per year and the maximum project period is three years. In accordance with Section 12301 of the 2018 Farm Bill, 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.

#### ***American Rescue Plan Technical Assistance Investment Program***

Funds will be used for technical assistance partnerships focused on socially disadvantaged farmers and ranchers, including Black, Hispanic, Indigenous, Hawaiian/Pacific Islander, women, beginning farmers and ranchers, and veteran producers. USDA is creating opportunities to ensure that socially disadvantaged communities of farmers, ranchers, forest landowners, and operators have the tools, programs, and support they need to succeed in agriculture. Approximately \$73.569 million of American Rescue Plan Section 1006 funding will support technical assistance to connect underserved producers with USDA programs and services. Cooperative Agreements will support organizations with proven track records working with economically distressed and/or underserved communities, to provide an array of technical assistance specialized services that could include outreach, technical assistance, cooperative development training and support, financial training, mediation access, capacity building training, technical assistance concerning agriculture production, agriculture credit, and rural development to underserved farmers, ranchers or forest landowners.

#### ***American Rescue Plan Meat and Poultry Processing (MPP) Workforce Development (WFD) Extension Risk Management Education (ERME)***

Approximately \$2.625 million of American Rescue Plan Section 1001(b)(4) is allocated to the National Institute of Food and Agriculture (NIFA) to support funding for the four host institutions of Agriculture Risk Management Education (ARME) regional centers and its support center. ARME 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. Work already started under a previous award to the four (4) regional centers nationwide and one (1) Risk Management Education Electronic Support Center is based upon the centers continued work on risk management education. These activities include educating agricultural producers on 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 related to meat and poultry processing. Additional resources were allocated to NIFA to support the operational expenses for administration of this program.

#### ***American Rescue Plan Gus Schumacher Nutrition Incentive Program (GusNIP) Produce Prescription Project (PPP)***

Approximately \$42 million of American Rescue Plan Section 1001(b)(4) is allocated to the National Institute of Food and Agriculture (NIFA) to support funding 65 additional competitive, highly ranked GusNIP Produce Prescription competitive grant applications received in 2022, which otherwise could not be funded due to NIFA's budget constraints. PPP leverages existing medical assistance programs. This safety net supports individuals and families with limited financial resources. Federally supported medical assistance programs aim to ensure income eligible individuals and families have access to the healthcare services they need through providing comprehensive health insurance coverage. PPP supports grants to conduct and evaluate projects that provide "prescriptions" to procure fresh fruits and vegetables by limited resource individuals managing, or at risk for diet-related health condition(s). These 65 awards will build capacity among organizations serving historically underserved communities, increase the reach of PPP projects, and establish a foundation for enhanced efficacy and sustained success in a nascent program. A variety of emerging research illustrates how GusNIP supports farmers, increases access to nutritious foods—particularly fresh fruits and vegetables, aids in economic recovery, and contributes to the resilience of communities. Overall, this Food as Medicine initiative improves health outcomes through access to more nutritious food. Additional resources were allocated to NIFA to support the operational expenses for administration of this program.

#### ***American Rescue Plan Food Loss and Waste Prevention and Reduction***

Approximately \$25 million of American Rescue Plan Section 1001 is allocated to the National Institute of Food and Agriculture (NIFA) for Food Loss and Waste Reduction. Of the total, \$15 million will be to fund the Community Food Projects (CFP) Grants to reduce FLW, get surplus wholesome food to individuals, and develop linkages

between food producers, providers, and food recovery organizations. The remaining \$10 million will be to fund the Food and Agriculture Service Learning Program (FASLP) Grants for FLW-reduction efforts on school grounds to engage in and scale up FLW efforts: 1) increase capacity for student to learn how to prevent food waste; 2) change the school environment; and 3) use cafeterias and other parts of school grounds as classrooms.

### ***Inflation Reduction Act Technical Assistance Investment Program***

Approximately \$39 million of Inflation Reduction Act Section 22007(a) and (f) is allocated to the National Institute of Food and Agriculture (NIFA) to provide resources for administration of a cooperative agreement. Work supported through this agreement will provide outreach, mediation, financial training, capacity building training, cooperative development and agricultural credit training and support, and other technical assistance on issues concerning food, agriculture, agricultural credit, agricultural extension, rural development, or nutrition to underserved farmers, ranchers, or forest landowners, including veterans, limited resource producers, beginning farmers and ranchers, and farmers, ranchers, and forest landowners living in high poverty areas.

### **Integrated Activities**

The following programs are included under the integrated activities account:

#### ***Section 406***

The following programs are provided pursuant to the authority found in section 406 ([7 U.S.C. 7626](#)). Funding for all programs is provided on a competitive basis.

#### ***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.

#### ***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.

#### ***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.

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.

#### ***Regional Rural Development Centers***

Section 2(c)(1)(B) of the Act of 1965 ([7 U.S.C. 3157 \(c\)\(1\)\(B\)](#)) provides funds at four regional centers in Pennsylvania, Mississippi, Utah, and Indiana. Programs are designed to improve the social and economic well-being of rural communities in their respective regions. These funds are administered according to the extent of the problem that requires attention in each State.

#### ***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 of 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 also supported under this program. EDEN is a collaborative national effort led by State Cooperative Extension Services (CES) to provide disaster education resources for CES educators to help farmers and other public sectors in the event of disasters, including agricultural disasters.

### ***Institute of Rural Partnerships***

Section 778 and Section 780 of the Consolidated Appropriations Act, 2022 (Pub. L. 117-103) provided, to remain available until expended, appropriated funding to support establishment of multiple Institute of Rural Partnerships. Section 778 appropriated \$30 million to establish a grant program and distribution of funds to three geographically diverse established land-grant universities. Section 780 appropriated \$10 million for costs associated with the establishment of an Institute for Rural Partnership located at the University of Vermont. Provided that the Institute for Rural Partnerships shall dedicate resources to researching the causes and conditions of challenges facing rural areas and develop community partnerships to address such challenges. Publishing a coordinated annual report is also required.

### ***Agriculture Risk Management Education Program***

Section 524(a) of the Federal Crop Insurance Act ([7 U.S.C. 1524\(a\)](#)), as amended by section 133 of the Agricultural Risk Protection Act of 2000 and section 11125 of the 2018 Farm Bill (Pub. L. 115-334), establishes a competitive grants program for educating agricultural producers and providing technical assistance to agricultural producers on a full range of farm viability and risk management activities. These activities include futures, options, agricultural trade options, crop insurance, business planning, enterprise analysis, transfer and succession planning, management coaching, market assessment, cash flow analysis, cash forward contracting, debt reduction, production diversification, farm resources risk reduction, farm financial benchmarking, conservation activities, 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 \$10 million is to be made available annually for competitive awards.

### ***Gus Schumacher Nutrition Incentive Program (formerly Food Insecurity Nutrition Incentive)***

Section 4205 of the 2018 Farm Bill (Pub. L. 115-334), which amended section 4405 of the Food, Conservation, and Energy Act of 2008 ([7 U.S.C. 7517](#)), authorizes the Gus Schumacher 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 was made available in the enacted amount of \$45 million for 2019, \$48 million for 2020 and 2021, \$53 million for 2022, and \$56 million for 2023 and each year thereafter to carry out the program.

### ***Organic Agriculture Research and Extension Initiative***

Section 7210 of the 2018 Farm Bill (Pub. L. 115-334) amended section 1672B of the FACT Act ([7 U.S.C. 5925b](#)) to provide mandatory funding in the enacted amount of \$20 million for 2019 and 2020, \$25 million for fiscal year 2021, \$30 million for 2022, and \$50 million for 2023 and each year thereafter for the Organic Agriculture 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.

### ***Specialty Crop Research Initiative***

Section 7305 of the 2018 Farm Bill (Pub. L. 115-334) reauthorized and amended 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:

- Research in plant breeding, genetics, and genomics to improve crop characteristics;
- Efforts to identify and address threats from pests and diseases, including threats to pollinators;
- Efforts to improve production efficiency, productivity, and profitability over the long term;
- New innovations and technology, including improved mechanization and technologies that delay or inhibit ripening; and
- 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 2014 and each year thereafter to carry out SCRI.

Section 7306 of the 2014 Farm Bill (Pub. L. 113-79) added a requirement that, in addition to the scientific peer review NIFA regularly conducts, a panel of specialty crop industry representatives' review and rank SCRI applications for merit, relevance, and impact. In addition, Section 7306 requires increased consultation between NIFA and the Specialty Crops Committee of the National Agricultural Research, Extension, Education and Economics Advisory Board.

#### ***Emergency Citrus Disease Research and Extension Program***

Section 12605 of the 2018 Farm Bill (Pub. L. 115-334) also established the Citrus Trust Fund and provides \$25 million, available until expended, for each of 2019 through 2023, to carry out the Emergency Citrus Disease Research and Extension (ECDRE) Program in section 412 of AREERA ([7 U.S.C. 7632\(j\)](#)). Funding is for a competitive research and extension grant program to combat diseases of citrus by 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. The ECDRE program also combats citrus diseases by supporting the dissemination and commercialization of relevant information, techniques, and technologies.

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

#### ***Urban, Indoor, and Other Emerging Agricultural Production Research, Education, and Extension Initiative***

Section 7212 of the 2018 Farm Bill (Pub. L. 115-334) amended section 1672 of the FACT Act (Pub. L. 101-624) to add [7 U.S.C. 5925g](#), establishing a competitive grants program to support research, education, and extension activities to facilitate the development of urban, indoor, and other emerging agricultural production, harvesting, transportation, aggregation, packaging, distribution, and markets. Activities are to include assessing and developing strategies to remediate contaminated sites; determining and developing the best production management and integrated pest management practices; identifying and promoting the horticultural, social, and economic factors that contribute to the successful urban, indoor, and other emerging agricultural production; analyzing the means by which new agricultural sites are determined, including an evaluation of soil quality condition of a building, or local community needs; exploring new technologies that minimize energy, lighting systems, water, and other inputs for increased food production; examining building material efficiencies and structural upgrades for the purpose of optimizing growth of agricultural products; developing new crop varieties and agricultural products to connect to new markets; or examining the impacts of crop exposure to urban elements on environmental quality and food safety. Mandatory funding in the enacted amount of \$10 million, until expended, is available to carry out the program.



**Bioproducts Pilot Program**

The Infrastructure Investment and Jobs Act, 2022 (Pub. L. 117-58, Division J, Title I, Sec.101) provides \$10,000,000 to carry out section 70501 of division G to remain available until expended, of which \$5,000,000 to remain available until expended, shall be made available for fiscal year 2022, and \$5,000,000 to remain available until expended, shall be made available for fiscal year 2023. Title V, Section 70501 establishes the Bioproducts Pilot Program on use of agricultural commodities in construction and consumer products. Covered agricultural commodities will be used as bioproduct feedstocks and will mean any agricultural commodity, food, feed, fiber, livestock, oil, or a derivative thereof, that the Secretary determines to have been used in the production of materials that have demonstrated market viability and benefits. Funds will be made available to no less than 1 qualified institution through a competitive grants process.

**Community Food Projects**

Section 25 of the Food Stamp Act of 1977 ([7 U.S.C. 2034](#)), as amended, authorizes 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 annually in the amount of \$5 million for fiscal year 2019 and each fiscal year thereafter.

NIFA program coordination and planning are carried out by staff located in the Washington, DC and Kansas City, MO. As of September 30, 2022, there were 385 permanent full-time employees, including 09 in Washington, DC and 376 in the field. There were 45 other employees.

**OIG AND GAO REPORTS**

**Table NIFA-1. Completed OIG Reports**

ID	Date	Title
50601-0010-31	09/26/2022	Beginning Farmers and Ranchers Program (OPPE is the lead agency)

**Table NIFA-2. In-Progress OIG Reports**

ID	Title
13601-0002-22	Agriculture and Food Research Initiative (NIFA is responding to all requests for information.)

**Table NIFA-3. Completed GAO Reports**

ID	Date	Title	Result
GAO-22-104602	5/19/2022	Tribal Funding: Actions Needed to Improve Information on Federal Funds that Benefit Native Americans	GAO had no recommendations for NIFA in the report.
GAO-23-105591	10/12/2022	Small Business Research Programs: Reporting on Award Timeliness Could be Enhanced	GAO had no recommendations for USDA in the report.
GAO-22-105088	07/28/2022	Persistent Chemicals: Technologies for PFAS Assessment, Detection, and Treatment	GAO had no recommendations for USDA in the report.
GAO-22-104449	06/15/2022	Water Quality: Agencies Should Take More Actions to Manage Risks from Harmful Algal Blooms and Hypoxia	GAO had no recommendations for USDA in the report.
GAO-22-105913	10/04/2022	Tracking the Funds: Specific Fiscal Year 2022 Provisions for the US. Department of Agriculture	GAO had no recommendations for USDA in the report.
GAO-22-104436	02/14/2022	Compacts of Free Association: Implications of Planned Ending of Some U.S. Economic Assistance	GAO had no recommendations for USDA in the report.

**Table NIFA-4. In-Progress GAO Reports**

<b>ID</b>	<b>Title</b>
105470	Managing Fraud Risks in Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs
105962	Precision Agriculture
106130	Dietary Guidelines for Americans
105980	Implementation of Artificial Intelligence at Federal Agencies
104557	USDA and Climate Resilience
GAO-23-104709	Agency Relocations: Following Leading Practices Will Better Position USDA to Mitigate the Ongoing Impact on Its Workforce
106230	Food Safety
105525	International Life Sciences Research and National Security

**AVAILABLE FUNDS AND FTES**

**Table NIFA-5. Available Funds and FTEs (thousands of dollars, FTEs)**

<b>Item</b>	<b>2021 Actual</b>	<b>FTE</b>	<b>2022 Actual</b>	<b>FTE</b>	<b>2023 Estimated</b>	<b>FTE</b>	<b>2024 Estimated</b>	<b>FTE</b>
<b>National Institute of Food and Agriculture</b>								
Research and Education Activities:								
Discretionary Appropriations.....	\$992,642	-	\$1,046,244	-	\$1,094,121	-	\$1,215,099	-
Native American Endowment Interest Earned .....	5,034	-	4,825	-	4,463	-	5,199	-
Supplemental Appropriations .....	-	-	255,000	-	5,000	-	-	-
General Provisions .....	22,800	-	6,300	-	-	-	-	-
Extension Activities:								
Discretionary Appropriations.....	538,447	-	550,605	-	565,410	-	611,862	-
Mandatory Appropriations.....	71,197	-	78,269	-	85,813	-	85,813	-
Supplemental Appropriations .....	140,500	-	-	-	-	-	-	-
General Provisions .....	7,500	-	7,000	-	7,000	-	-	-
Integrated Activities:								
Discretionary Appropriations.....	39,000	-	40,000	-	41,500	-	41,500	-
Mandatory Appropriations.....	99,015	-	103,730	-	122,590	-	122,590	-
General Provisions .....	-	-	10,000	-	-	-	-	-
Emergency Citrus Disease .....	23,575	-	23,575	-	23,575	-	-	-
Total Discretionary Appropriations .....	1,605,423	-	1,664,974	-	1,712,494	-	1,868,461	-
Total Mandatory Appropriations .....	193,787	-	205,574	-	231,978	-	208,403	-
Total Supplemental Appropriations.....	140,500	-	255,000	-	5,000	-	-	-
Total Adjusted Appropriation .....	1,939,710	-	2,125,548	-	1,949,472	-	2,082,063	-
Balance Available, SOY .....	662,455	-	609,614	-	898,085	-	-	-
Recoveries, Other.....	48,607	-	80,224	-	-	-	-	-
Total Available.....	<b>2,650,772</b>	-	<b>2,815,386</b>	-	<b>2,847,557</b>	-	<b>2,082,063</b>	-
Lapsing Balances .....	-318	-	-412	-	-	-	-	-
Balance Available, EOY .....	-609,614	-	-898,085	-	-	-	-	-
Total Obligations.....	<b>2,040,840</b>	280	<b>1,916,889</b>	372	<b>2,847,557</b>	393	<b>2,082,063</b>	393
Other Funding:								
ARP Supp, NEXTGEN Technical Assistance and Outreach .....	-	-	2,500	-	-	-	-	-
ARP Supp, Meat and Poultry Processing Workforce Development -SARE .....	-	-	2,625	-	-	-	-	-
ARP Supp, MPP-WFD-Agricultural Workforce Training Grants .....	-	-	21,000	-	-	-	-	-
ARP Supp, MPP-WFD-Centers of Excellence.....	-	-	15,000	-	-	-	-	-
ARP Supp, Center of Excellence for Meat and Poultry Processing and Food Safety Research and Innovation Phase III .....	-	-	15,000	-	-	-	-	-
ARP Supp, Center of Excellence for Meat and Poultry Processing and Food Safety Research and Innovation .....	-	-	5,000	-	-	-	-	-
ARP Supp, Community Foods Projects Competitive Grant Program 2022 Meritorious Grants (CFP) .....	-	-	10,000	-	-	-	-	-
ARP Supp, Technical Assistance Investment Program.....	-	-	73,569	-	-	-	-	-
ARP Supp, MPP-WFD-ERME .....	-	-	2,625	-	-	-	-	-
ARP Supp, GusNIP Produce Prescription Project.....	-	-	42,000	-	-	-	-	-
ARP Food Loss and Waste Prevention and Reduction .....	-	-	-	-	25,000	-	-	-
IRA Supp, Technical Assistance Investment Program.....	-	-	-	-	39,693	-	-	-
GP Institute for Rural Partnerships.....	-	-	30,000	-	15,000	-	-	-
Human Health and Soil Study.....	-	-	1,000	-	-	-	-	-
Community Food Projects Program .....	5,000	-	5,000	-	5,000	-	5,000	-
Total Appropriation, Other Funding .....	5,000	-	225,319	-	84,693	-	5,000	-
Balance Available, SOY (enter with plus).....	-	-	-	-	-	-	-	-
Recoveries, Other (enter with plus) .....	-	-	-	-	-	-	-	-

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021		2022		2023		2024	
	Actual	FTE	Actual	FTE	Estimated	FTE	Estimated	FTE
Total Available, Other Funding.....	5,000	-	225,319	-	84,693	-	5,000	-
Lapsing Balances (enter with minus).....	-	-	-	-	-	-	-	-
Bal. Available, EOY (enter with minus).....	-	-	-	-	-	-	-	-
Total Obligations, Other funding.....	5,000	-	225,319	-	84,693	-	5,000	-
<b>Total Obligations, NIFA.....</b>	<b>2,045,840</b>	<b>280</b>	<b>2,142,208</b>	<b>372</b>	<b>2,932,250</b>	<b>393</b>	<b>2,087,063</b>	<b>393</b>
<b>Other USDA:</b>								
GSA Buildout:								
Biotechnology Risk Assessment.....	1,548	-	1,527	-	1,527	-	1,527	-
National Atmospheric Deposition Program.....	5	-	6	-	6	-	6	-
Biotechnology Risk Assessment.....	98	-	108	-	108	-	108	-
National Atmospheric Deposition Program.....	210	-	218	-	218	-	218	-
Small Business Innovation Research Program (SBIR) .....	5,800	-	6,650	-	8,839	-	6,650	-
Information System (CRIS).....	564	-	533	-	533	-	533	-
Total, Other USDA .....	8,225	-	9,042	-	11,231	-	9,042	-
Total, NIFA Available .....	<b>2,663,997</b>	-	<b>3,049,747</b>	-	<b>2,943,481</b>	-	<b>2,096,105</b>	-
<b>Other Federal Funds:</b>								
<b>Research and Education Activities:</b>								
NOAA National Atmospheric Deposition Program .....	74	-	67	-	67	-	67	-
Geological Survey, National Atmospheric Deposition Program.....	580	-	754	-	754	-	754	-
National Park Service, National Trends Network (NPS) ...	385	-	386	-	386	-	386	-
National Park Service, National Atmospheric Deposition Program.....	40	-	-	-	-	-	-	-
Bureau of Land Management, National Atmospheric Deposition Program .....	33	-	68	-	68	-	68	-
APHIS- ARPA Grants .....	-	-	-	-	24,000	-	24,000	-
Rural Development-MPPEP Application Review.....	-	-	358	-	358	-	358	-
ERS- Building Security.....	-	-	500	-	-	-	-	-
<b>Subtotal, Research and Education Activities</b>	<b>1,112</b>	-	<b>1,633</b>	-	<b>25,633</b>	-	<b>25,633</b>	-
<b>Extension Activities:</b>								
U.S. Air Force 4-H Programs .....	1,155	-	-	-	-	-	-	-
Clearinghouse for Military Family Readiness .....	5,544	-	4,698	-	4,698	-	4,698	-
Military Family Learning Network.....	2,450	-	3,000	-	3,000	-	3,000	-
Defense Programs Family Support - Youth Extension Services.....	500	-	500	-	500	-	500	-
Military Community & Family Policy - Military REACH	778	-	737	-	737	-	737	-
Military Community & Family Policy - Teen Adventure Camps.....	770	-	1,200	-	1,200	-	1,200	-
Virtual Lab School.....	2,250	-	2,730	-	2,730	-	2,730	-
HUD, Healthy Homes .....	500	-	-	-	-	-	-	-
CDC-Vaccine Messaging.....	9,950	-	7,950	-	7,950	-	7,950	-
Army- Early LearningMatters.....	1,063	-	658	-	658	-	658	-
Army- FAP.....	2,000	-	2,000	-	2,000	-	2,000	-
Army- Relocation Readiness .....	500	-	-	-	-	-	-	-
Army- 4H Programs.....	-	-	700	-	700	-	700	-
HHS- Employee Details.....	1,124	-	-	-	-	-	-	-
USDA/FSA- Employee Risk .....	-	-	500	-	500	-	500	-
FNS-WIC National Workforce Strategy.....	-	-	200	-	20,800	-	-	-
<b>Subtotal, Extension Activities</b>	<b>28,584</b>	-	<b>24,873</b>	-	<b>45,473</b>	-	<b>24,673</b>	-
Total, Other Federal .....	<b>29,696</b>	-	<b>26,506</b>	-	<b>71,106</b>	-	<b>50,306</b>	-
<b>Non-Federal Funds:</b>								
Total, Other Non-USDA Federal.....	-	-	-	-	-	-	-	-
Total Available, NIFA .....	<b>2,693,693</b>	-	<b>3,076,253</b>	-	<b>3,014,587</b>	-	<b>2,142,411</b>	-

Note: The details associated with Supplemental appropriations provided to the Office of the Secretary, but implemented in this account, is found in the USDA Budget Summary, and is not reflected above.

**PERMANENT POSITIONS BY GRADE AND FTEs****Table NIFA-6. Permanent Positions by Grade and FTEs**

Item	2021 Actual Total		2022 Actual Total		2023 Estimated Total		2024 Estimated Total	
	D.C.	Field	D.C.	Field	D.C.	Field	D.C.	Field
ES.....	-	-	1	6	1	6	1	6
SES.....	-	5	-	-	-	-	-	-
SL.....	-	-	-	-	-	-	-	-
GS-15 .....	-	-	6	58	6	58	6	58
GS-14 .....	13	36	1	46	1	46	1	46
GS-13 .....	1	39	-	75	-	75	-	75
GS-12 .....	1	61	1	101	1	101	1	101
GS-11 .....	6	38	-	40	-	40	-	40
GS-10 .....	3	53	-	-	-	-	-	-
GS-9 .....	1	-	-	25	-	25	-	25
GS-8 .....	2	22	-	8	-	8	-	8
GS-7 .....	1	3	-	12	-	12	-	12
GS-6 .....	1	3	-	2	-	2	-	2
GS-5 .....	1	8	-	2	-	2	-	2
GS-4 .....	1	-	-	1	-	1	-	1
GS-3 .....	-	1	-	-	-	-	-	-
GS-2 .....	-	-	-	-	-	-	-	-
GS-1 .....	-	-	-	-	-	-	-	-
Other Graded.....	-	-	-	-	-	-	-	-
Ungraded.....	-	-	-	-	-	-	-	-
Total Permanent	31	269	9	376	9	376	9	376
Unfilled, EOY .....	-	112	-	-	-	-	-	-
Total Perm. FT EOY	31	381	9	376	9	376	9	376
FTE .....		280		372		393		393

Note: In addition to those numbers above, there are temporary positions as well.

**SHARED FUNDING PROJECTS****Table NIFA-7. Shared Funding Projects (thousands of dollars)**

Item	2021 Actual	2022 Enacted	2023 Estimated	2024 Estimated
<b>Working Capital Fund:</b>				
Administrative Services:				
AskUSDA Contact Center .....	-	-	\$18	\$19
Material Management Service .....	\$51	\$15	14	15
Mail and Reproduction Services .....	195	153	118	119
Integrated Procurement Systems .....	28	20	18	18
Personnel Document Security .....	-	-	18	19
Human Resources Enterprise Management Systems .....	7	12	14	15
Subtotal .....	281	200	199	204
Communications:				
Creative Media & Broadcast Center .....	21	36	44	47
Finance and Management:				
National Finance Center .....	82	78	98	102
Financial Management Systems .....	2,151	-	-	-
Financial Shared Services .....	-	2,255	1,704	1,811
Internal Control Support Services .....	97	101	126	134
Subtotal .....	2,330	2,434	1,928	2,047
Information Technology:				
Client Experience Center .....	1,474	1,659	1,606	1,621
Department Administration Information Technology Office .....	626	406	118	117
Digital Infrastructure Services Center .....	547	681	621	638
Enterprise Cybersecurity Services .....	-	-	113	118
Enterprise Data and Analytics Services .....	-	-	1,018	154
Enterprise Network Services .....	344	367	572	594
Subtotal .....	2,991	3,113	4,048	3,242
Office of the Executive Secretariat .....	-	45	50	52
Total, Working Capital Fund .....	5,623	5,829	6,269	5,592
<b>Department-Wide Shared Cost Programs:</b>				
Agency Partnership Outreach .....	14	17	29	29
Diversity, Equity, Inclusion and Accessibility .....	-	-	8	8
Human Resources Self-Service Dashboard .....	-	-	15	15
Intertribal Technical Assistance Network .....	7	9	13	13
Medical Services .....	8	8	6	6
Office of Customer Experience .....	20	23	12	12
Personnel and Document Security Program .....	4	5	-	-
Physical Security .....	9	11	17	17
Security Detail .....	9	12	19	19
Security Operations Program .....	13	16	26	26
Talent Group .....	-	-	13	13
TARGET Center .....	2	3	6	6
TARGET Center NCR Interpreting Services .....	59	3	11	11
USDA Enterprise Data Analytics Services .....	11	12	-	-
Total, Department-Wide Reimbursable Programs .....	156	119	175	175
<b>E-Gov:</b>				
Budget Formulation and Execution Line of Business .....	4	3	2	2
E-Rulemaking .....	5	20	7	6
Financial Management Line of Business .....	1	1	1	1
Geospatial Line of Business .....	13	13	13	13
Benefits.gov .....	47	48	44	46
Grants.gov .....	353	312	378	394
Human Resources Line of Business .....	1	1	1	1

<b>Item</b>	<b>2021 Actual</b>	<b>2022 Enacted</b>	<b>2023 Estimated</b>	<b>2024 Estimated</b>
Integrated Acquisition Environment .....	-	25	52	46
Hiring Assessment Tool	-	1	-	-
Total, E-Gov .....	424	422	497	509
Agency Total.....	6,203	6,371	6,941	6,276

**ADVERTISING EXPENDITURES**

There are no contracts for advertising expenses to report.

**ACCOUNT 1: NATIONAL INSTITUTE OF FOOD AND AGRICULTURE****APPROPRIATIONS LANGUAGE**

The appropriations language 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, \$1,868,461,000: *Provided*, That \$728,724,000 to remain available until expended, shall be for research grants for 1994 institutions, education grants for 1890 institutions, the agriculture and food research initiative, veterinary medicine loan repayment, multicultural scholars, graduate fellowship and institution challenge grants, grants management systems, Hispanic serving institutions education grants, tribal colleges education equity grants, scholarships at 1890 institutions, extension services at 1994 institutions, facility improvements at 1890 institution, the research facilities act, new beginning for Tribal students, and 1890s institutions centers of excellence: *Provided further*, That each institution eligible to receive funds under the Evans-Allen program shall receive no less than \$1,000,000: *Provided further*, That \$5,000,000 to remain available until September 30, 2025 shall be for providing grants food and agricultural sciences for Alaska Native- and Native Hawaiian-Serving Institutions: *Provided further*, That \$2,700,000 to remain available until September 30, 2025 shall be for providing grants for food and agricultural sciences for Insular Areas: *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 institutions eligible to receive funds under 7 U.S.C. 3221 for cooperative extension shall each receive not 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 \$5,000,000 is available for Enhancing Agriculture Opportunities for Military Veterans and shall remain available until September 30, 2025: *Provided further*, That \$2,000,000 is available for Agriculture Business Innovation Centers at Historically Black Colleges and Universities and shall remain available until expended: *Provided further*, that \$8,000,000 is available for the Food and Agriculture Defense Initiative and shall remain available until September 30, 2025: *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). *Provided further*, that appropriations hereunder shall be available for the Experienced Services Program at NIFA (16 U.S.C 3851).

**General Provision**

[There is hereby appropriated \$4,000,000 to carry out section 12301 of Public Law 115-334.]

[Research and education activities]

[For payments to agricultural experiment stations, for cooperative forestry and other research, for facilities, and for other expenses, \$1,094,121,000 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, Hispanic serving institutions education grants, 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, grants management systems, tribal colleges education equity grants, and scholarships 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 providing grants for food and agricultural sciences for Alaska Native and Native Hawaiian-Serving institutions and for Insular Areas shall remain available until September 30, 2024: *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. 3157 may be retained by the Secretary of Agriculture to pay administrative costs incurred by the Secretary in carrying out that authority.]

## 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.

1

## [Extension Activities]

[For payments to States, the District of Columbia, Puerto Rico, Guam, the Virgin Islands, Micronesia, the Northern Marianas, and American Samoa, \$565,410,000 which shall be for the purposes, and in the amounts, specified in the table titled “National Institute of Food and Agriculture, Extension Activities” in the explanatory statement described in section 4 (in the matter preceding division A of this consolidated Act): *Provided*, That funds for extension services at 1994 institutions and 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, \$41,500,000, 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, 2024: *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).]

**Change Description**

The 2024 Budget proposes a change in language, specifically to eliminate appropriations language contained in separate research and education, extension, and integrated accounts to incorporate the language into one agency account. The change creates a new appropriations language paragraph for a single merged National Institute of Food and Agriculture account and retains the Native American Institutions Endowment Fund in the Research and Education Activities account. It also deletes the remaining language contained in separate Research and Education, Extension, and Integrated Activities accounts while incorporating the language into one agency account. The account structure change has been proposed within the last seven budgets and will improve the agency’s budget and administrative processes. Streamlining the account structure will allow the agency to allocate staff resources to higher value tasks, such as program review and grants management. The change in account structure will not impact the function of any program.

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 2023 USDA Explanatory Notes – National Institute of Food and Agriculture 22-30 Research, Education, and Extension Competitive Grants Program (Section 406). An Integrated Activities account was established in 2000 for programs funded under this authority. In 2012, changes were made in the Congressional appropriations process to streamline the NIFA accounts so that the bill language was less cumbersome. The Committees’ changes also incorporated the report table into the bill by reference, making it easier to identify the specific funded programs along with their funding amounts and program authorizations. Building upon the need to further simplify the appropriations language while clearly identifying all NIFA-funded programs, NIFA proposes to organize the funding lines within a single NIFA account rather than the current three separate 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. This will contribute to simplifying operational procedures and reduce staff time that is currently dedicated to managing multiple accounts. The change in account structure will simplify the management of funds within the financial systems. It will not change how NIFA implements funded programs. However, it will reduce the number of accounts that are included in the Congressional bill by eliminating the three older, existing accounts and substituting one consolidated account. The report language would also be simplified to mirror the bill language, reducing



Committee staff time needed to draft legislative and report language. The language also requests no-year spending authority for several programs that provide grants to minority-serving institutions. Sometimes projects are completed but have funding remaining on the award. Normally, those annual funds are returned to Treasury because they expire. Changing the programs from annual funds to no-year funding availability will allow unused grant funds to be used for more awards.

The budget proposes a change in language to allow NIFA to use Research and Education, Extension, and Integrated Activities resources for the Experienced Services Program. The proposed change will achieve the Secretary of Agriculture’s requirements set forth in 16 U.S.C. 3851, which specifies that the Secretary shall establish an Experienced Services Program (program) to enter into agreements on behalf of the National Institute of Food and Agriculture (NIFA) with nonprofit private agencies and organizations eligible to receive Cooperative Agreements under the Community Service Senior Opportunities Act (42 U.S.C. 3056 et seq.)

#### **LEAD-OFF TABULAR STATEMENT**

*Table NIFA-8. Lead-Off Tabular Statement (In dollars)*

<b>Lead-Off Tabular Statement</b>		<b>Amount</b>
Estimate, 2023		\$1,708,031,000
Change in Appropriation		+160,430,000
Budget Estimate, 2024		1,868,461,000
<b>Research and Education Activities</b>		<b>Amount</b>
Estimate, 2023		\$1,094,121,000
Change in Appropriation		-1,094,121,000
Budget Estimate, 2024		-
<b>Extension Activities</b>		<b>Amount</b>
Estimate, 2023		\$565,410,000
Change in Appropriation		-565,410,000
Budget Estimate, 2024		-
<b>Integrated Activities</b>		<b>Amount</b>
Estimate, 2023		\$41,500,000
Change in Appropriation		-41,500,000
Budget Estimate, 2024		-

**PROJECT STATEMENTS****Table NIFA-9. Project Statement on Basis of Appropriations (thousands of dollars, FTE)**

Item	2021 Actual	FTE	2022 Actual	FTE	2023 Estimated	FTE	2024 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
<b>Discretionary Appropriations:</b>											
<b>Research and Education Activities</b>											
Hatch Act .....	\$259,000	-	\$260,000	-	\$265,000	-	\$265,000	-	-	-	-
McIntire-Stennis Cooperative Forestry Act.....	36,000	-	36,000	-	38,000	-	38,000	-	-	-	-
Research at 1890 Institutions (Evans-Allen program) .....	73,000	-	80,000	-	89,000	-	98,000	-	+\$9,000	-	(1)
Payments to 1994 Institutions (Tribal Colleges Ed. Equity).....	4,500	-	5,500	-	7,000	-	15,000	-	+8,000	-	(2)
Education Grants for 1890 Institutions (Capacity Building Grants).....	26,000	-	28,500	-	30,000	-	30,000	-	-	-	-
Scholarships at 1890 Institutions .....	10,000	-	10,000	-	10,000	-	10,000	-	-	-	-
Centers of Excellence at 1890 Institutions.....	-	-	10,000	-	10,000	-	10,000	-	-	-	-
Education Grants for Hispanic Serving Institutions .....	12,500	-	14,000	-	16,000	-	20,000	-	+4,000	-	(3)
Education Grants for Alaska Native and Native Hawaiian-Serving Institutions.....	3,194	-	4,000	-	5,000	-	5,000	-	-	-	-
Research Grants for 1994 Institutions .....	4,000	-	4,500	-	5,000	-	5,000	-	-	-	-
Capacity Building Non-Land Grant Colleges of Agriculture.....	5,000	-	5,000	-	6,000	-	-	-	-6,000	-	(4)
New Beginning for Tribal Students.. Grants for Insular Areas (Combined program).....	2,000	-	2,000	-	2,500	-	2,700	-	+200	-	(5)
Agriculture and Food Research Initiative .....	435,000	-	445,000	-	455,000	-	550,000	-	+95,000	-	(6)
Veterinary Medicine Loan Repayment (Medical Services Act Program).....	8,500	-	9,500	-	10,000	-	10,000	-	-	-	-
Veterinary Services Grant Program.. Continuing Animal Health and Disease Research Program (Sec. 1433) .....	3,000	-	3,500	-	4,000	-	4,000	-	-	-	-
Supplemental and Alternative Crops (Sec. 1437D) .....	4,000	-	4,000	-	4,000	-	-	-	-4,000	-	(7)
Multicultural Scholars, Graduate Fellowship and Institution Challenge Grants.....	1,000	-	2,000	-	2,000	-	663	-	-1,337	-	(8)
Secondary and 2-year Post- Secondary Education .....	9,500	-	10,000	-	10,000	-	10,000	-	-	-	-
Aquaculture Centers (Sec. 1475)..... Sustainable Agriculture Research and Education.....	900	-	900	-	1,000	-	2,000	-	+1,000	-	(9)
Farm Business Management.....	5,000	-	5,000	-	5,000	-	5,000	-	-	-	-
Sun Grant Program.....	40,000	-	45,000	-	50,000	-	60,000	-	+10,000	-	(10)
Research Equipment Grants.....	2,000	-	2,000	-	2,500	-	2,000	-	-500	-	(11)
Alfalfa Seed and Alfalfa Forage Systems Research Program.....	3,000	-	3,500	-	3,500	-	3,500	-	-	-	-
Minor Crop Pest Management (IR- 4) .....	5,000	-	5,000	-	5,000	-	5,000	-	-	-	-
Agricultural Genome to Phenome Initiative .....	3,000	-	3,500	-	4,000	-	-	-	-4,000	-	(12)
Laying Hen and Turkey Research Program .....	11,913	-	14,500	-	15,000	-	16,500	-	+1,500	-	(13)
Open Data Standards for Neutral Data Repository.....	-	-	2,000	-	2,500	-	-	-	-2,500	-	(14)
Research Facilities Act .....	-	-	-	-	1,000	-	-	-	-1,000	-	(15)
Agriculture Business Innovation Center at HBCU.....	-	-	-	-	-	-	2,000	-	+2,000	-	(18)
<b>Special Research Grants:</b>											
Global Change/UV Monitoring .....	1,405	-	1,400	-	1,400	-	1,925	-	+525	-	(19)
Potato Research .....	2,750	-	3,000	-	4,000	-	4,000	-	-	-	-

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021		2022		2023		2024		Inc. or Dec.	FTE Inc. or Dec.	Chg Key
	Actual	FTE	Actual	FTE	Estimated	FTE	Estimated	FTE			
Aquaculture Research.....	2,000	-	2,000	-	2,200	-	-	-	-2,200	-	(20)
<b>Subtotal, Special Research Grants Federal Administration (Direct Appropriations):</b>	6,155	-	6,400	-	7,600	-	5,925	-	-1,675		
Grants Management Systems.....	7,924	-	7,924	-	7,924	-	7,924	-	-	-	
General Administration / Other .....	11,556	-	12,020	-	12,597	-	16,887	-	+4,290	-	(21)
<b>Subtotal, Federal Administration.. General Provisions:</b>	19,480	-	19,944	-	20,521	-	24,811	-	+4,290		
GP - 1890 Institutions, Centers of Excellence.....	10,000	-	-	-	-	-	-	-	-	-	
GP - New Beginnings for Tribal Students.....	5,000	-	-	-	-	-	-	-	-	-	
GP- Agricultural Genome to Phenome Initiative.....	1,000	-	-	-	-	-	-	-	-	-	
GP- Agriculture Business Innovation Center at HBCU.....	2,000	-	-	-	-	-	-	-	-	-	
GP- Blue Ribbon Panel.....	300	-	300	-	-	-	-	-	-	-	
GP- Farm of the Future.....	4,000	-	5,000	-	-	-	-	-	-	-	
GP- Open Data Standards for Neutral Data Repository .....	500	-	1,000	-	-	-	-	-	-	-	
<b>Subtotal, General Provisions.....</b>	22,800	-	6,300	-	-	-	-	-	-	-	
<b>Total, Research and Education.....</b>	<b>1,015,442</b>	<b>-</b>	<b>1,052,544</b>	<b>-</b>	<b>1,094,121</b>	<b>-</b>	<b>1,215,099</b>	<b>-</b>	<b>+120,978</b>	<b>-</b>	
<b>Extension Activities</b>											
Smith-Lever 3(b&c).....	315,000	-	320,000	-	325,000	-	325,000	-	-	-	
Extension Services at 1890 Institutions.....	62,000	-	65,000	-	72,000	-	76,000	-	+4,000	-	(22)
Extension Services at 1994 Institutions.....	8,500	-	9,500	-	11,000	-	21,000	-	+10,000	-	(23)
Facility Improvements at 1890 Institutions.....	21,500	-	21,500	-	21,500	-	24,800	-	+3,300	-	(24)
Renewable Resources Extension Act.....	4,060	-	4,060	-	4,060	-	4,060	-	-	-	
Rural Health and Safety Education Programs .....	4,000	-	5,000	-	5,000	-	5,000	-	-	-	
Food Animal Residue Avoid. Database.....	2,500	-	2,500	-	2,500	-	2,000	-	-500	-	(25)
Women and Minorities in STEM Fields.....	400	-	1,000	-	2,000	-	2,305	-	+305	-	(26)
Food Safety Outreach.....	10,000	-	10,000	-	10,000	-	10,000	-	-	-	
Food and Ag Service Learning .....	2,000	-	2,500	-	2,000	-	2,000	-	-	-	
Farmer Stress Assistance Network ... Enhancing Ag Opportunities Military Veterans (Ag Vets).....	10,000	-	10,000	-	10,000	-	10,000	-	-	-	
	-	-	-	-	-	-	5,000	-	+5,000	-	(27)
<b>Smith-Lever Act, Section 3(d):</b>											
Expanded Food and Nutrition Program (EFNEP).....	70,000	-	70,000	-	70,000	-	90,000	-	+20,000	-	(28)
Farm Safety and Youth Farm Safety Education.....	5,000	-	5,000	-	5,000	-	5,000	-	-	-	
New Technologies for Ag Extension.....	3,550	-	3,550	-	3,550	-	3,002	-	-548	-	(29)
Youth and Families at Risk.....	8,395	-	8,395	-	8,395	-	8,395	-	-	-	
Federally Recognized Tribes Extension.....	3,200	-	3,500	-	4,305	-	7,700	-	+3,395	-	(30)
<b>Subtotal, Smith-Lever Act Section 3(d).....</b>	90,145	-	90,445	-	91,250	-	114,097	-	+22,847	-	
Study on Tribal and Alaska Native communities.....	-	-	-	-	-	-	1,500	-	+1,500	-	(31)
<b>Federal Administration (Direct Appropriations):</b>											
Agriculture in the K12 Classroom....	552	-	1,000	-	1,000	-	1,000	-	-	-	
Federal Administration - Other Necessary Expenses for Extension Activities.....	7,790	-	8,100	-	8,100	-	8,100	-	-	-	
<b>Subtotal, Federal Administration..</b>	8,342	-	9,100	-	9,100	-	9,100	-	-	-	

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021 Actual	FTE	2022 Actual	FTE	2023 Estimated	FTE	2024 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.	Chg Key
<b>General Provisions:</b>											
GP- Enhancing Agricultural Opportunities for Military Veterans	5,000	-	5,000	-	5,000	-	-	-	-5,000	-	(32)
GP- Beginning Farmers and Ranchers Development Program (under FOTO)	2,500	-	2,000	-	2,000	-	-	-	-2,000	-	(33)
<b>Subtotal, General Provisions</b>	7,500	-	7,000	-	7,000	-	2,000	-	-5,000	-	
<b>Total, Extension Activities</b>	545,947	-	557,605	-	572,410	-	611,862	-	+39,452	-	
<b>Integrated Activities</b>											
Methyl Bromide Transition Program	2,000	-	2,000	-	2,000	-	2,000	-	-	-	
Organic Transition Program	7,000	-	7,500	-	7,500	-	7,500	-	-	-	
Regional Rural Development Centers	2,000	-	2,500	-	3,000	-	3,000	-	-	-	
Food & Agriculture Defense Initiative (FADI) (Homeland Security)	8,000	-	8,000	-	8,000	-	8,000	-	-	-	
Crop Protection/Pest Management (CP/PM)	20,000	-	20,000	-	21,000	-	21,000	-	-	-	
<b>General Provisions:</b>											
GP- Institute for Rural Partnership - University of Vermont	-	-	10,000	-	-	-	-	-	-	-	
<b>Subtotal, General Provisions</b>	-	-	10,000	-	-	-	-	-	-	-	
<b>Total, Integrated Activities</b>	39,000	-	50,000	-	41,500	-	41,500	-	-	-	
<b>Subtotal, Discretionary Appropriations</b>											
<b>1,600,389</b>	-	<b>1,660,149</b>	-	<b>1,708,031</b>	-	<b>1,868,461</b>	-	<b>+160,430</b>	-		
<b>Mandatory Appropriations:</b>											
Extension Risk Management Education Program (ERME)	9,430	-	9,430	-	9,430	-	9,430	-	-	-	
Gus Schumacher Nutrition Incentive Program (GusNIP)/ Food Insecurity Nutrition Program	45,264	-	49,979	-	52,808	-	52,808	-	-	-	
Beginning Farmers & Rancher's Development Program (BFRDP)	16,503	-	18,860	-	23,575	-	23,575	-	-	-	
Organic Agriculture Research and Extension Initiative (OREI)	23,575	-	28,290	-	47,150	-	47,150	-	-	-	
Specialty Crop Research Initiative (SCRI)	75,440	-	75,440	-	75,440	-	75,440	-	-	-	
Emergency Citrus Disease Research and Extension Program (ECDRE) (Trust Fund)	23,575	-	23,575	-	23,575	-	-	-	-23,575	-	
<b>Subtotal, Mandatory</b>	193,787	-	205,574	-	231,978	-	208,403	-	-23,575	-	
<b>Supplemental Appropriations:</b>											
Emergency Supp-COVID, Farming Opportunities & Outreach (Section 754, OPPE)	37,500	-	-	-	-	-	-	-	-	-	
Emergency Supp-COVID, GusNIP/ Food Insecurity Nutrition Program (Section 756)	75,000	-	-	-	-	-	-	-	-	-	
Emergency Supp-COVID, Farm Stress (Section 766)	28,000	-	-	-	-	-	-	-	-	-	
IRA Supp, From Learning to Leading	-	-	250,000	-	-	-	-	-	-	-	
IIJA Supp, Bioproduct Pilot Program (Section 70501) (GP)	-	-	5,000	-	5,000	-	-	-	-5,000	-	
<b>Subtotal, Supplemental Appropriations</b>	140,500	-	255,000	-	5,000	-	-	-	-5,000	-	
<b>Endowment Funding:</b>											
Tribal Colleges Endowment Fund (Native American Endowment Fund)	(11,880)		(11,880)		(11,880)		(11,880)		-	-	
Interest on Tribal College Endowment Fund (Native American Endowment - Interest Earned)	5,034		4,825		4,463		5,199		+736	-	
<b>Subtotal, Endowments</b>	5,034		4,825		4,463		5,199		+736	-	
<b>Subtotal, Endowment Funding</b>	5,034		4,825		4,463		5,199		+736	-	

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021		2022		2023		2024		Inc. or Dec.	FTE Inc. or Dec.	Chg Key
	Actual	FTE	Actual	FTE	Estimated	FTE	Estimated	FTE			
Total Adjusted Approp .....	1,939,710	-	2,125,548	-	1,949,472	-	2,082,063	-	+132,591	-	
Add back:											
Rescission, Transfers In and Out .....	-	-	1,137	-	-	-	-	-	-	-	
Sequestration .....	11,714	-	12,426	-	14,022	-	12,597	-	-1,425	-	
Total Appropriation .....	1,951,424	-	2,139,111	-	1,963,494	-	2,094,660	-	+131,166	-	
Total Transfers In .....	-	-	-	-	-	-	-	-	-	-	
Total Transfers Out .....	-	-	-1,137	-	-	-	-	-	-	-	
Rescission .....	-	-	-	-	-	-	-	-	-	-	
Sequestration .....	-11,714	-	-12,426	-	-14,022	-	-12,597	-	+1,425	-	
Recoveries, Other .....	48,607	-	80,224	-	-	-	-	-	-	-	
Bal. Available, SOY .....	662,455	-	609,614	-	898,085	-	-	-	-898,085	-	
Total Available .....	2,650,772	-	2,815,386	-	2,847,557	-	2,082,063	-	-765,494	-	
Lapsing Balances .....	-318	-	-412	-	-	-	-	-	-	-	
Rescinded Balances .....	-	-	-	-	-	-	-	-	-	-	
Bal. Available, EOY .....	-609,614	-	-898,085	-	-	-	-	-	-	-	
Total Obligations .....	2,040,840	280	1,916,889	372	2,847,557	393	2,082,063	393	-765,494	-	

Note: The details associated with Supplemental appropriations provided to the Office of the Secretary, but implemented in this account, is found in the USDA Budget Summary, and is not reflected above.

**Table NIFA-10. Project Statement on Basis of Obligations (thousands of dollars, FTE)**

Item	2021		2022		2023		2024		Inc. or Dec.	FTE Inc. or Dec.
	Actual	FTE	Actual	FTE	Estimated	FTE	Estimated	FTE		
<b>Discretionary Obligations:</b>										
<b>Research and Education Activities</b>										
Hatch Act .....	\$259,000	-	\$260,000	-	\$265,000	-	\$265,000	-	-	-
McIntire-Stennis Cooperative Forestry Act .....	36,000	-	36,000	-	38,000	-	38,000	-	-	-
Research at 1890 Institutions (Evans-Allen program) .....	73,000	-	80,000	-	89,000	-	98,000	-	+9,000	-
Payments to 1994 Institutions .....	4,500	-	5,500	-	7,000	-	15,000	-	+8,000	-
Education Grants for 1890 Institutions (Capacity Building Grants) .....	21,977	-	24,852	-	64,136	-	30,000	-	-34,136	-
Scholarships at 1890 Institutions	10,000	-	9,600	-	10,400	-	10,000	-	-400	-
Centers of Excellence at 1890 Institutions .....	-	-	10,000	-	10,000	-	10,000	-	-	-
Education Grants for Hispanic Serving Institutions .....	12,000	-	13,440	-	16,560	-	20,000	-	+3,440	-
Education Grants for Alaska Native and Native Hawaiian-Serving Institutions .....	3,194	-	3,884	-	5,000	-	5,000	-	-	-
Research Grants for 1994 Institutions .....	7,493	-	10	-	10,824	-	5,000	-	-5,824	-
Capacity Building Non-Land Grant Colleges of Agriculture .....	7,275	-	7,043	-	7,299	-	-	-	-7,299	-
New Beginning for Tribal Students .....	-	-	3,863	-	5,000	-	5,000	-	-	-
Grants for Insular Areas (Combined program) .....	2,000	-	2,000	-	2,500	-	2,700	-	+200	-
Agriculture and Food Research Initiative .....	523,559	-	427,400	-	952,440	-	550,000	-	-402,440	-
Veterinary Medicine Loan Repayment (Medical Services Act Program) .....	6,927	-	6,582	-	27,899	-	10,000	-	-17,899	-
Veterinary Services Grant Program .....	3,000	-	3,500	-	4,000	-	4,000	-	-	-
Continuing Animal Health and Disease Research Program (Sec. 1433) .....	4,000	-	4,000	-	4,000	-	-	-	-4,000	-
Supplemental and Alternative Crops (Sec. 1437D) .....	1,000	-	2,000	-	2,000	-	663	-	-1,337	-
Multicultural Scholars, Graduate Fellowship and Institution Challenge Grants .....	15,472	-	3,826	-	18,496	-	10,000	-	-8,496	-

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021 Actual	FTE	2022 Actual	FTE	2023 Estimated	FTE	2024 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Secondary and 2-year Post-Secondary Education .....	900	-	900	-	1,000	-	2,000	-	+1,000	-
Aquaculture Centers (Sec. 1475)	5,000	-	5,000	-	5,000	-	5,000	-	-	-
Sustainable Agriculture Research and Education.....	40,000	-	45,000	-	50,000	-	60,000	-	+10,000	-
Farm Business Management .....	2,000	-	2,000	-	2,500	-	2,000	-	-500	-
Sun Grant Program.....	3,000	-	3,500	-	3,500	-	3,500	-	-	-
Research Equipment Grants.....	5,000	-	5,000	-	5,000	-	5,000	-	-	-
Alfalfa Seed and Alfalfa Forage Systems Research Program.....	3,000	-	3,500	-	4,000	-	-	-	-4,000	-
Minor Crop Pest Management (IR-4).....	11,913	-	14,500	-	15,000	-	16,500	-	+1,500	-
Agricultural Genome to Phenome Initiative .....	-	-	2,000	-	2,500	-	-	-	-2,500	-
Laying Hen and Turkey Research Program .....	-	-	-	-	1,000	-	-	-	-	-
Open Data Standards for Neutral Data Repository.....	-	-	-	-	1,000	-	-	-	-1,000	-
Research Facilities Act .....	-	-	-	-	2,000	-	10,000	-	-	-
Agriculture Business Innovation Center at HBCU .....	-	-	-	-	-	-	2,000	-	+2,000	-
<b>Special Research Grants:</b>										
Global Change/UV Monitoring ..	1,405	-	1,400	-	1,400	-	1,925	-	+525	-
Potato Research.....	2,750	-	3,000	-	4,000	-	4,000	-	-	-
Aquaculture Research .....	2,000	-	2,000	-	2,200	-	-	-	-2,200	-
<b>Subtotal, Special Research Grants.....</b>	<b>6,155</b>	<b>-</b>	<b>6,400</b>	<b>-</b>	<b>7,600</b>	<b>-</b>	<b>5,925</b>	<b>-</b>	<b>-1,675</b>	<b>-</b>
<b>Federal Administration (Direct Appropriations):</b>										
Grants Management Systems.....	7,924	-	4,503	-	7,924	-	7,924	-	-	-
General Administration / Other ..	11,556	-	12,020	-	12,597	-	16,887	-	+4,290	-
<b>Subtotal, Federal Administration .....</b>	<b>19,480</b>	<b>-</b>	<b>16,523</b>	<b>-</b>	<b>20,521</b>	<b>-</b>	<b>24,811</b>	<b>-</b>	<b>+4,290</b>	<b>-</b>
<b>General Provisions:</b>										
GP 1890 Institutions, Centers of Excellence .....	6,160	-	9,600	-	-	-	-	-	-	-
GP New Beginnings for Tribal Students.....	5,000	-	-	-	-	-	-	-	-	-
GP Agricultural Genome to Phenome Initiative .....	1,000	-	-	-	-	-	-	-	-	-
GP Agriculture Business Innovation Center at HBCU.....	-	-	2,000	-	-	-	-	-	-	-
GP Blue Ribbon Panel .....	300	-	300	-	-	-	-	-	-	-
GP Farm of the Future .....	-	-	4,000	-	4,699	-	-	-	-4,699	-
GP Open Data Standards for Neutral Data Repository .....	500	-	1,000	-	-	-	-	-	-	-
<b>Subtotal, General Provisions.....</b>	<b>12,960</b>	<b>-</b>	<b>16,900</b>	<b>-</b>	<b>4,699</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-4,699</b>	<b>-</b>
<b>Total, Research and Education</b>	<b>1,099,805</b>	<b>-</b>	<b>1,024,723</b>	<b>-</b>	<b>1,664,874</b>	<b>-</b>	<b>1,215,099</b>	<b>-</b>	<b>-449,775</b>	<b>-</b>
<b>Extension Activities</b>										
Smith-Lever 3(b&c).....	315,000	-	320,000	-	325,000	-	325,000	-	-	-
Extension Services at 1890 Institutions.....	62,000	-	65,000	-	72,000	-	76,000	-	+4,000	-
Extension Services at 1994 Institutions.....	8,500	-	9,500	-	11,000	-	21,000	-	+10,000	-
Facility Improvements at 1890 Institutions.....	24,577	-	23,763	-	44,598	-	24,800	-	-19,798	-
Renewable Resources Extension Act .....	4,060	-	4,060	-	4,060	-	4,060	-	-	-
Rural Health and Safety Education Programs .....	4,000	-	5,000	-	5,000	-	5,000	-	-	-
Food Animal Residue Avoid. Database.....	2,500	-	2,500	-	2,500	-	2,000	-	-500	-
Women and Minorities in STEM Fields.....	400	-	1,000	-	2,000	-	2,305	-	+305	-
Food Safety Outreach.....	10,000	-	10,000	-	10,000	-	10,000	-	-	-
Food and Ag Service Learning ...	2,000	-	2,500	-	2,000	-	2,000	-	-	-
Farmer Stress Assistance Network.....	10,000	-	10,000	-	10,000	-	10,000	-	-	-
Enhancing Ag Opportunities	-	-	-	-	-	-	5,000	-	+5,000	-
Military Veterans (Ag Vets) .....	-	-	-	-	-	-	-	-	-	-

Smith-Lever Act, Section 3(d):

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021 Actual	FTE	2022 Actual	FTE	2023 Estimated	FTE	2024 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Expanded Food and Nutrition Program (EFNEP).....	70,000	-	70,000	-	70,000	-	90,000	-	+20,000	-
Farm Safety and Youth Farm Safety Education.....	5,000	-	5,000	-	5,000	-	5,000	-	-	-
New Technologies for Ag Extension.....	3,550	-	3,550	-	3,550	-	3,002	-	-548	-
Youth and Families at Risk.....	8,395	-	8,395	-	8,395	-	8,395	-	-	-
Federally Recognized Tribes Extension.....	3,200	-	3,500	-	4,305	-	7,700	-	+3,395	-
<b>Subtotal, Smith-Lever Act Section 3(d).....</b>	<b>90,145</b>	<b>-</b>	<b>90,445</b>	<b>-</b>	<b>91,250</b>	<b>-</b>	<b>114,097</b>	<b>-</b>	<b>+22,847</b>	<b>-</b>
Study on Tribal and Alaska Native communities.....	-	-	-	-	-	-	+1,500	-	+1,500	-
<b>Federal Administration (Direct Appropriations):</b>										
Agriculture in the K12 Classroom.....	552	-	1,000	-	1,000	-	1,000	-	-	-
Federal Administration - Other Necessary Expenses for Extension Activities.....	7,790	-	8,100	-	8,100	-	8,100	-	-	-
<b>Subtotal, Federal Administration.....</b>	<b>8,342</b>	<b>-</b>	<b>9,100</b>	<b>-</b>	<b>9,100</b>	<b>-</b>	<b>9,100</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>General Provisions:</b>										
GP Enhancing Agricultural Opportunities for Military Veterans.....	5,200	-	2,707	-	7,293	-	-	-	-7,293	-
GP Beginning Farmers and Ranchers Development Program (under FOTO).....	2,500	-	2,000	-	2,000	-	-	-	-2,000	-
<b>Subtotal, General Provisions.....</b>	<b>7,700</b>	<b>-</b>	<b>4,707</b>	<b>-</b>	<b>9,293</b>	<b>-</b>	<b>2,000</b>	<b>-</b>	<b>-7,293</b>	<b>-</b>
<b>Total, Extension Activities.....</b>	<b>549,224</b>	<b>-</b>	<b>557,575</b>	<b>-</b>	<b>597,801</b>	<b>-</b>	<b>611,862</b>	<b>-</b>	<b>+14,061</b>	<b>-</b>
<b>Integrated Activities</b>										
Methyl Bromide Transition Program.....	2,000	-	2,000	-	2,000	-	2,000	-	-	-
Organic Transition Program.....	7,000	-	7,500	-	7,500	-	7,500	-	-	-
Regional Rural Development Centers.....	2,000	-	2,500	-	3,000	-	3,000	-	-	-
Food & Agriculture Defense Initiative (FADI) (Homeland Security).....	8,264	-	7,984	-	8,749	-	8,000	-	-749	-
Crop Protection/Pest Management (CP/PM).....	20,000	-	20,000	-	21,000	-	21,000	-	-	-
<b>General Provisions:</b>										
GP Institute for Rural Partnership - University of Vermont.....	-	-	-	-	10,000	-	-	-	-10,000	-
<b>Subtotal, General Provisions.....</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>10,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-10,000</b>	<b>-</b>
<b>Total, Integrated Activities.....</b>	<b>39,264</b>	<b>-</b>	<b>39,984</b>	<b>-</b>	<b>52,249</b>	<b>-</b>	<b>41,500</b>	<b>-</b>	<b>-10,749</b>	<b>-</b>
Buildings and Facilities.....	-	-	-	-	538	-	-	-	-538	-
<b>Subtotal, Discretionary Obligations.....</b>	<b>1,688,293</b>	<b>-</b>	<b>1,622,282</b>	<b>-</b>	<b>2,315,462</b>	<b>-</b>	<b>1,868,461</b>	<b>-</b>	<b>-447,001</b>	<b>-</b>
<b>Mandatory Obligations:</b>										
Extension Risk Management Education Program (ERME).....	9,806	-	18,860	-	9,430	-	9,430	-	-	-
Gus Schumacher Nutrition Incentive Program (GusNIP)/ Food Insecurity Nutrition Program.....	45,264	-	49,979	-	52,808	-	52,808	-	-	-
Beginning Farmers & Rancher's Development Program (BFRDP)	18,241	-	15,023	-	28,841	-	23,575	-	-5,266	-
Organic Agriculture Research and Extension Initiative (OREI) .	23,656	-	28,433	-	47,245	-	47,150	-	-95	-
Specialty Crop Research Initiative (SCRI).....	77,395	-	75,120	-	76,977	-	75,440	-	-1,537	-
Emergency Citrus Disease Research and Extension Program (ECDRE) (Trust Fund).....	25,057	-	26,532	-	25,033	-	-	-	-25,033	-
Emergency Citrus Research and Extension Program.....	-	-	1,915	-	1,920	-	-	-	-1,920	-
Urban, Indoor & Other Emerging Ag. Production (Urban Ag).....	-	-	-	-	10,000	-	-	-	-10,000	-

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

Item	2021 Actual	FTE	2022 Actual	FTE	2023 Estimated	FTE	2024 Estimated	FTE	Inc. or Dec.	FTE Inc. or Dec.
Scholarships for Students at 1890 Institutions.....	19,000	-	10,481	-	10,519	-	-	-	-10,519	-
Biomass Research and Development.....	-	-	-	-	3,953	-	-	-	-3,953	-
Community Food Projects Program (CFP).....	-	-	-	-	-	-	-	-	-	-
<b>Subtotal, Mandatory Obligations.....</b>	<b>218,419</b>	<b>-</b>	<b>226,343</b>	<b>-</b>	<b>266,726</b>	<b>-</b>	<b>208,403</b>	<b>-</b>	<b>-58,323</b>	<b>-</b>
<b>Supplemental Obligations:</b>										
Emergency Supp-COVID, Farming Opportunities & Outreach (Section 754, OPPE) ...	30,106	-	7,394	-	-	-	-	-	-	-
Emergency Supp-COVID, GusNIP/ Food Insecurity Nutrition Program (Section 756)	72,024	-	6,000	-	-	-	-	-	-	-
Emergency Supp-COVID, Farm Stress (Section 766).....	25,735	-	3,465	-	-	-	-	-	-	-
IRA Supp, From Learning to Leading.....	-	-	-	-	250,000	-	-	-	-250,000	-
IIJA Supp, Bioproduct Pilot Program (Section 70501) (GP) ...	-	-	-	-	10,000	-	-	-	-10,000	-
<b>Subtotal, Supplemental Obligations.....</b>	<b>127,865</b>	<b>-</b>	<b>16,859</b>	<b>-</b>	<b>260,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-260,000</b>	<b>-</b>
<b>Endowment Funding:</b>										
Tribal Colleges Endowment Fund (Native American Endowment Fund).....	(11,880)	-	(11,880)	-	(11,880)	-	(11,880)	-	-	-
Interest on Tribal College Endowment Fund (Native American Endowment - Interest Earned).....	6,263	-	6,949	-	5,369	-	5,199	-	-170	-
<b>Subtotal, Endowment .....</b>	<b>6,263</b>	<b>-</b>	<b>6,949</b>	<b>-</b>	<b>5,369</b>	<b>-</b>	<b>5,199</b>	<b>-</b>	<b>-170</b>	<b>-</b>
<b>Total Obligations.....</b>	<b>2,040,840</b>	<b>-</b>	<b>1,872,433</b>	<b>-</b>	<b>2,847,557</b>	<b>-</b>	<b>2,082,063</b>	<b>-</b>	<b>-765,494</b>	<b>-</b>
Add back:										
Lapsing Balances.....	318	-	412	-	-	-	-	-	-	-
Rescinded Balances.....	-	-	-	-	-	-	-	-	-	-
<b>Total Bal. Available, EOY.....</b>	<b>609,614</b>	<b>-</b>	<b>898,085</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total Available.....</b>	<b>2,650,772</b>	<b>-</b>	<b>2,770,930</b>	<b>-</b>	<b>2,847,557</b>	<b>-</b>	<b>2,082,063</b>	<b>-</b>	<b>-765,494</b>	<b>-</b>
Less:										
Rescission.....	-	-	-	-	-	-	-	-	-	-
Total Transfers In.....	-	-	-	-	-	-	-	-	-	-
Total Transfers Out.....	-	-	1,137	-	-	-	-	-	-	-
Sequestration.....	11,714	-	12,426	-	14,022	-	12,597	-	-1,425	-
Recoveries, Other.....	-48,607	-	-80,224	-	-	-	-	-	-	-
Bal. Available, SOY.....	-662,455	-	-609,614	-	-898,085	-	-	-	+898,085	-
<b>Total Appropriation.....</b>	<b>1,951,424</b>	<b>280</b>	<b>2,094,655</b>	<b>372</b>	<b>1,963,494</b>	<b>452</b>	<b>2,094,660</b>	<b>452</b>	<b>+131,166</b>	<b>-</b>

Note: The details associated with Supplemental appropriations provided to the Office of the Secretary, but implemented in this account, is found in the USDA Budget Summary, and is not reflected above.



**JUSTIFICATION OF CHANGES****Research & Education:**

- (1) An increase of \$9,000,000 for the Evans-Allen Program (Research 1890 Institutions) (\$89,000,000 available in 2023).

The Evans-Allen program underpins and supports NIFA's competitive programs. The increased funding for the program will help build capacity and reduce disparities between land-grant universities. As Evans-Allen capacity funds are authorized under section 1445 of the National Agriculture Research, Extension and Teaching Policy Act of 1977 (NARETPA), to support agricultural research activities at the nineteen 1890 Land-grant Historically Black Colleges and Universities (HBCUs), including Tuskegee University, West Virginia State University and Central State University, purchase and rental of land and the construction, acquisition, alteration, or repair of buildings necessary for conducting agricultural research. Currently, the program supports over 200 active research projects that will enhance innovation and, support training of the next generation of African American leaders, innovators, and researchers. Research also addresses various issues in limited-resourced communities such as small farm challenges, research on commodities and specialty crops that are commonly found on small and minority-owned farms, helping to grow new and better markets, improve food and nutrition security, addressing climate change, and encourage workforce development.

- (2) An increase of \$8,000,000 for the Tribal Colleges Education Equity Grants Program/Payments to 1994 Institution (\$7,000,000 available in 2023).

The 1994 Act (7 U.S.C. 301 note) 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 key 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. Appropriated funds are to be awarded to the 1994s for Education capacity building and funds are to be distributed equally among institutions that meet eligibility requirements. There are currently 35 eligible colleges. The 1994 Land-Grants use Tribal Colleges Education Equity grants to support faculty to develop courses and degree programs that teach science and math to Native Americans. The programs focus on agriculture, natural resources, and social sciences. An increase in annual appropriations will expand participation of eligible entities, and the number of students they could educate by bringing on more faculty and needed resources. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved communities.

- (3) An increase of \$4,000,000 for Education Grants for Hispanic Serving Institutions (\$16,000,000 available in 2023).

Section 1455 of NARETPA (7 U.S.C. 3241) is the foundation for USDA's efforts to better serve Hispanic Serving Institutions (HSIs) as they help students prepare for careers in the food and agricultural and sciences. Increased funding is needed to meet the needs of the growing number of HSIs in the country. NIFA will use the additional funds to expand the number of institutions funded to increase the pool of outstanding students. Additional funding will support outreach activities in communities of demonstrated greatest need and traditionally underserved communities, increase the number of students receiving Positive Youth Development Services, and increase outreach efforts to Hispanic farmers and ranchers across the country to provide them with tools to add value to their products. This competitive program expands and strengthens the design and development of academic programs and faculty in food and agricultural sciences, natural resources, forestry, veterinary medicine, home economics, and allied disciplines. Hispanic-serving colleges and universities, including two-year community colleges that have at least 25 percent Hispanic enrollment are eligible. The program facilitates cooperative initiatives between two or more HSIs and the public or private sector to maximize the development and use of resources that improve the food and agricultural sciences teaching programs. This, in turn, attracts and supports students to graduates that are effectively prepared to enter the Nation's food and agricultural scientific and professional work force. This program has the potential to address the underrepresentation of Hispanic students in STEM jobs (currently less than 2 percent of STEM jobs in the nation) and in the food, agricultural, natural resource, and human sciences. The program is a Justice40 covered

program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved communities.

Demand for the program has surpassed the resources available as the number of HSIs have increased from 281 to 567 and the number of students they serve have more than doubled from 1.3 to 5.2 million. Many of the students attending HSIs are from traditionally underserved groups, including 66 percent of all U.S. Hispanic students. HSIs also enroll 41 percent of all U.S. Asian American students, 32 percent of all U.S. Hawaiian and Pacific Islanders, 21 of the U.S. Native American students, and 23 percent of all U.S. African American students. Based on these data, the HSIs enroll the largest fully untapped potential source of future workforce and is a large potential provider of education in the food, agriculture, and natural resources arena to the U.S. These institutions have the human capital that the nation needs to fulfill the workforce demands of a modern agricultural enterprise.

Projects funded in 2022 will recruit and enroll at least 120 undergraduate students and 80 graduate students that will participate in hands-on experiences. All projects include partnerships with other institutions, USDA agencies, industry and/or local government.

- (4) A decrease of \$6,000,000 for Capacity Building Non-Land Grant Colleges of Agriculture (\$6,000,000 available in 2023).

This competitively awarded grants program aims to assist the Non-Land Grant Colleges of Agriculture Program (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.

The research goals of this program can be more effectively addressed through higher priority programs in this request. The program can similarly be supported by successfully applying to other funding sources, including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (5) An increase of \$200,000 for Grants for Insular Areas (\$2,500,000 available in 2023).

An increase in funding for these combined programs is needed to build capacity in program administration at insular area institutions, which are geographically isolated. Increased funding will strengthen their ability to provide scientific training opportunities for students and promote employment preparedness in food, nutrition, agriculture, natural and renewable resources, and human science. The competitive Grants for Insular Areas has three programs: Resident Instructions Grants Program for Institutions of Higher Education in Insular Areas (RIIA), Agriculture and Food Science Facilities and Equipment Program for Insular Areas (AGFEI) and Distance Education Grants for Institutions of Higher Education in Insular Areas (DEG). The overall objectives of these programs are to: strengthen institutional educational capacities on campus by supporting creation and adaptation, of learning materials and teaching strategies to operationalize what we know about how students learn (RIIA); develop effective distance education (DEG); and to acquire or renovate facilities and relevant equipment necessary for conducting agricultural research to support tropical and subtropical agricultural research (AGFEI). These programs are intended to broaden the undergraduate student experience by integrating opportunities to participate in research, education, and extension and to enhance collaborations with Insular institutions. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved communities.

In 2022, the University of Guam (UOG) will develop two new online courses in wildlife management. Currently, students graduating with natural science degrees from UOG are not U.S. Office of Personnel (OPM)-qualified to apply for jobs as wildlife biologists through federal agencies. By adding these two critical courses, students will have the opportunity to take all the necessary courses to be OPM-qualified wildlife biologists upon graduation. This will provide students with more employment opportunities in Guam, reduce the problem of brain drain by biological professionals, provide federal agencies with locally trained wildlife biologists, and give students across several disciplines a better understanding of how to control and mitigate invasive species damage in agriculture and food production operations.

(6) An increase of \$95,000,000 for Agriculture and Food Research Initiative (\$455,000,000 available in 2023).

To support the transformative innovations needed to address climate change adaptation and mitigation, promote food and nutrition security, enhance profitability in U.S. agriculture and boost rural prosperity, NIFA proposes to increase its investment to \$550 million in AFRI, America’s flagship competitive grants program for food and agricultural sciences. This investment is critical for supporting systems-level, as well as foundational research in agricultural production and products, for integrated Extension activities to transfer research findings to producers and consumers, and for continued development of the skilled workforce needed to spur the agricultural enterprise. Past AFRI investments have directly benefited agricultural producers by providing improved crop cultivars, creating climate-smart decision tools, and developing high-value uses of agricultural products. For example, an AFRI-funded project is creating a novel soy-based hydrogel for use in cold-chain storage and shipment of foods. This “jelly ice” is cleanable, reusable, and biodegradable, and its application in supply chains of food systems will increase shelf-life of refrigerated foods, reduce food loss and waste, and improve food safety. Another AFRI project aims to enhance Native agroecosystem resilience by expanding climate services and outreach to Tribal Extension agents, agriculture producers, and youth educators in the Southwest and Northern Plains regions. Native climate activities are designed to foster trust between USDA Climate Hubs and Native farmers, ranchers, and resource managers in their regions through respectful, equitable, and culturally relevant information sharing. Equally important, these activities aim to foster trust in indigenous climate adaptation knowledge and methods among western scientists and climate service providers.

Through AFRI grants, NIFA will support the 2024 Administration priorities of promoting climate-smart agriculture and forestry practices, mitigation of agricultural greenhouse gas emissions (including further reduction of enteric methane from domestic ruminants), improving food and nutrition security, expanding markets for agricultural products, and promoting prosperity in America’s underserved communities. In 2024, the NIFA budget proposes to support the AFRI program at \$550,000,000, which includes:

- Climate science research that promotes development of climate-smart agriculture and forestry and carbon-neutral agricultural practices to support adaptation to climate change and to achieve net-zero greenhouse gas emissions by 2050
- Efforts to monitor and measure emissions of greenhouse gases from agricultural and food production systems
- Innovations in clean energy production from, and use in, food and agricultural systems
- Precision nutrition and cancer moonshot

Within the three Requests for Applications that NIFA will issue, NIFA will invest \$20 million to support the Administration’s efforts on the Cancer Moonshot through work on nutrition to reduce diet-related chronic disease, production of healthy foods that reduce the risk of cancer, creation of biobased agricultural products as anticancer supplements and therapeutic agents, and use of dual purpose with dual benefit studies in animals.

NIFA will also invest \$10 million in integrated projects on Precision Nutrition that inform National dietary guidance, help tackle food and nutrition insecurity, and prevent and control diet-related chronic diseases by supporting and encouraging healthy dietary choices at the individual, family, community and population levels sustained across all life-stages through data-driven, flexible, culturally- and contextually-relevant, and customer-focused approaches.

Throughout the AFRI program, NIFA will continue to emphasize climate-smart agriculture and forestry, mitigation of agricultural greenhouse gas emissions, and innovation in clean energy technology development and application. NIFA will invest \$33 million in climate science research, \$12 million in efforts to measure and monitor greenhouse gas from agricultural and food production systems, and \$94 million for innovative approaches to producing clean energy from agricultural sources.

Focused investments in these topics will be made in the three major complementary components of AFRI: 1) Sustainable Agricultural Systems, 2) Foundational and Applied Science, and 3) Education and Workforce Development. NIFA will issue three RFAs for these major components. These foci on data-driven solutions and technology-savvy workforce development will help catalyze foundational and large systems-level research needed to foster innovation in U.S. food and agricultural science, enhance economic prosperity in America’s underserved communities, promote food and nutrition security, and enhance the Nation’s global competitiveness in food and agricultural production. Collectively, these investments in AFRI will address the

President’s priorities to combat climate change, promote the development of clean energy, create more and better market opportunities, lay the foundation for economic growth and creation of good-paying jobs, increase food and nutrition security, and ensure that benefits accrue to underserved communities.

NIFA proposes to invest \$140 million of appropriated funds in the Sustainable Agricultural Systems programs to support large, integrative projects that develop technological solutions to major agricultural system challenges. These investments will focus on innovations in clean energy production and use, climate science and climate-smart agriculture and forestry (including further reduction of enteric methane from domestic ruminants), and food and nutrition security. This will enable NIFA’s goal of advancing the convergence of agricultural sciences with engineering, data science, nutritional and food sciences, social sciences, and other disciplines, including nanotechnology, computational sciences, and advanced manufacturing, to generate new scientific discoveries, new products, new markets and, consequently, new high-skill jobs. Further reduction of enteric methane from domestic ruminants will be a research goal.

The agency proposes to invest \$355 million in the Foundational and Applied Science programs that support interagency partnerships to develop technologies such as robotics, sensors, and cyber physical systems. The agency will maintain increased investments made in previous years in plant and animal breeding that support classical breeding efforts to improve crop and animal productivity and will increase funding to support emerging technologies such as gene editing, autonomous systems, precision animal agriculture, and machine learning as applied to agriculture. NIFA will continue to invest in research on the microbiomes of foods, food animals, plants, human gut and soils, on food and nutrition security, and on agricultural biosecurity to protect our Nation’s food supply and the agricultural economy. NIFA will continue to invest in research on climate change and environmental systems. NIFA will invest in approaches to improve management and application of big data, artificial intelligence in agriculture, and data-driven entrepreneurship in rural America. An additional focused component of NIFA’s investments to encourage rural prosperity will support research and related activities addressing societal acceptance and economic implications of agricultural technologies, including gene editing, big data, and adoption of technologies and management practices to support climate-smart agriculture and forestry.

The agency proposes to invest \$55 million in Education and Workforce Development programs to promote growth and skill improvement in the workforce needed to spur innovations in the agricultural economy, enhance rural prosperity, and advance competitiveness of U.S. agriculture. To connect rural skillsets to jobs of the future, investments will be increased in positive youth development programs, K-14 curricula development and training/retraining of workers for developing a technology- and data-savvy workforce ready for the field and industrial jobs. The AFRI Education and Workforce Development program contributes towards the OMB and OSTP guidance for future STEM education activities.

- (7) A decrease of \$4,000,000 for Continuing Animal Health and Disease Research Program (\$4,000,000 available in 2023).

Section 1433 of NARETPA, as amended by Pub. L. 113-79 and 115-334 (7 U.S.C. 3195), 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. The program is a Justice40 covered program, that contributes to Environmental Justice efforts, increased funding will help to derive benefits to underserved communities.

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

- (8) A decrease of \$1,337,000 for Supplemental and Alternative Crops (\$2,000,000 available in 2023).

The Supplemental and Alternative Crops (SAC) grant program supports projects that lead to expanded adaptation and increased acreage in the United States (U.S.) of canola grown for oil and industrial hemp grown for value added products. Such crops are important to U.S. agriculture in that these can provide new and profitable cropping options in response to low commodity prices and changes in consumer demand for new agricultural-based products. The U.S. does not produce enough canola oil to meet its annual domestic

consumption needs. Modern canola has major uses in healthy human foods and animal feeds, as a natural pest control when used as a cover crop, and as a feedstock in industrial chemical manufacture and biofuel production. Such efforts require strategically designed, region-based research approaches and effective communication of useful information and transfer of technologies to users as rapidly as possible. SAC supports research and Extension in conventional and organic production systems.

This type of work may be supported by other funding sources, including other NIFA programs. The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (9) An increase of \$1,000,000 for Secondary and 2- year Post-Secondary Education (\$1,000,000 available in 2023).

Increased funding will assist this overprescribed program. Appropriations have remained steady since 2011 (\$900,000). In 2022, the SPECA program received proposals with a total of \$3,400,000 in funding requests with \$1,800,000 being reviewed meritorious of receiving funding per the peer-review process. The increase sought will be devoted specifically to greater funding for community colleges. The Secondary Education, Two-Year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grants (SPECA) programs seek to: (a) promote and strengthen secondary education and two-year postsecondary education in the food and agriculture sciences to help ensure a strong U.S. workforce that's qualified to serve the food and agriculture sciences system; and (b) promote complementary and synergistic linkages among secondary, two-year postsecondary, and higher education programs in the food and agriculture sciences to advance excellence in education and encourage more young Americans to pursue degrees in the food and agriculture sciences. This program is the only one within NIFA's portfolio that supports these activities via competitive grants.

- (10) An increase of \$10,000,000 for Sustainable Agriculture Research and Education (\$50,000,000 available in 2023).

Sustainable Agriculture Research and Education (SARE) funding supports four regional centers and one national coordination center which were selected in 2018 through a rigorous competitive review process. The centers emphasize innovative projects to help farmers and ranchers to adopt practices that are productive, profitable, environmentally sound, and enhance the quality of life for farmers, strengthens the local food supply, and society as a whole. SARE funded 417 projects in 2021 and 392 in 2022 projects through ten different grant programs. Grants awarded address crop and livestock production and marketing, stewardship of soil and other natural resources, economics, and quality of life in rural communities. Proposals for projects are submitted by scientists at academic institutions, public and private sector agricultural professionals and directly by farmers and ranchers. To promote development of the next generation of agricultural scientists the SARE program has also pioneered accepting grant applications directly from graduate students in agricultural disciplines. The program also supports 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. The program will continue to focus on the high-priority solutions for farmers and ranchers across all U.S. regions through grants to develop innovative sustainable practices that meet a growing national need.

- (11) A decrease of \$500,000 for Farm Business Management (\$2,500,000 available in 2023).

This competitive program aims to make research and extension grants for the purpose of improving the farm management knowledge and skills of agricultural producers by maintaining and expanding a national, publicly available farm financial management database to support improved farm management.

The research goals of this relatively small program can be more effectively addressed through higher priority programs in this request. Including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

- (12) A decrease of \$4,000,000 for Alfalfa Seed and Alfalfa Forage Systems Research Program (\$4,000,000 available in 2023).

Program supports research for the purpose of studying improvements in alfalfa and forage yields, biomass and

persistence, pest pressures, the bioenergy potential of alfalfa seed and other alfalfa forages, and systems to reduce losses during harvest and storage.

The research goals of this program can be more effectively addressed through higher priority programs in this request. Including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(13) An increase of \$1,500,000 for Minor Crop Pest Management (IR-4) (\$15,000,000 available in 2023).

The IR-4 Program provides expert assistance for the development and registration of crop protection products needed for minor agricultural use and use on specialty crops. For the past 57 years, the program has facilitated cooperation between producers, grower organizations, state Cooperative Extension Services, land-grant universities, and federal agencies to ensure the availability of safe, effective, and economical pest management tools for specialty crops, minor crops, and minor uses.

Increased funding levels will enable the Interregional Research (IR) Project to provide the assistance needed to ensure that new and more effective crop protection products are developed and made available to minor/specialty crop producers. These efforts require effective collaborations among federal agencies, the crop protection industry, and land-grant colleges and universities. Unlike most major crops, many American specialty crops have difficulty reaching lucrative international markets due to the lack of a harmonized pesticide approval system between our trading partners.

(14) A decrease of \$2,500,000 for Agricultural Genome to Phenome Initiative (\$2,500,000 available in 2023).

Program was initiated in 2021 through a general provision, providing resources under Section 1671 of the Food, Agriculture, Conservation and Trade Act of 1990 (7 U.S.C. 5924), as amended by section 7208 of the 2018 Farm Bill (Pub. L. 115-334). Program competitively awards funding in support of building on genomic research and expand knowledge concerning genomes and phenomes of crops and animals of importance to the agriculture sector of the United States.

The research goals of this program can be more effectively addressed through higher priority programs in this request. Including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(15) A decrease of \$1,000,000 for Laying Hen and Turkey Research (\$1,000,000 available in 2023).

Program was funded in 2023 through a general provision. Decrease is proposed to direct funding to higher priority activities and is consistent with the Administration's policy to redirect available resources, as appropriate, from lower-priority areas to other science and technology activities. This program may be supported by other funding sources, including other NIFA programs. The broad research goals of this relatively small program may be more effectively addressed through higher priority programs in this request. This would allow for greater focus on national priorities, and efficiency in program management and implantation.

(16) A decrease of \$1,000,000 for Open Data Standards for Neutral Data Repository (\$1,000,000 available in 2023).

The 2023 President's Budget shifted Open Data Standards for Neutral Data Repository from a General Provision to the main account and was funded at \$1,000,000. The research goals of this program can be more effectively addressed through higher priority programs in this request. As well as supported by other funding sources, including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(17) An increase of \$8,000,000 for Research Facilities Act (\$2,000,000 available in 2023).

This Competitive program provides funding for the construction, alteration, acquisition, modernization, renovation, or remodeling of facilities that are supportive of research in food and agricultural sciences at college, university, or nonprofit institutions with an emphasis on facilities that are located at or primarily benefit minority serving institutions. Recent studies indicate that a large proportion of agricultural research facilities at U.S. universities are aging due to such factors as deferred maintenance, and these facilities need major upgrading to allow U.S agriculture to remain innovative and competitive.

A study published in 2021 found that deferred maintenance needs at schools of agriculture across the U.S. had increased to \$11,500,000,000, with a total replacement cost of \$38,100,000,000. Many grants administered by NIFA prohibit spending funds on research facilities. An increase in funding for this program would allow for more institutions to improve their agricultural research facilities with multiple benefits including greater output of cutting-edge research that addresses current and future priority issues, improved training of a more diverse and well-trained workforce, and enhanced competition with global competitors.

(18) An increase of \$2,000,000 for Agriculture Business Innovation Center at HBCU (\$0 available in 2023).

Funding was provided in 2021 as a general provision to support establishment of an agriculture-based business development hub at a historically black college or university to serve as a technical assistance hub to enhance agriculture-based business development opportunities. These opportunities include: providing technical assistance to food and agricultural producers, production scale assessments, market planning and development, business planning, and other advisory services; technology transfer to commercialize innovations, particularly those that are derived from NIFA support; assisting startups and entrepreneurs in agriculture business including planning and funding; training and workshops in food and agricultural business; providing educational support for students enrolled in agriculture business programs; outreach services and activities, including the dissemination of information and materials. Additional resources to renew the support of the Agriculture Business Innovation Center at HBCU will promote technical assistance, training, and the development of intellectual property that benefit rural and urban communities.

(19) An increase of \$525,000 for Global Change/UV Monitoring (\$1,400,000 available in 2023).

The climatological network in this program includes 38 climatological 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 U.S. 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 are used with weather inputs to support climate forecasting models and to assess the impact of UV-B radiation on ecosystems, human health, and agricultural production. As USDA embarks on its climate-smart agriculture and forestry goals, these datasets are even more valuable now than in the past. The increase in funding will support projects focused on improving detection technologies and modernization of the data repository, which is needed to monitor climate change throughout the U.S.

(20) A decrease of \$2,200,000 for Aquaculture Research (\$2,200,000 available in 2023).

This program supports development of an environmentally and economically sustainable aquaculture industry in the U.S. by generating new science-based information and technology to address industry constraints. This research program aims to improve the profitability of U.S. aquaculture industry, increase domestic food security, expand markets for U.S.-produced products and create more jobs for rural and coastal America hard hit by the impacts of climate change.

The research goals of this relatively small program can be more effectively addressed through AFRI, where funding is already available, to ensure U.S. aquaculture systems are ready for climate adaptation and resiliency. This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(21) An increase of \$4,290,000 for Federal Administration R&E General Administration/ Other (\$12,597,000 available in 2023).

(A) For 2024 an increase of \$2,517,000 for 2024 Pay. This increase will support the annualization of the 2023 4.6 percent Cost of Living pay increase and the 2024 5.2 percent Cost of Living pay increase. Reducing base funding for administration and pay costs will limit the agency's ability to recruit, retain, or development new staff, provide for travel and participation in scientific meetings to represent the agency, and provide mission support.

(B) An increase of \$430,000 to support Collaboration for Discovery and Public Access of NIFA-funded Publications. This increase will support collaboration efforts, with the National Agricultural Library (NAL)

to ensure compliance with USDA departmental regulation related to public access to NIFA-funded scholarly publications and digital scientific research data. This was identified in a December 2020 USDA Office of the Inspector General (OIG)-issued report and formalized in Departmental Regulation DR 1020-006 Public Access to Scholarly Publications and Digital Scientific Research Data. NIFA and NAL will work collaboratively to understand the gap in reported and non-reported publications and develop automated workflows to increase the corpus of NIFA-funded publications in PubAg and improve publication tracking and availability of respective data sets. NIFA and NAL will also collaborate to develop outreach and training efforts to encourage and support NIFA grantees to submit publications that will be available in PubAg. Publications will be ingested, enhanced with descriptive metadata, and made accessible through the PubAg search and discovery interface and application programming interface (API). As the primary extramural research funding agency within Research, Education, and Economics (REE) and USDA, NIFA arguably faces the greatest challenges in identifying publications resulting from agency support. The coordination with NAL in this proposed project will capitalize on existing REE resources and infrastructure (i.e., PubAg), and lay the groundwork for a coordinated REE approach to improve discovery and public access to REE funded publications. Further, this project will inform and prepare for the integration of NIFA-funded data assets and other research products into other NAL-managed resources (e.g., Ag Data Commons). NIFA will have a continued need for assistance with outreach to inform and encourage grantees submitting requested publication and data asset information to the site as well as validation of data submitted. We anticipate system development to be limited to enhancements of fixes and therefore decreased developer costs.

- (C) An increase of \$1,343,000 to support Post Award Management, Program Evaluations. NIFA proposes to use additional funding for post award management of grant awards, including site visits and program evaluations. Site visits provide an opportunity to see in person the outcomes and outputs of funded projects in agricultural and related sciences. Program evaluations will be used to improve the administration and effectiveness of agricultural research, extension, education, and teaching programs in achieving their stated objectives. NIFA will use third-party entities to review individual programs and groups of programs that share similar science goals. The developed evaluation plans will be based on logic models and align evaluation questions, indicators/metrics, and evaluation methodologies for programs and across programs to build linkages. Program evaluations will help determine the baseline for data collection, indicators, and metrics, furthering NIFA's ability to determine program performance in meeting stated objectives. Site visits allow NIFA to assess awardees' capability, performance, and compliance against the applicable elements that make up each award. This may include administrative regulations and public policy requirements, as well as special and general terms and conditions, including those contained in the program announcement/solicitation, grant or cooperative agreement, and the award letter. Through site visits, NIFA extends business assistance by offering award administration best practices and answering questions related to NIFA expectations and Federal award administration requirements.

#### **Extension Activities:**

- (22) An increase of \$4,000,000 for the Extension Services at 1890 Institutions (\$72,000,000 available in 2023).

Increased funding will allow the Cooperative Extension Service at 1890 Land-grant Institutions to ramp up their efforts in serving underserved agricultural producers and communities, ensuring equity in access and opportunities. Capacity funds for Extension Services at 1890 Institutions are authorized under section 1444 of NARETPA and are used to support continuing agricultural and forestry extension activities at 1890 Land-Grant Institutions. NIFA supports 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. The funds distributed to the 19 Historically Black Colleges and Universities are leveraged with matching funding from non-federal sources that support several of USDA's new strategic goals and objectives, including (a) Maximize the ability of American agricultural producers to prosper by feeding and clothing the world; (b) Strengthen the stewardship of private lands; (c) Ensure productive and sustainable use of our national forest system lands; and (d) Provide all Americans access to a safe, nutritious, and secure food supply. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved communities.



(23) An increase of \$10,000,000 for Extension Services at 1994 Institutions (\$11,000,000 available in 2023).

The requested increase will promote rural economic revitalization, positive youth development, and nutrition and food security that will lead to better health, prosperity, and quality of life in tribal communities. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help to derive benefits to underserved communities.

In 2021, this program supported 35 Extension offices in 18 states, which supported 75 of the 567 Federally recognized Indian Tribes. NIFA's funding is critical because it helps identify unique needs of tribal communities and provides culturally appropriate and evidence-based knowledge and best practices to improve farm and ranch enterprises, nutrition and obesity reduction activities, 4-H and tribal positive youth development initiatives. Each Extension office works with Tribal communities to build programs addressing local needs such as: 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 Security, Diet and Health.

(24) An increase of \$3,300,000 for Facility Improvements at 1890 Institutions (\$21,500,000 available in 2023).

Annually, each 1890 institution is eligible to receive one award. As there are currently nineteen Institutions that qualify, this increased funding is imperative for 1890 institutions to fully serve current students and faculty, as well as attract and retain the best available talent. This program is designed to help 1890 Land-grant Institutions acquire and improve agricultural and food sciences facilities and equipment, including libraries, so that the 1890 Land-grant Institutions may fully participate in developing the talent pool of the future for food, agricultural and human (FANH) science workforce. The Facilities Improvements at 1890 Institutions Program has enabled the 1890 LGUs to acquire new technology for research, construct new buildings for education, and develop educational programs to teach rural communities new skills. This program continues to address disparities in the technology, equipment and building facilities of the 1890 Land-grant universities vis-à-vis 1862 Land-Grant Universities. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved communities.

(25) A decrease of \$500,000 for Food Animal Residue Avoidance Database (\$2,500,000 available in 2023).

Food Animal Residue Avoidance Database (FARAD) is a repository of comprehensive residue avoidance information. FARAD also is sanctioned to provide these estimates to the U.S. Pharmacopeia-Drug Information (USP-DI) Veterinary Medicine Advisory Committee. Since 1982, FARAD has been working with producers, extension specialists and agents, and veterinarians to help avoid and mitigate residue problems. As a cooperative multistate program, FARAD is available nationwide to offer advice about residue avoidance.

The broad FARAD program goals of providing data infrastructure for practical information on how to avoid drug, pesticide, and environmental contaminant residue problems may be supported through AFRI as a part of its Food and Agricultural Cyberinformatics and Tools initiative. This decrease in funding would allow for greater focus on national priorities, and efficiency in program management and implementation through consolidation of program activities

(26) An increase of \$305,000 for Women and Minorities in STEM (\$2,000,000 available in 2023).

The Women and Minorities in Science, Technology, Engineering, and Mathematics Fields (WAMS) program supports projects with a target audience of K-14 students (kindergarten through twelfth grade plus two years of post-secondary schooling (e.g., vocational technical institutions or community or junior colleges)). Four-year undergraduate, graduate, and post-doctoral focused projects are not awarded under this grant announcement.

WAMS project activities will support the creation, adaptation, and adoption of learning materials and teaching strategies to operationalize what we know about how students learn. WAMS-funded projects also focus on imparting both technical knowledge as well as leadership and interpersonal skills such as communication, teamwork, and problem solving, as these are abilities expected by employers.

The purpose of this program is to support education/teaching, and/or extension projects that increase participation by women and underrepresented minorities from rural areas in STEM. Increased funding will

address educational needs, as determined by each institution, within broadly defined areas of food and agricultural sciences.

(27) An increase of \$5,000,000 for Enhancing Ag Opportunities Military Veterans (Ag Vets) (\$0 available in 2023).

The USDA and NIFA continue to take a leadership role in assisting veterans who are interested in pursuing careers in agriculture, while also supporting military families in rural America. As military members from diverse backgrounds complete their tours of duty or transition to Veteran status, many return to rural America ready to farm, ranch, and start new businesses. Job and career opportunities can be difficult to locate. Connecting interested military veterans with meaningful employment is key.

The need for workforce development opportunities for Veterans in rural areas corresponds to the need to train a new generation of farmers and ranchers in areas dominated by an aging farm population. Along with higher percentages of rural youth enlisting in the Army when compared to those from more urban areas, America is experiencing demographic changes such as increased numbers of women and minorities serving, and a greater reliance on the National Guard and Reserve in overseas deployments.

The overarching goal of AgVets is to increase the number of military veterans pursuing knowledge and skills development through comprehensive, hands-on and immersive model farm/ranch programs offered locally or regionally that lead to successful careers in the food and agricultural sector.

(28) An increase of \$20,000,000 for Expanded Food and Nutrition Program (EFNEP) (\$70,000,000 available in 2023).

EFNEP is the nation’s first nutrition education program for low-income populations and remains at the forefront of education efforts to tackle food and nutrition insecurity. EFNEP is a Federal Extension program that operates through the 1862 and 1890s in every state, the District of Columbia, and the six U.S. territories. Funded through NIFA, EFNEP uses education to support participants’ efforts toward self-sufficiency, nutritional health, and well-being.

In August 2019, the Office of the Inspector General (OIG) published findings from an audit that reviewed controls to determine whether NIFA allocated its Capacity program funds accurately and used funding calculation methods that complied with statutory formulas. In the report the OIG recommended that NIFA perform an analysis and make a recommendation on whether to submit a legislative proposal to revise the EFNEP statutory formula that would allow the use of the most recent decennial Census poverty data to calculate its distribution of funds to States. NIFA convened a workgroup to develop a response to the OIG audit, which includes options for a legislative change to the current EFNEP formula. Based on their findings, options were presented to the Subcabinet and the Secretary to determine a path forward. This proposal is in response to the OIG Audit and aligns with the USDA Strategic Plan Fiscal Years 2022-2026, specifically supporting advancing racial justice, equity, and opportunity; and tackling food and nutrition security while maintaining a safe food supply. Furthermore, it aligns with the NIFA Strategic Plan to enhance opportunities in underserved communities and tackling food and nutrition security.

Funding is increased to \$90 million in 2024, with the funding distributed by adjusting the formula to include: (1) baseline for the 1890s equivalent to the respective 1862s baseline for 1981, (2) 4 percent off the top for Federal Administration, and (3) \$150k for a beginning baseline for DC and Insular Areas (excluding PR which already has an established baseline). This is a 2-year proposal, with increases proposed for 2024 (\$90 million) and 2025 (\$106 million). After two years this option sees the 1890s equal dollar for dollar with the 1862s. Funding would need to be maintained at \$106 million per year to continue to ensure distributions to the 1890s equal distributions to the 1862s.

In order to reach equal distributions, the formula will be modified to remove the limitation on 1890 Institutions receiving funding which currently limits distributions to the 1890 Institutions to less than \$1M for the Census data element.

- More specifically, the 7 USC 3175 section below will need to be removed:  
“(iii)(I) Before any allocation of funds under clause (ii), for any fiscal year for which the amount of funds appropriated for the conduct of the expanded food and nutrition education program exceeds the amount of funds appropriated for the program for fiscal year 2007, the following percentage of such

excess funds for the fiscal year shall be allocated to the 1890 Institutions in accordance with subclause (II):

- (aa) 10 percent for fiscal year 2009.
  - (bb) 11 percent for fiscal year 2010.
  - (cc) 12 percent for fiscal year 2011.
  - (dd) 13 percent for fiscal year 2012.
  - (ee) 14 percent for fiscal year 2013.
  - (ff) 15 percent for fiscal year 2014 and for each fiscal year thereafter.”
- The Option includes a pilot test with select states at the 185 percent Federal Poverty Level (FPL) to facilitate an increase in participation and expand the reach of the program.

The proposal establishes a full 1981 baseline for the 1890s and maintains 1862 funding levels at 2023 levels. The change provides a baseline for DC and the remaining Insular Areas at \$150,000. The increase will provide funding to the 1890s to reach additional participants. The proposal includes increasing the available participants to include those at the 185 percent FPL and would enable states greater latitude, potentially increasing participation. A pilot test with select states at the 185 percent FPL may illustrate the increase in participation. NIFA would need to increase staffing capacity to provide additional outreach and technical assistance to the 1890s to assist them with building up their program. The 1994s do not currently receive direct funding, thus the need to establish stronger partnerships among existing program recipients as well as directly engaging the Tribal community in the program. Thus, NIFA will work in collaboration with the USDA Office on Tribal Relations and 1994 representatives to conduct an in-depth study to determine the needs of Tribal and Alaskan Native communities.

(29) A decrease of \$548,000 for New Technologies for Ag Extension (\$3,550,000 available in 2023).

The New Technologies for Ag Extension (NTAE) Program aims to increase the capacity of the Cooperative Extension System to adopt new and innovative technology applications for delivering science-based educational resources from land-grant and other partner institutions about matters of high public importance. NIFA supports, thru competitive awards, projects that deliver state-of-the-art technology and software applications, high-quality leaders and staff, training for an exceptional Extension workforce, legally binding contractual and financial instruments, and comprehensive evaluation, communication and marketing activities promoting governance, collaboration and organization, a toolkit of evidence-based delivery models, and an entrepreneurial resource base.

The goals of this program can be complemented through higher priority programs in this request, including Agriculture and Food Research Initiative (AFRI). This would allow for greater focus on national priorities, and efficiency in program management and implementation.

(30) An increase of \$3,395,000 for Federally Recognized Tribes Extension (\$4,305,000 available in 2023).

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. 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. All 1862 Land grant, 1890 and 1994s with a federally recognized tribe (or conference in the case of AK) within their state are currently eligible for Smith-Lever 3(d) funds. FRTEP Extension offices have become a platform for state and federal agencies to provide resources and programs for Tribal communities. The program is a Justice40 covered program that contributes to Environmental Justice efforts. Increased funding will help drive benefits to underserved 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 youth development. Currently, FRTEP supports 36 Extension offices in 19 states but serves 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. The 2018 Farm Bill included 1994s as eligible institutions to receive funds through this program. The impacts that this program makes to the local communities include cattle production workshops, weed management, grassland management, 4-H programs for youth, climate resilience, Diversity, Equality, Inclusion and Accessibility (DEIA), and more. Increased funding will allow the program to serve the demand from 1994 Land-grant Institutions more fully and effectively. In addition, a General Provision is included to allow for awards to be

made on a non-competitive basis, in keeping with the need to support existing programming to meet the needs of Indian Country communities. Mandatory four-year recompetes and limited funding available prevents FRTEP agents from building trusted relationships with tribal community partners that are needed to fully realize project outcomes.

(31) An increase of \$1,500,000 for Study on Tribal and Alaska Native Communities (\$0 available in 2023).

There is a need to establish stronger partnerships among existing program recipients as well as directly engaging the Tribal community in the program. Thus, NIFA will work in collaboration with the USDA Office on Tribal Relations and 1994 representatives to conduct an in-depth study to determine the needs of Tribal and Alaskan Native communities, at a cost of \$1.5 million. A Cooperative Agreement mechanism will be utilized to engage an external entity to provide leadership to the study. The overall goal of the study will be to provide USDA and NIFA with guidance on outreach and inclusion of 1994s, to ensure Tribal and Alaskan Native communities are served through numerous formula and competitive programs.

(32) A decrease of \$5,000,000 for GP-Enhancing Agricultural Opportunities for Military Veterans (\$5,000,000 available in 2023).

A decrease to the general provision is proposed to include this program in the NIFA direct appropriated discretionary budget. Program has been appropriated as a discretionary general provision since 2017.

(33) A decrease of \$2,000,000 for GP-Beginning Farmers and Ranchers Development Program (under FOTO) (\$2,000,000 available in 2023).

A decrease to the general provision is proposed to include this program in the Office of the Secretary (OSEC) direct appropriated discretionary budget.

**PROPOSED LEGISLATION**

Summary of Proposed Legislation

Administrative/Appropriation/Authorizing: Requires a legislative change in the Authorizing language and Appropriations.

Program: *Experienced Services Program*, 16 U.S.C 3851

Current legislative authority to be amended: 2024 Budget Request – Research and Education, Extension, and Integrated Activities

Proposal: The reason for this proposed legislative language is that funding must be authorized, in accordance with the authorizing legislation at 16 U.S.C 3851(c)3.

Rationale: The proposed change will achieve the Secretary of Agriculture’s requirements set forth in 16 U.S.C. 3851, which specifies that the Secretary shall establish an Experienced Services Program (program) to enter into agreements on behalf of the National Institute of Food and Agriculture (NIFA) with nonprofit private agencies and organizations eligible to receive Cooperative Agreements under the Community Service Senior Opportunities Act (42 U.S.C. 3056 et seq.) Participants for the program are to provide technical, professional, or administrative services, as applicable, to support the Research Education and Economics (REE) Mission Area, including NIFA, and such services include: supporting agricultural research and information; advancing scientific knowledge relating to agriculture; enhancing access to agricultural information; providing statistical information and research results to farmers, ranchers, agribusiness, and public officials; and assisting research, education, and extension programs in land-grant colleges and universities (as defined in section 3103 of Title 7).

Goal: To use Research and Education, Extension, and Integrated Activities resources for the Experienced Services Program.

***Table NIFA-11. Change in Funding (thousands of dollars)***

Item	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	10 Year Total
Budget Authority ...	-	-	-	-	-	-	-	-	-	-	-
Outlays .....	-	-	-	-	-	-	-	-	-	-	-

Program: *Expanded Food and Nutrition Education Program (EFNEP)*, 7 U.S.C 3175

Current legislative authority to be amended: 2024 Budget Request – National Institute of Food and Agriculture; Section 1425 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977

Proposal: Revision of the statutory formula for allocation of EFNEP appropriated funding amongst states.

Rationale: The Food, Conservation, and Energy Act of 2008 (P.L. 110-246) was the last statutory revision made to the Food and Nutrition Education Program, amending the authority to provide the 1862 and 1890 land-grant institutions opportunities to compete for resources. In August 2019, the Office of the Inspector General (OIG) published Audit Report 13601-0001-22, with findings from an audit that reviewed controls to determine whether NIFA allocated its Capacity program funds accurately and used funding calculation methods that complied with statutory formulas. In the report the OIG recommended that NIFA perform an analysis and make a recommendation on whether to submit a legislative proposal to revise the EFNEP statutory formula that would allow the use of the most recent decennial Census poverty data to calculate its distribution of funds to States.

This proposal is in response to the OIG Audit recommendations, a NIFA convened workgroup findings, and options presented to the Subcabinet and the Secretary. The revision recommendations align with the USDA Strategic Plan Fiscal Years 2022-2026, specifically supporting advancing racial justice, equity, and opportunity; and tackling food and nutrition security while maintaining a safe food supply. Furthermore, it aligns with the NIFA 2022-2026 Strategic Plan to enhance opportunities in underserved communities and tackling food and nutrition security.

Revise the statutory formula, to authorize any funds annually appropriated in excess of the amount appropriated in 2023, shall be allocated as follows:

- 1) add: “allocated among the states to provide a baseline for 1890s equivalent to the respective 1862s baseline from FY 1981”,
- 2) retain: “four percent (4%) for administrative, technical, and other services necessary for the administration of the program”,
- 3) modify: “\$150,000 to be distributed for District of Columbia and Insular Areas (excluding Puerto Rico which already has an established baseline)”, and
- 4) remove: “7 USC 3175(d)(2)(B)(iii)(I).

Goal: Establishes a full 1981 baseline for the 1890s. Maintains 1862 funding levels at 2023 levels. Provides a baseline for District of Columbia and the remaining Insular Areas at \$150,000. Provides funding to the 1890s to reach additional participants.

Administrative/Appropriation/Authorizing: Requires a legislative change in the Authorizing language.

***Table NIFA-12. Change in Funding Due to Additional Discretionary Appropriation (thousands of dollars)***

Item	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	10 Year Total
Budget Authority	\$16,000	-	-	-	-	-	-	-	-	-	\$16,000
Outlays ...	4,4276	\$6,584	\$2,713	\$1,201	\$640	\$320	\$160	\$33	\$21	\$52	16,000

**GEOGRAPHIC BREAKDOWN OF OBLIGATIONS****Table NIFA-13. Geographic Breakdown of Obligations (thousands of dollars)**

2022 ACTUALS

**DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS**

State/ Territory	Hatch Form	Regional Research Multi-State	Total	Coop Forestry (MS)	1890 Colleges & TUSK (EA)	Animal Health & Disease Rsch	Special Rsch & Other Grants	Comp Rsch Grants	Higher Ed Grants	Total
AK .....	\$1,121	\$206	\$1,328	\$619	-	-	-	-	\$2,192	\$4,139
AL .....	4,067	1,210	5,277	1,191	\$7,496	\$60	\$298	\$4,434	8,450	27,207
AR .....	3,460	1,060	4,520	971	3,241	100	383	3,803	1,453	14,471
AS .....	1,821	-	1,821	46	-	-	-	-	400	2,268
AZ .....	1,584	1,090	2,674	465	-	42	269	4,673	2,991	11,115
CA .....	4,903	2,331	7,234	883	-	267	125	29,158	6,166	43,833
CO .....	2,241	1,424	3,665	332	-	191	-	-	-	4,189
CT .....	1,656	719	2,375	443	-	11	109	10,039	558	13,534
DC .....	795	155	950	-	-	-	320	-	-	1,270
DE .....	1,186	538	1,723	178	1,553	20	557	2,946	6,793	13,770
FL .....	3,153	962	4,115	1,037	3,113	73	537	11,120	5,208	25,203
FM .....	1,906	-	1,906	-	-	-	-	-	-	1,906
GA .....	4,623	1,847	6,470	1,213	4,298	88	10,628	11,717	1,905	36,318
GU .....	1,861	177	2,038	68	-	-	-	-	400	2,506
HI .....	1,170	553	1,723	288	-	4	950	1,459	2,162	6,586
IA .....	5,657	2,290	7,947	575	-	300	2,808	12,648	577	24,853
ID .....	2,025	874	2,899	707	-	57	1,090	9,201	553	14,508
IL .....	5,683	1,498	7,181	553	-	50	4,034	7,153	442	19,412
IN .....	5,480	1,279	6,759	597	-	55	-	13,983	250	21,644
KS .....	3,467	1,153	4,620	376	-	141	221	7,526	1,048	13,933
KY .....	5,413	1,277	6,690	751	5,143	54	-	3,105	3,448	19,189
LA .....	3,110	1,001	4,110	1,103	2,765	48	-	3,073	5,070	16,169
MA .....	1,933	920	2,853	420	-	44	382	20,158	50	23,907
MD .....	2,322	942	3,265	443	2,185	31	2,493	4,805	5,540	18,762
ME .....	1,788	749	2,537	971	-	18	1,194	2,878	-	7,597
MH .....	-	-	-	-	-	-	-	-	165	165
MI .....	5,502	1,320	6,822	1,037	-	76	1,305	12,762	984	22,985
MN .....	5,372	1,316	6,688	861	-	183	-	-	-	7,732
MO .....	5,357	1,175	6,532	729	5,465	90	10,638	6,798	629	30,882
MP .....	1,813	-	1,813	-	-	-	500	9,502	1,655	13,470
MS .....	3,926	1,223	5,150	1,169	3,398	110	-	-	-	9,827
MT .....	1,964	963	2,926	641	-	33	950	6,901	1,969	13,420
NC .....	6,644	2,281	8,925	1,103	5,800	145	10,155	5,073	1,600	32,801
ND .....	2,259	886	3,145	200	-	22	13,910	17,321	7,598	42,197
NE .....	3,196	1,513	4,709	310	-	122	1,088	2,172	1,486	9,888
NH .....	1,439	539	1,978	509	-	8	1,953	7,781	772	13,001
NJ .....	1,931	1,089	3,020	443	-	12	-	1,666	-	5,140
NM .....	1,613	580	2,193	310	-	31	-	2,554	-	5,089
NV .....	1,116	777	1,893	134	-	13	34	3,842	2,164	8,081
NY .....	5,083	2,285	7,368	773	-	92	35	4,365	231	12,864
OH .....	6,636	1,426	8,062	685	4,912	89	181	20,748	490	35,165
OK .....	3,468	870	4,338	663	3,599	79	1,342	17,928	2,500	30,449
OR .....	2,652	1,363	4,016	1,147	-	71	-	7,350	2,128	14,712
PA .....	6,252	1,812	8,064	795	-	119	-	8,233	351	17,562

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

State/ Territory	Hatch Form	Regional Research Multi-State	Total	Coop Forestry (MS)	1890 Colleges & TUSK (EA)	Animal Health & Disease Rsch	Special Rsch & Other Grants	Comp Rsch Grants	Higher Ed Grants	Total
PR.....	4,359	1,077	5,437	112	-	10	87	15,031	-	20,677
PW.....	-	-	-	-	-	-	-	1,250	2,480	3,730
RI.....	1,073	558	1,631	178	-	29	-	-	200	2,038
SC.....	3,464	1,142	4,606	971	3,107	26	97	966	-	9,773
SD.....	2,435	893	3,329	288	-	73	421	4,083	1,005	9,200
TN.....	5,147	1,239	6,385	839	4,873	55	3,252	4,021	471	19,896
TX.....	7,472	1,762	9,234	993	7,886	260	-	9,740	7,463	35,575
UT.....	1,405	1,058	2,464	222	-	32	1,530	20,001	8,076	32,326
VA.....	4,371	1,143	5,515	1,081	4,064	54	855	2,714	-	14,283
VI.....	1,836	173	2,009	46	-	-	285	13,392	1,548	17,281
VT.....	1,491	472	1,963	487	-	12	-	-	-	2,462
WA.....	2,884	2,248	5,132	1,059	-	95	10,155	5,101	-	21,542
WI.....	5,446	1,302	6,749	839	-	93	2,259	11,115	951	22,005
WV.....	2,675	785	3,460	707	2,219	9	373	12,520	1,701	20,990
WY.....	1,354	768	2,122	244	-	21	-	5,174	3,823	11,384
SBIR – STTR.....	-	-	-	-	-	-	-	-	-	23,447
BRAG.....	-	-	-	-	-	-	-	-	-	3,648
Fed Admin Direct..	-	-	-	-	-	-	-	-	-	15,000
Fed Admin.....	-	-	-	-	-	-	-	-	-	43,677
<b>Obligations.....</b>	<b>184,065</b>	<b>60,293</b>	<b>244,358</b>	<b>33,803</b>	<b>75,117</b>	<b>3,717</b>	<b>87,804</b>	<b>403,987</b>	<b>108,096</b>	<b>1,042,654</b>

**Table NIFA-14. Geographic Breakdown of Obligations (thousands of dollars)**

2023 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

	Hatch Form	Regional Research Multi-State	Total	Coop Forestry (MS)	1890 Colleges & TUSK (EA)	Animal Health & Disease Rsch	Special Rsch & Other Grants	Comp Rsch Grants	Higher Ed Grants	Total
Fed Admin.....	\$5,863	\$1,907	\$7,770	\$1,175	\$2,670	\$160	\$24,676	\$24,684	\$5,603	\$66,738
Distribution Unknown.....	193,750	63,480	257,230	36,825	86,330	3,840	96,945	430,316	115,897	1,027,383
<b>Total Obligations.....</b>	<b>199,612</b>	<b>65,388</b>	<b>265,000</b>	<b>38,000</b>	<b>89,000</b>	<b>4,000</b>	<b>121,621</b>	<b>455,000</b>	<b>121,500</b>	<b>1,094,121</b>

**Table NIFA-15. Geographic Breakdown of Obligations (thousands of dollars)**

2024 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR RESEARCH AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

	Hatch Form	Regional Research Multi-State	Total	Coop Forestry (MS)	1890 Colleges & TUSK (EA)	Animal Health & Disease Rsch	Special Rsch & Other Grants	Comp Rsch Grants	Higher Ed Grants	Total
Fed Admin.....	\$5,863	\$1,907	\$7,770	\$1,175	\$2,940	-	\$29,239	\$29,506	\$5,620	\$76,250
Distribution Unknown.....	193,750	63,480	257,230	36,825	95,060	-	104,160	520,494	125,080	1,138,849
<b>Total Obligations.....</b>	<b>199,612</b>	<b>65,388</b>	<b>265,000</b>	<b>38,000</b>	<b>98,000</b>	<b>-</b>	<b>133,399</b>	<b>550,000</b>	<b>130,700</b>	<b>1,215,099</b>



**Table NIFA-16. Geographic Breakdown of Obligations (thousands of dollars)**

2022 ACTUALS

DISTRIBUTION OF FEDERAL PAYMENTS FOR EXTENSION AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

State/ Territory	Smith- Lever Form.	1890s and TUSK	EFNEP	Children, Youth, Families at Risk	New Tech at Ag Ext	Fed Recog Tribes Ext	Farm Safety & Youth Ed & Cert	Food Safety Outreach	Renew. Res. Ext Act	Other	Rural Health Safety Ed	1890 Facilities	Indian Tribal 1994 Colleges	Total
AK.....	\$1,320	-	\$266	\$140	-	\$267	\$184	-	\$97	-	-	-	\$246	\$2,520
AL.....	7,507	\$5,960	2,253	-	-	-	-	\$550	120	\$810	-	\$2,077	-	19,276
AR.....	6,297	2,610	1,443	-	-	-	-	550	95	1,020	\$349	986	-	13,350
AS.....	1,926	-	104	-	-	-	-	-	-	-	-	-	-	2,030
AZ.....	2,290	-	756	220	-	630	-	205	64	76	-	-	492	4,732
CA.....	8,522	-	3,825	280	-	-	-	655	96	15,480	-	-	-	28,857
CO.....	3,537	-	688	220	-	-	183	-	58	60	350	-	-	5,096
CT.....	2,347	-	552	-	-	90	-	-	46	60	350	-	-	3,445
DC.....	1,243	-	114	-	-	-	-	200	14	220	-	-	-	1,791
DE.....	1,430	1,415	418	-	-	-	-	-	60	-	-	764	-	4,086
FL.....	5,125	2,604	2,574	-	-	157	184	-	96	2,138	-	1,000	-	13,879
FM.....	2,072	-	109	-	-	-	-	-	-	-	-	-	-	2,181
GA.....	8,566	3,517	2,461	-	-	-	184	550	108	1,179	-	1,094	-	17,658
GU.....	1,988	-	105	-	-	-	-	-	14	-	-	-	-	2,108
HI.....	1,474	-	353	140	-	-	-	205	46	1,605	-	-	-	3,823
IA.....	10,142	-	973	140	-	-	-	400	46	566	350	-	-	12,617
ID.....	3,116	-	397	420	-	270	-	-	52	610	-	-	-	4,865
IL.....	10,267	-	2,252	-	-	-	184	400	55	3,824	-	-	-	16,982
IN.....	9,762	-	1,319	140	-	-	719	300	54	60	-	-	-	12,353
KS.....	6,002	-	778	-	-	-	-	-	46	210	350	-	246	7,631
KY.....	9,881	4,348	1,850	140	-	-	-	-	83	797	350	-	-	17,449
LA.....	5,491	2,246	2,036	-	-	-	-	-	85	809	-	914	-	11,581
MA.....	2,879	-	1,064	-	-	-	-	400	46	560	-	-	-	4,949
MD.....	3,637	1,835	1,054	140	-	-	-	205	60	985	-	879	-	8,795
ME.....	2,594	-	506	140	-	-	184	-	59	877	-	-	-	4,359
MH.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MI.....	9,812	-	1,927	-	-	90	184	-	80	755	-	-	738	13,586
MN.....	9,585	-	1,082	-	-	-	-	-	65	-	-	-	-	10,732
MO.....	9,711	4,663	1,766	1,080	-	90	-	-	89	2,198	-	-	1,184	20,781
MP.....	1,913	-	104	140	-	-	184	1,155	-	60	350	1,292	-	5,197
MS.....	7,341	2,677	1,870	-	-	-	-	-	103	-	-	-	-	11,992
MT.....	3,027	-	388	-	-	90	-	300	61	931	350	966	-	6,112
NC.....	12,450	4,860	2,793	280	-	354	-	-	105	60	-	-	1,850	22,751
ND.....	3,682	-	423	799	-	92	184	-	46	2,742	-	1,221	-	9,189
NE.....	5,441	-	619	280	-	179	-	450	46	-	350	-	1,321	8,685
NH.....	1,901	-	329	140	-	-	292	-	46	7,621	-	-	492	10,821
NJ.....	2,880	-	1,172	-	-	-	-	205	46	60	-	-	-	4,362
NM.....	2,372	-	611	-	-	-	-	400	68	50	-	-	-	3,500
NV.....	1,374	-	308	-	-	87	184	-	49	436	-	-	830	3,267
NY.....	8,991	-	3,512	-	-	262	-	-	87	-	-	-	-	12,851
OH.....	12,007	4,455	2,490	140	-	-	-	410	76	6,343	-	-	-	25,921
OK.....	6,190	2,944	1,261	560	-	-	355	-	80	304	-	1,416	-	13,109
OR.....	4,225	-	622	560	\$3,408	180	-	-	88	14,215	350	1,081	246	24,975
PA.....	11,252	-	2,754	-	-	85	-	-	78	5,611	-	-	-	19,780

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State/ Territory	Smith- Lever Form.	1890s and TUSK	EFNEP	Children, Youth, Families at Risk	New Tech at Ag Ext	Fed Recog Tribes Ext	Farm Safety & Youth Ed & Cert	Food Safety Outreach	Renew. Res. Ext Act	Other	Rural Health Safety Ed	1890 Facilities	Indian Tribal 1994 Colleges	Total
PR.....	7,357	-	1,491	-	-	-	184	-	14	60	253	-	-	9,358
PW.....	-	-	-	-	-	-	-	-	-	836	-	-	-	836
RI.....	1,207	-	391	-	-	-	-	-	46	-	-	-	-	1,644
SC.....	6,132	2,484	1,736	140	-	-	-	205	86	6,401	-	-	-	17,184
SD.....	3,942	-	467	280	-	-	177	-	46	60	-	952	-	5,924
TN.....	9,447	4,032	2,194	280	-	90	184	-	87	735	-	-	738	17,787
TX.....	14,335	6,495	4,792	140	-	-	184	-	112	2,500	-	1,187	-	29,746
UT.....	1,967	-	423	140	-	-	184	300	51	3,836	-	1,647	-	8,547
VA.....	7,835	3,343	1,894	-	-	-	136	-	99	89	-	-	-	13,397
VI.....	1,952	-	103	280	-	-	184	205	14	370	348	1,082	-	4,538
VT.....	2,037	-	322	-	-	-	-	-	46	-	-	-	-	2,405
WA.....	4,698	-	827	140	-	-	-	950	84	60	-	-	-	6,758
WI.....	9,716	-	1,059	140	-	171	184	-	77	2,892	350	-	246	14,834
WV.....	4,475	1,912	1,145	420	-	90	180	400	70	60	-	-	492	9,242
WY.....	1,815	-	278	-	-	-	-	-	48	276	350	900	-	3,667
SBIR – STTR.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BRAG.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fed Admin Direct.....	-	-	-	-	-	-	-	-	-	-	-	-	-	9,000
Fed Admin....	-	-	-	-	-	-	-	-	-	-	-	-	-	50,111
Distrib. Unknown.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Obligation....</b>	<b>310,480</b>	<b>62,400</b>	<b>69,401</b>	<b>8,059</b>	<b>3,408</b>	<b>3,273</b>	<b>4,800</b>	<b>9,600</b>	<b>3,593</b>	<b>91,499</b>	<b>4,800</b>	<b>19,457</b>	<b>9,120</b>	<b>659,000</b>
Lapsing Balances .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rescinded Balances .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bal. Available, EOY.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total, Available.....</b>	<b>310,480</b>	<b>62,400</b>	<b>69,401</b>	<b>8,059</b>	<b>3,408</b>	<b>3,273</b>	<b>4,800</b>	<b>9,600</b>	<b>3,593</b>	<b>91,499</b>	<b>4,800</b>	<b>19,457</b>	<b>9,120</b>	<b>659,000</b>

**Table NIFA-17. Geographic Breakdown of Obligations (thousands of dollars)**

2023 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR EXTENSION AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

State/ Territory	Smith- Lever Form.	1890s and TUSK	EFNEP	Children, Youth, Families at Risk	New Tech at Ag Ext	Fed Recog Tribes Ext	Farm Safety & Youth Ed & Cert	Food Safety Outreach	Renew. Res. Ext Act	Other	Rural Health Safety Ed	1890 Facilities	Indian Tribal 1994 Colleges	Total
Fed Admin.....	\$9,261	\$2,880	\$599	\$362	\$154	\$172	\$204	\$427	\$171	\$15,030	\$214	\$880	\$445	\$30,800
Distribution Unknown.....	315,739	69,120	69,401	8,033	3,396	4,133	4,796	9,573	3,889	103,383	4,786	20,620	10,555	627,423
<b>Total Obligation.....</b>	<b>325,000</b>	<b>72,000</b>	<b>70,000</b>	<b>8,395</b>	<b>3,550</b>	<b>4,305</b>	<b>5,000</b>	<b>10,000</b>	<b>4,060</b>	<b>118,413</b>	<b>5,000</b>	<b>21,500</b>	<b>11,000</b>	<b>658,223</b>

**Table NIFA-18. Geographic Breakdown of Obligations (thousands of dollars)**

2024 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR EXTENSION AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

State/ Territory	Smith- Lever Form.	1890s and TUSK	EFNEP	Children, Youth, Families at Risk	New Tech at Ag Ext	Fed Recog Tribes Ext	Farm Safety & Youth Ed & Cert	Food Safety Outreach	Renew. Res. Ext Act	Other	Rural Health Safety Ed	1890 Facilities	Indian Tribal 1994 Colleges	Total
Fed Admin.....	\$9,261	\$2,880	\$599	\$362	\$154	\$172	\$204	\$427	\$171	\$15,030	\$214	\$880	\$445	\$30,800
Distribution Unknown.....	315,739	69,120	69,401	8,033	3,396	4,133	4,796	9,573	3,889	103,383	4,786	20,620	10,555	627,423
<b>Total Obligation.....</b>	<b>325,000</b>	<b>72,000</b>	<b>70,000</b>	<b>8,395</b>	<b>3,550</b>	<b>4,305</b>	<b>5,000</b>	<b>10,000</b>	<b>4,060</b>	<b>118,413</b>	<b>5,000</b>	<b>21,500</b>	<b>11,000</b>	<b>658,223</b>

**Table NIFA-19. Geographic Breakdown of Obligations (thousands of dollars)**

2022 ACTUALS

DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

State/ Territory	Food And Agriculture Defense Initiative (Formerly Homeland Security)	Methyl Bromide	Organic Transition - Risk Assessment	Crop Protection/ Pest Management	Regional Rural Development Centers	Specialty Crop Research Initiative	Emergency Citrus Disease Research and Development Trust Fund	Organic Agricultural Research and Ext Initiative	Total
AK.....	-	-	-	\$132	-	-	-	-	\$132
AL.....	-	-	-	254	-	-	-	-	254
AR.....	-	-	-	180	-	\$50	-	-	230
AZ.....	-	-	-	285	-	-	-	-	285
CA.....	\$858	-	-	1,593	-	13,334	-	\$750	16,535
CO.....	-	-	-	455	-	-	-	3,750	4,205
CT.....	-	-	-	221	-	-	-	-	221
DE.....	-	-	-	200	-	-	-	-	200
FL.....	617	-	-	-	-	-	-	-	617
FM.....	-	\$941	\$750	651	-	9,841	-	2,080	14,262
GA.....	250	-	499	255	-	50	-	-	1,054
GU.....	-	-	-	15	-	-	-	-	15
HI.....	-	-	-	58	-	1,369	-	-	1,427
IA.....	250	-	-	1,569	-	-	-	-	1,819

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State/ Territory	Food And Agriculture Defense Initiative (Formerly Homeland Security)	Methyl Bromide	Organic Transition - Risk Assessment	Crop Protection/ Pest Management	Regional Rural Development Centers	Specialty Crop Research Initiative	Emergency Citrus Disease Research and Development Trust Fund	Organic Agricultural Research and Ext Initiative	Total
ID .....	-	-	-	258	-	1,572	-	-	1,829
IL .....	-	-	750	208	-	3,947	-	1,499	6,404
IN .....	652	-	-	273	\$599	-	-	1,500	3,024
KS .....	798	-	-	205	-	-	-	1,500	2,502
KY .....	250	-	-	186	-	-	-	-	436
LA .....	250	-	-	401	-	-	-	-	651
MA .....	-	-	-	272	-	-	-	-	272
MD .....	-	-	-	680	-	-	-	2,997	3,678
ME .....	472	-	-	140	-	-	-	2,970	3,582
MH .....	-	-	-	140	-	-	-	2,970	3,110
MI .....	767	-	-	502	-	3,482	-	-	4,750
MO .....	250	-	-	225	-	2,538	-	-	3,013
MP .....	250	-	-	161	-	-	-	749	1,161
MT .....	-	-	-	164	599	4,857	-	-	5,620
NC .....	-	-	-	255	-	-	-	-	255
ND .....	250	-	-	1,611	-	-	-	-	1,861
NE .....	-	-	-	228	-	-	-	-	228
NH .....	250	-	-	171	-	-	-	-	421
NJ .....	-	-	-	468	-	-	-	-	468
NM .....	-	-	-	173	-	3,210	-	-	3,383
NV .....	-	-	1,495	165	-	4,000	-	-	5,660
NY .....	-	-	-	141	-	-	-	-	141
OH .....	250	-	750	1,437	-	-	-	3,049	5,486
OK .....	250	-	-	185	-	3,774	-	-	4,209
OR .....	-	-	-	56	-	-	-	-	56
PA .....	-	442	-	362	-	50	-	-	854
PR .....	-	-	-	347	599	-	-	1,500	2,446
PW .....	-	-	-	186	-	-	-	-	186
SC .....	-	-	-	76	-	-	-	-	76
SD .....	-	-	747	174	-	-	-	-	921
TN .....	250	-	750	209	-	-	-	-	1,209
TX .....	-	-	688	786	-	2,553	-	750	4,778
UT .....	250	-	-	568	-	4,033	-	454	5,304
VA .....	-	-	-	143	599	-	-	-	742
VI .....	-	496	-	496	-	-	-	-	992
WA .....	-	-	-	165	-	-	-	-	165
WI .....	250	-	-	702	-	7,177	-	1,500	9,629
WV .....	250	-	-	224	-	4,151	-	1,499	6,124
WY .....	-	-	750	51	-	-	-	-	801
SBIR – STTR .....	-	-	-	-	-	-	-	-	213
BRAG .....	-	-	-	-	-	-	-	-	469
Fed Admin ...	-	-	-	-	-	-	-	-	6,632
<b>Obligation ...</b>	<b>7,664</b>	<b>1,879</b>	<b>7,179</b>	<b>19,063</b>	<b>2,396</b>	<b>69,987</b>	<b>-</b>	<b>29,517</b>	<b>145,000</b>

*Table NIFA-20. Geographic Breakdown of Obligations (thousands of dollars)*

2023 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED AT STATE AGRICULTURAL  
EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

2024 USDA EXPLANATORY NOTES – NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

	Food And Agriculture Defense Initiative (Formerly Homeland Security)	Methyl Bromide	Organic Transition - Risk Assessment	Crop Protection/ Pest Management	Regional Rural Development Centers	Specialty Crop Research Initiative	Emergency Citrus Disease Research and Development Trust Fund	Organic Agricultural Research and Ext Initiative	Total
STTR.....	-	\$6	\$21	\$23	\$8	\$202	\$76	\$122	\$459
SBIR.....	-	43	152	161	55	1,394	527	843	3,175
Biotech Risk...	-	-	-	-	-	452	242	17	711
Fed Admin .....	\$320	90	327	840	120	3,142	977	1,961	7,777
Distribution Unknown.....	7,680	1,910	7,173	20,160	2,880	72,298	22,598	45,189	179,888
<b>Total Obligations....</b>	<b>8,000</b>	<b>2,049</b>	<b>7,673</b>	<b>21,184</b>	<b>3,063</b>	<b>77,488</b>	<b>24,420</b>	<b>48,132</b>	<b>192,010</b>

**Table NIFA-21. Geographic Breakdown of Obligations (thousands of dollars)**

2024 ESTIMATED

DISTRIBUTION OF FEDERAL PAYMENTS FOR INTEGRATED AT STATE AGRICULTURAL EXPERIMENT STATIONS & OTHER STATE INSTITUTIONS

	Food And Agriculture Defense Initiative (Formerly Homeland Security)	Methyl Bromide	Organic Transition - Risk Assessment	Crop Protection/ Pest Management	Regional Rural Development Centers	Specialty Crop Research Initiative	Emergency Citrus Disease Research and Development Trust Fund	Organic Agricultural Research and Ext Initiative	Total
STTR.....	-	\$6	\$21	\$23	\$8	\$202	-	\$122	\$382
SBIR.....	-	43	152	161	55	1,394	-	843	2,648
Biotech Risk...	-	-	-	-	-	452	-	17	469
Fed Admin .....	\$320	90	327	840	120	3,142	-	1,961	6,800
Distribution Unknown.....	7,680	1,910	7,173	20,160	2,880	72,298	-	45,189	157,290
<b>Total Obligations....</b>	<b>8,000</b>	<b>2,049</b>	<b>7,673</b>	<b>21,184</b>	<b>3,063</b>	<b>77,488</b>	<b>-</b>	<b>48,132</b>	<b>167,590</b>

**CLASSIFICATION BY OBJECTS**

*Table NIFA-22 Classification by Objects (thousands of dollars)*

Item No.	Item	2021 Actual	2022 Actual	2023 Estimated	2024 Estimated
Personnel Compensation:					
	Washington D.C. ....	\$3,070	\$2,354	\$2,743	\$2,829
	Personnel Compensation, Field .....	22,727	29,456	36,438	37,587
11	Total personnel compensation .....	25,797	31,810	39,181	40,416
12	Personal benefits.....	10,414	12,625	14,607	16,112
13.0	Benefits for former personnel.....	-	56	-	-
	Total, personnel comp. and benefits .....	36,211	44,491	53,788	56,528
Other Objects:					
21.0	Travel and transportation of persons .....	60	483	1,023	1,023
22.0	Transportation of things.....	170	470	47	100
23.1	Rental payments to GSA .....	1,334	116	1,042	1,152
23.3	Communications, utilities, and misc. charges.....	287	474	418	446
24.0	Printing and reproduction .....	23	22	72	72
25.1	Advisory and assistance services.....	-	330	-	-
25.2	Other services from non-Federal sources .....	10,088	38,149	26,547	10,726
25.3	Other goods and services from Federal sources.....	1,971	1,719	2,091	2,045
25.4	Operation and maintenance of facilities .....	2,499	-	-	-
25.5	Research and development contracts .....	31,452	972	16,368	36,816
25.7	Operation and maintenance of equipment .....	185	238	212	212
26.0	Supplies and materials .....	28	43	203	203
31.0	Equipment .....	-	36	31	31
41.0	Grants, subsidies, and contributions .....	1,956,532	1,784,880	2,745,715 <sup>1</sup>	1,972,709
42.0	Insurance Claims and Indemnities.....	-	10	-	-
	Total, Other Objects .....	2,004,629	1,827,942	2,793,769	2,025,535
99.9	Total, new obligations .....	2,040,840	1,872,433	2,847,557	2,082,063
	DHS Building Security Payments (included in 25.3) .....	\$984	\$1,089	\$1,166	\$1,201
Information Technology Investments:					
	<b>Mission Area Non-Major Investment Totals.....</b>	15,777	18,998	21,658	24,048
25.3	Mission Area WCF Transfers.....	2,991	2,782	4,048	3,242
	Total Non-Major Investment .....	18,768	21,780	25,706	27,290
	<b>Total IT Investments .....</b>	<b>18,768</b>	<b>21,780</b>	<b>25,706</b>	<b>27,290</b>
Position Data:					
	Average Salary (dollars), ES Position .....	\$190,873	\$237,310	\$243,242	\$250,540
	Average Salary (dollars), GS Position.....	\$110,607	\$145,025	\$148,650	\$153,110
	Average Grade, GS Position.....	12.3	12.1	12.1	12.1

<sup>1</sup> Supplemental funding for Bioproduct Pilot Program is reflected in 2022 through 2023 Object Class 41.0.

## **STATUS OF PROGRAMS**

### **Current Activities**

#### Research and Education Activities

Selected Examples of Recent Progress

#### **Hatch Act**

The purpose of the Hatch Act of 1887 is to fund agricultural research programs at State Agricultural Experiment Stations within the 50 states, the District of Columbia, and the U.S. insular Areas. The specific purpose of Hatch Multistate Research Funds is to support research by institutions within a State and by institutions in multiple States to solve problems that concern more than one State.

Examples of Hatch funded research include:

Controlling Agricultural Nutrient Runoff with Wetlands in New York without Producing Greenhouse Gases. In the Empire State, one Hatch Act-funded project sought to better understand the role of alder trees in restoring wetlands while mitigating greenhouse gas emissions. Since 1900, New York state has lost 60 percent of its wetlands as land was cleared for agriculture. Wetlands help improve water quality, store carbon, prevent soil erosion and provide habitat for many species. Cleared wetlands quickly lose agricultural productivity as soils erode away.

The researchers took soil samples at the site of a wetland restoration project near Ithaca, New York, that includes abandoned agricultural land and is located near active crop cultivation and animal agriculture. They sampled three areas: an undisturbed wetland, a previously farmed returning wetland and a present-day farm. After analyzing those soil samples, the researchers mimicked soil microbial interactions in laboratory studies to understand how soil microorganism activity and growth rates react in the presence of alder trees, other plants that can use atmospheric nitrogen (“nitrogen-fixing plants”) and plants that don’t use that type of nitrogen as effectively.

The research found that alder trees do help mitigate greenhouse gas emissions as wetlands recover; even though the soil microorganisms were producing more nitrogen, the trees were taking it up before it could be released into the atmosphere. Wetlands reforestation with nitrogen-fixing plants like alder trees also aids soil recovery, but slowly: The researchers project that restored wetlands at the site will need 26-32 years of tree growth to recover to 90 percent of their original capacity.

Developing More Profitable Wheat Varieties for Illinois Farmers. Corn-soybean rotation is the predominant system across the North Central Midwest. While including winter wheat in the rotation helps reduce impacts on the environment, farmers often avoid growing winter wheat because it can be unprofitable. This project helped make growing winter wheat in the North Central Midwest economically viable to promote more sustainable farming practices.

The research team implemented a redesigned wheat breeding strategy to achieve faster rates of genetic improvement for economically important traits, which resulted in a more significant impact on the profitability of wheat production over time. This new breeding strategy was also carried out at all stages to generate a steady stream of improved wheat varieties for seedsmen and farmers, who rely on germplasm from the breeding program to sell seed of new varieties. Without new breeding lines, seedsmen would not have a viable business.

#### **McIntire-Stennis Cooperative Forestry Act**

The purpose of the McIntire-Stennis Cooperative funding is to increase forestry research in the production, utilization, and protection of forestland; to train future forestry scientists; and to involve other disciplines in forestry research. The program assist all states in carrying out a program of state forestry research at state forestry schools and colleges and developing a trained pool of forest scientists capable of conducting needed forestry research under the following research topics: 1) Reforestation and management of land for the production of crops of timber and other related products of the forest; 2) Management of forest and related watershed lands to improve conditions of water flow and to protect resources against floods and erosion; 3) Management of forest and related rangeland for production of forage for domestic livestock and game and improvement of food and habitat for wildlife; 4) Management of forest lands for outdoor recreation; 5) Protection of forest land and resources against fire, insects, diseases, or other destructive agents; 6) Utilization of wood and other forest products; and 7) Development of sound policies for the management of forest lands and the harvesting and marketing of forest products.

Examples of McIntire-Stennis funded research include:

Managing Non-Timber Forest Resources in Ohio. At Ohio State University, the McIntire-Stennis funding provided resources to help the Buckeye State manage its non-timber forest resources through local, state, and federal initiatives. The university's maple program launched an Ohio State Maple website, formed the tri-state Southern Tier collaboration with Penn State University and Future Generations University (West Virginia), and offered Ohio Maple Days in December 2021.

Ohio has nearly 8 million acres of forest land, 85 percent of which is in private ownership and the remaining 15 percent in state and federal ownership. Healthy forests are critical for sustaining biodiversity and wildlife habitat, and support over 124,000 jobs in Ohio's \$12 billion forest products industry. Additionally, thousands of Ohio woodland owners derive some or all of their annual income from non-timber forest products. Exponentially more Ohioans take to the woods to cut down their own Christmas tree, search for pawpaws, or tap a single maple or two in their backyard as a hobby or recreational pursuit. In some regions, these activities have deep cultural importance. Woodland and forests are also used for livestock production systems through woodland and conservation grazing.

In Ohio, these McIntire-Stennis efforts have enhanced existing producers' operations and sparked new producers. Field research targets additional maple species (not sugar maple) for production in anticipation of increased climatic stressors and fostering industry resilience. Hands-on field experience for students has been a highlight of the maple work in recent years.

Developing an Extension Forestry Program in Louisiana. In Louisiana, McIntire-Stennis capacity funding supported the development of an Extension forestry program to help forest owners and managers better manage forest-based resources so that they can be sustained both environmentally and economically.

It is estimated that Louisiana possesses over 140,000 private non-industrial forest landowners, and farm-based income from timber harvests constitutes the greatest input to the state's agriculture sector. Forestry workshops aimed at landowners and natural resource professionals were held in all regions of the state. Topics at these workshops consisted of forest product market trends, tax issues important for forest landowners, state and federal policy changes that affect forestry and wildlife management, invasive species, forest pests, silviculture, wildlife management, and cost share programs helpful for forest landowners.

### **Evans Allen research at 1890 Institutions**

The Evans-Allen Act of 1977 provides capacity funding for food and agricultural research at the 1890 Land-grant Universities (LGUs), in a manner similar to that provided to the 1862 LGUs under the Hatch Act of 1887. Research conducted under the Evans-Allen Program has led to hundreds of scientific breakthroughs that benefit minority farmers, stakeholders of the 1890 LGUs and the nation as a whole. Evans-Allen Program funding at the 1890 LGUs benefits the nation through:

- Improved nutrition and health of urban and rural populations with an emphasis on obesity.
- Development of economically competitive and sustainable small-scale agricultural systems.
- Improved crop diversity and alternative crops and marketing strategies for farmers.
- Increased biobased energy production.
- Greater food safety and improved nutritional quality.
- Better natural resource and environmental stewardship.
- Creation of new value-added plant and animal products.

The program maintains a focus on the education of students from minority and economically disadvantaged communities to prepare a strong and diverse agricultural workforce. Hence, the Evans-Allen Program has been extremely important in allowing 1890 LGUs to attract top-notch scientists to their campuses, conduct high-quality research, and become more fully integrated within the LGU system.

Examples of Evans-Allen-funded research include the following:

Recent data indicate that 90 percent of farms in the U.S. are considered small family operations, however these small operations accounted for only 24 percent of the value of production. Researchers at Tennessee State University conducted surveys to identify problems, issues, barriers and opportunities to improve efficiency and productivity of small farm enterprises. Crop budgets and farm financial decision-making tools were developed to assist small and limited-resource producers in decision making. The work has shown that, for instance, the investment of \$2,500 - \$3,000 for a small-scale processing plant can improve farm profit in the range of \$80 to \$137 per acre.



Researchers at North Carolina A&T State University are investigating sustainable agricultural practices that minimize use of pesticides while reducing losses from insect damage, as well as the potential for using sweet potato leaves in the prevention of breast cancer. Results have shown that intercropping reduced pest damage and favored higher root and leaf yields of sweet potatoes, compared to no intercropping. Intercropping also increased the corn yield. The result also showed that harvesting leaves from sweet potato plants did not affect the root yield. Finally, the results suggested that sweet potato leaf extracts have anti-oncogenic properties that prevent cell proliferation and migration in breast cancer cells.

### **Scholarships for Students at 1890 Institutions**

The purpose of the 1890 Scholarships Program is to support the recruiting, engaging, retaining, mentoring, and training of undergraduate students at 1890 LGUs, resulting in baccalaureate degrees in the food and agricultural sciences and related fields. By developing a highly skilled workforce, the 1890 Scholarships Program helps facilitate rural prosperity and economic development aligning with USDA’s strategic goals. The nation’s 1890 LGUs, of which there are 19, offer a broad array of agriculture and food industry majors and introduce students to the many opportunities available in these fields. The scholarships are intended to encourage outstanding students at 1890 LGUs to pursue and complete baccalaureate degrees in the food and agricultural sciences and related fields that lead to a highly skilled food and agricultural systems workforce.

Example of funded research include:

With its 2022 funding, the University of Arkansas Pine Bluff focused on increasing scholarship amounts while bolstering recruiting and marketing efforts to bring more than 90 new scholars into its program.

Delaware State University recruited 20 scholars to participate in early research orientation in laboratories and other modules for implementing multi-disciplinary research and Extension programs in the food and agricultural sciences and related fields.

Lincoln University in Missouri increased enrollment from minority students by offering affordable criteria for eight full-ride scholarships toward four years degrees.

South Carolina State University is increasing the number of graduates from its Agribusiness and Family and Consumer Sciences degree programs by 15 percent within the 4-year project period and expanding experiential learning opportunities by 20 percent.

### **Hispanic Serving Institutions Education Partnerships Grants Program**

In 2022, NIFA granted \$14 million to Hispanic-serving higher education institutions to support Hispanic student learning experiences in the agricultural and human science sectors. This funding investment is part of NIFA’s Hispanic-serving Institutions (HSI) Education Grants Program, which aligns the efforts of Hispanic-serving Institutions to support academic development and career attainment of underrepresented groups.

Examples of funded research include:

At the University of California (UC), Merced, the “UC Merced FARMERS Project” aims to attract and support undergraduate and graduate students from underrepresented minority groups to prepare them for careers related to the food, agricultural and natural resources and human sciences.

At Texas A&M University, Kingsville, “GO START NOW: Getting Occupational Student Training in Agricultural Research Through Novel Workshops” seeks to empower underrepresented students through excellence in soil, animal, plant and agricultural sciences to build career skills addressing priority science areas.

“South Texas Agricultural Roadmap for Teaching, Research, Experiential Learning and Careers in Food, Agriculture” at the University of Texas, Rio Grande Valley aims to align the efforts of multiple Hispanic-serving Institutions in southern and central Texas that have ongoing programs for academic development and career attainment for underrepresented groups in fields related to sustainability in agriculture, including soil and water management, horticulture, animal science and whole farm systems.

California State University, Long Beach has launched “Leveraging Interdisciplinary Nutritional Knowledge Program” to promote the success of underrepresented undergraduate and graduate students in the food and human sciences professional and scientific workforce. The program emphasizes Latino nutrition through outreach, mentoring, education, support services, research, and professional internships with community partners.

“Young Agri-Scientists” is a collaborative program between New Mexico State University and Texas Tech University designed to increase diverse student graduates who meet the global need for the next generation of leading agricultural scientists. The program ensures students are as well-versed in conducting sound food, agricultural and natural resources systems and sciences research as they are in the diffusion of research and innovation through science communication.

California State University, Monterey has partnered with the University of California, Santa Cruz on the “Increased Degree Attainment in FANH Sciences: Creating a Regional Pipeline” project to promote broadening participation in sustainable agriculture education by working collaboratively to support recruitment, retention, and job placement for underrepresented students through partnerships with community colleges, community organizations, and the regional agriculture industry.

Via experiential learning in the workplace and laboratory, University of Puerto Rico, Rio Piedras has launched “HSI: The Puerto Rico Natural Resource Career Tracks” to prepare students with tools, knowledge of basic concepts, and critical thinking necessary to address climate change impacts to agriculture and natural resources using integrated socio-environmental-technical systems approaches.

Inter American University of Puerto Rico, Barranquitas has launched “Farming for Future: Integrated Interventions to Improve Student Success and Experimental Learning in Controlled Environmental Agriculture.” The goals of the project are to attract and support undergraduate students from underrepresented groups by developing new courses in controlled environmental agriculture and to maximize the outreach potential of the project with an off-campus training facility for local communities in the form of an agricultural mobile laboratory.

Through research, internships, cross-campus student exchange and joint workshops, webinars and special experiential learning activities, students at Florida International University will acquire scientific skills analyzing crop production, farm natural resources (including soils, water, and biodiversity), and financial and social aspects of farming via the “BASE II: FIU-UTRGV-NMSU Consortium” project.

### **Education Grants for Alaska Native and Native Hawaiian-Serving Institutions**

The purpose of the Alaska Native-Serving and Native Hawaiian-Serving Institutions program is to promote and strengthen the ability of Alaska Native-Serving Institutions and Native Hawaiian-Serving Institutions to carry out education, applied research, and related community development programs.

Example of funded research include:

HOOHIAPO - Renewing Ancestral Education Pathways in Agroecology. As an archipelago, Hawaii needs to promote localized agriculture as a means to food security. The University of Hawaii uses NIFA funding to create a comprehensive agriculture program, engaging students in the multidisciplinary analysis of the food and farming system of Hawaii, the United States and beyond. There are 100 students in the agricultural program, 41 percent of whom are native Hawaiian. In addition, 70 percent of the students are women. Twenty-three disadvantaged students received \$1,000 in stipends to complete the program. The program covers agroecology, political science, epidemiology, food security, ethics, traditional ecological knowledge, and indigenous resource management.

### **New Beginning for Tribal Students**

The Tribal College Research Grant Program helps colleges in the 1994 Land-grant University System become centers of scientific inquiry and learning for remote and rural reservation communities. This funding supports crucial, innovative research projects at Tribal-serving Colleges and Universities to address the specific needs of their communities. The research projects focus on high-priority areas such as protecting reservation forests or monitoring water quality to promote sustainability and climate-smart agriculture and forestry on Tribal lands. Other projects aim to ensure food and nutrition security and support healthy Tribal populations through improving bison herd productivity, uncovering the ways traditional plants can impact diabetes, or controlling invasive species.

Examples of funded research include:

College of Menominee Nation (Wisconsin) is collaborating with University of Wisconsin-Madison and the Menominee Tribe's Historic Preservation Office to reclaim Menominee culture, food sovereignty and community wellbeing by using and teaching agricultural techniques of their ancestors.

The prevalence of diabetes is increasing every year across the country and is twice as high in the Native American population. Potatoes contain flavanols that have anti-obesity and anti-diabetic effects. Fort Peck Community College

(Montana) is conducting laboratory studies to test low glycemic potatoes to determine if these plants can lower the effects of diabetes and obesity.

Keweenaw Bay Ojibwa Community College (Michigan) is building on its partnership with Michigan State University's Institute of Water Research to address potential human health risks from drinking water in Baraga County, Michigan, home of the L'Anse Indian Reservation. The project expands efforts to include uranium and manganese testing in addition to arsenic.

Kansas State University is elevating the goals of Native American students and providing them with equitable access to higher education. Project leaders are working with the Indigenous Faculty and Staff Alliance, Kansas Association for Native American Education, Haskell Indian Nations University, and the Kickapoo Nation School to use research on food sovereignty and community gardens to provide role models for Native youth and help them prepare for college.

Virginia Polytechnic Institute's Student Retention Through Experiential Learning and Culturally Competent Mentoring Program is helping increase the number of Indigenous students graduating with a Bachelor of Science degree from Virginia Tech with an engaging and comprehensive retention program for the increasing number of enrolled Tribal students.

There is a great need to increase the number of Native Americans in the nursing profession. South Dakota State University is helping increase the number of Native American nurses, increasing awareness of health issues, and building a more diverse nursing workforce, joining with "Future of Nursing 2020-2030 Campaign for Action: Charting a Path to Achieve Health Equity," that focuses on improving the well-being of Native communities.

### **Grants for Insular Areas**

Insular area Land-grant Institutions receive both capacity (formula) funds and competitive funds. NIFA is committed to providing technical assistance and resources to insular area Land-grant Institutions to assist them with preparing competitive grant applications, managing competitive and capacity awards, complying with grant requirements, and submitting accurate and timely reports.

Examples of funded research include:

The University of Puerto Rico at Mayaguez is researching the manufacturing and marketability of value-added products using goat milk. Researchers are working to determine chemical characteristics, sensory attributes and consumer preferences for goat milk products including frozen dessert, confections, yogurt, and cured cheese.

The USDA Caribbean Climate Hub is partnering with minority-serving universities, including the University of Puerto Rico and the University of the Virgin Islands Extension, and nonprofits to help historically underserved communities throughout the U.S. Caribbean and other coastal areas adapt to a rapidly changing climate and extreme weather events. The partnership will develop education and Extension programs aimed at increasing climate literacy as well as helping land managers employ climate-smart agriculture and forestry techniques. Educational materials will be created in Spanish and English.

Crops and agro-environmental sciences researchers at the University of Puerto Rico at Mayaguez have assessed food safety risks in the fruit, vegetable, and leafy greens of Puerto Rico's agricultural system. They also developed science-based interventions to prevent and mitigate food safety threats and communicated food safety risk and interventions to stakeholders through seminars and commodity meetings. Nearly 140 farmers received training during the first year while providing fresh lettuce for school lunch programs.

Achachairú is a tropical fruit native to Bolivia with enormous economic potential for Puerto Rico. Transplanting this fruit could generate an annual gross income of \$75 million, have a net present value of over \$500 million, and attain an internal rate of return of over 30 percent. Researchers at the University of Puerto Rico support research into the impact of different irrigation and fertilization rates on achachairú growth and development. The outreach component of this project increases the number of beginnings, underserved and limited resource first-time achachairú farmers.

### **Agriculture and Food Research Initiative**

In 2022, NIFA developed a new program area priority within the AFRI Foundational and Applied Science Request for Applications to help agricultural and rural communities respond to extreme weather events.

The Rapid Response to Extreme Weather Events Across Food and Agricultural Systems (A1712) program area priority accepts applications on a rolling basis for projects that rapidly provide solutions to protect agricultural supply chains at the production through consumption stages during and after extreme weather disasters.

Also in 2022, NIFA examined all AFRI priorities and integrated climate change language throughout. Current AFRI programs that address climate vulnerabilities include:

- Sustainable Agricultural Systems (A9201)
- Water Quantity and Quality (A1411)
- Regional Innovation and Demonstration of Climate-smart Agriculture for Future Farms, or CAFF (A1556)
- Extension, Education and Climate Hubs Partnerships (A1721)
- Rapid Response to Extreme Weather Events (A1712)
- Sustainable Agroecosystems: Health, Functions, Processes and Management (A1451)
- Data Science for Food and Agricultural Systems (A1541)
- AI Research Institutes
- Education and Workforce Development programs

Examples of funded research include:

Ensuring Pollination by Conserving and Protecting Ohio's Managed and Native Bees. Whether in rural or urban ecosystems, Ohio's fruits, vegetables, and ornamental plants require pollination, often provided by bees. The total value of crops benefiting from bee pollination in Ohio is \$140 million annually and estimated at \$16 billion nationwide annually. Bees also contribute to the \$3.6 billion in soybeans produced in the state through pollination. Finally, honey is a valuable commodity and Ohio beekeepers produce \$3.8 million annually. The total value of honey and other bee products and services nationally is \$700 million each year.

Over 400 bee species live in Ohio, but their populations and their pollination service are threatened by pesticides, diseases, habitat degradation, heavy metal pollution and climate change. The pollination team at The Ohio State University has investigated the degree, causes and remedies for bee declines and provides information to Ohio's agricultural and natural resources stakeholders. Through OSU outreach and Extension programs, beekeepers, producers, natural resource managers, gardeners and others learn about bee biology, habitat strategies and integrated pest management practices to conserve bee health.

With AFRI funding, the research team developed a nonlethal disease detection method to assess the health of endangered species such as the Rusty Patched Bumble Bee (RPBB) in collaboration with the U.S. Fish and Wildlife Service (USFWS). The USFWS is using the recommendations for RPBB conservation to set research priorities and prioritize federal funds for projects in the Great Lakes Research Initiative. The team's findings that insecticides and spray adjuvants, common additives to pesticide applications, can cause harm to bees has led to changes in the recommendations by the Almond Board of California's Best Management Practices to avoid using these products and resulted in a 70 percent reduction in insecticide use during almond bloom and pollination. The team is also determining soybean varieties that are most beneficial for bees and beekeepers and its studies on the mutually beneficial interactions between soybeans and honeybees encourage farmers to reduce insecticide use during soybean bloom and adjust the timing of application to minimize pesticide exposure for bees.

In Alabama, Developing Genes to Engineer Drought-Tolerant Crops. As severe drought ravages western states, farmers and ranchers are fallowing fields and uprooting orchards and vines. One approach to the ongoing agricultural crisis is to develop drought-resistant crops, an approach taken by a research team in the Auburn University Department of Entomology and Plant Pathology. The need for drought-resistant crops is becoming more urgent. As the climate changes, widespread drought will become more common, with increasing temperatures enhancing evaporation and drying out both soils and vegetation.

Thousands of beneficial bacteria, known as plant-growth-promoting rhizobacteria (PGPR), inhabit plant root systems and stimulate both growth and productivity. PGPR also elicit induced systemic tolerance (IST), which in simple language means that the PGPR stimulates all of a plant's defenses, even though the bacteria are not a threat. Thus, their tolerance increases to threats like drought, high salinity, and extreme temperatures. To accomplish this, the research team screened and isolated a helpful PGPR called *Paenibacillus polymyxa* CR1, which specifically induces response by two genes, Response to Desiccation (RD) 29A and 29B. These two genes appear to coordinate the fitness of plants in defending themselves from drought while also stimulating growth.

The genes identified by the team appear to be unique, feasible candidates for introduction into the genomes of other plants to generate crops that are truly drought tolerant. The research team is now working on designing a gene

cassette that can be used to insert the desired genes into other plants to engineer IST/commercial-grade drought tolerance in plants.

Virginia Tech researchers discover potential method to convert food waste into batteries. What do apple cores, spent grain, and walnut shells have in common? They could one day be used to power a data center. As the world works toward economically and environmentally friendly ways to power these devices, two Virginia Tech researchers are investigating how food waste and its associated biomass can be converted into rechargeable batteries.

In one AFRI-funded project, the Virginia Tech researchers found that the fiber component in food waste was the key to develop advanced carbon materials that could be used as a battery anode, the negative terminal on a battery. This research will advance the utilization of agricultural wastes generated in agricultural systems for value-added carbon production and ultimately energy storage devices. The team uses highly tunable, abundant, and cost-effective raw materials to address the need in the energy storage field. Using waste-derived carbon materials as the host for metal anodes could significantly reduce alkali metal usage per battery.

Future work will include further testing of the food-waste-turned-carbon, with feedback from the lab to optimize the battery science. The final step will be an economic analysis on the feasibility of implementing this technology to ensure usage when pushed to the market. The anticipated initial uses of the technology are for affordable energy storage solutions for data centers or other large energy storage facilities where the size of the battery is not a factor. As they progress, the research team hopes to be able to turn food waste into a carbon that lacks the impurities experienced today.

Eradicating Livestock Diseases. In 2022, NIFA invested more than \$13 million in research that explores novel therapies and prevention strategies for animal diseases that cost the agricultural industry billions worldwide. The 24 grants are part of NIFA's Agriculture and Food Research Initiative's (AFRI) Diseases of Agricultural Animals program area priority. They will support projects at 17 universities focusing on disease prevention, vaccine development, and management strategies to maintain healthy agricultural animals. This newly funded research investigates diseases affecting a full range of species, from cattle, poultry and pigs to horses, sheep, and fish. The knowledge created by this research promises to aid farmers and ranchers in improving animals' resistance to disease while also catalyzing the development of novel prevention and treatment methods.

### **Veterinary Medicine Loan Repayment**

Food animal veterinarians are critical to maintaining a healthy, secure, and safe food supply. Today, there is a critical shortage of food animal veterinarians in both private and public practice, particularly in rural communities in the U.S. and insular areas. Food animal producers rely on veterinarians with expertise in animal medicine and surgery as well as advanced training in herd health, diagnostic medicine, epidemiology, public health, and food safety. One cause for this shortage is the high cost of professional veterinary medical education. Graduates of veterinary colleges typically have student loan debt greater than \$150,000. The high cost of veterinary education leads many new graduates to choose lucrative career paths such as small animal medicine.

In 2021, the Veterinary Medicine Loan Repayment Program (VMLRP) provided approximately \$7.6 million per year in funding to help eligible veterinarians offset a significant portion of debt incurred in pursuit of their veterinary medical degrees in return for their service in certain high-priority veterinary shortage situations. The distribution of student debt for the 78 awardees shows most awardees were those with more than \$100,000 in student loan debt. VMLRP will pay up to \$25,000 each year towards qualified educational loans of eligible veterinarians who agree to serve in a NIFA-designated veterinarian shortage situation for a period of three years. Since the inception of the VMLRP in 2010, NIFA has received over 1,900 applications from more than 1,300 applicants and awarded support to over 600 veterinarians across the country with new and renewal contracts.

A previous VMLRP grant recipient, who provides Veterinary Services in San Tan Valley, Arizona was able to start her own mobile veterinary clinic that focused on helping farm animal species after graduation. Her practice is one of only two in the Phoenix area treating species such as swine and ruminants. She said she has loved being able to help the community that had been needing a veterinarian for so long, but the daily reminder of the student debt from veterinary school added a lot of pressure to her plate when comparing the salary for a farm animal mobile veterinarian to a small animal veterinarian. Since receiving the grant, she has volunteered with NIFA to help veterinarians in agriculture connect with NIFA's programs that help pay off their student loans and alleviate the stress and pressure that comes with being in the field with the cost associated with school and the career.

## Continuing Animal Health and Disease

Animal disease is one of the greatest threats to animal agriculture. Recent events in the United States and abroad have made us aware of how animal diseases can affect the food supply, human health, and national economies. NIFA supports the health of livestock, poultry, horses, fish and other agriculturally important commodities through research, education, and Extension activities. NIFA's unique role in the fight against animal disease includes its ability to:

- Support college/university/diagnostic laboratory infrastructure and provide land-grant institutions and veterinary colleges and departments of veterinary science with funds to conduct small-scale research to determine how best to respond to animal disease.
- Solicit basic and applied research, education and Extension proposals from all U.S. institution types and support the best science through competitive peer review and larger awards.
- Stimulate interstate cooperation for targeted animal disease issues through multistate committees and multimillion dollar Coordinated Agricultural Project (CAP) competitive awards.
- Focus funds on targeted diseases and national programs of state and regional importance.
- Serve as the federal link to the veterinary Extension and education infrastructure to disseminate timely and pertinent animal health information.

Animal Disease Biosecurity Coordinated Agricultural Project. The Animal Disease Biosecurity Coordinated Agricultural Project complements previous and ongoing animal disease protection activities. The team is integrating social science, human decision-making, economic and animal health perspectives to enhance the prevention, recognition, control, and recovery from any new, emerging, or foreign animal disease or pest.

With a multi-disciplinary team from Land-grant Universities across the United States, the goal is to facilitate the development and adoption of national practices and policies to reduce the impact of pests and diseases in livestock animals, including dairy and beef cows, horses, pigs, sheep, goats, camelids (llamas and alpacas) and poultry.

Sustainable Dairy Coordinated Agricultural Project. Sustainable Dairy Coordinated Agricultural Project participants are conducting targeted research, education, and Extension in the area of climate change adaptation and mitigation efforts in dairy production systems of the Great Lakes region. Project leads are based at the University of Wisconsin-Madison with collaborators at several other institutions, primarily Pennsylvania State University and Cornell University.

Examples of Additional funded research include:

University of Illinois' proposal focuses on developing safe and efficient drugs that block the activity of *Cryptosporidium parvum*, a highly prevalent parasite that causes a serious diarrheal illness in calves, lambs and goat kids in the U.S. and worldwide. This project will lead to effectively treating these infections in calves to improve livestock health and ease a significant economic burden to the cattle industry.

Marek's disease, a cancer-like disease of chickens, is caused by a herpes virus known as Marek's disease virus. The use of extensive vaccination by the poultry industry has significantly reduced the disease burden. However, the cost of vaccination and the emergence of novel viruses capable of overcoming vaccination pose a serious economic threat to the poultry industry. A Texas A&M University project on Marek's Disease in chickens will help reduce the cost of vaccinations for U.S. poultry producers.

Enteric septicemia is the leading disease of cultured channel catfish. There are limits in the current preventive and treatment strategies. There is an urgent, industry-defined need to provide catfish producers with a practical, safe and effective treatment alternative. Mississippi State University's project will evaluate an antimicrobial feed additive that will provide a safe and practical solution to combat enteric septicemia in catfish. This research will help develop treatment options for aquaculture producers that will increase production efficiency.

Swine influenza virus is one of the top respiratory infections in swine, causing significant economic losses to the swine industry every year. This virus is highly prevalent in the U.S., and the complexity of this disease makes it challenging to develop effective vaccines. Cornell University's research will develop more effective vaccines for swine influenza virus.

## Multicultural Scholars, Graduate Fellowship and Institution Challenge Grants

NIFA recently invested \$1.1 million in the Higher Education Multicultural Scholars Program to increase the multicultural diversity of the food and agricultural scientific and professional workforce and advance the educational

achievement of all Americans by providing competitive grants to colleges and universities. Scholarships support recruiting, mentoring, and training committed multicultural scholars, resulting in either baccalaureate degrees within the food and agricultural science disciplines or Doctor of Veterinary Medicine degrees. In 2022, NIFA invested \$3.4 million in the Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program. This supports projects that train students for masters and/or doctoral degrees. Fellowships and Special International Study or Thesis/Dissertation Research Travel Allowances are specifically intended to support traineeship programs that encourage outstanding students to pursue and complete their degrees in areas where there is an identified national need for the development of scientific and professional personnel. NIFA also supports the Higher Education Challenge (HEC) Grants Program, to fund college agri-science projects taught by university faculty to inspire students to take learning to a new level. Examples: A plant science professor creates computer-based module resulting in better-trained graduates. A college sets up a conference on best-practices in agri-science education. All are funded through NIFA's HEC grants program and the result is a better-trained agri-science workforce.

Examples of funded research include:

NIFA-Funded Postdoc Investigates Northeast Droughts. Droughts are occurring at increased frequency and intensity in the Northeastern United States and are projected to get worse in spring and summer because of human-induced climate change, according to a postdoctoral researcher at the University of New Hampshire (UNH). The NIFA-supported project is titled, “Understanding Drought Sensitivity in Eastern U.S. Forests to Inform Sustainable Forest Management Practices.”

Specifically, the UNH team is investigating how much water stress it takes to cause tree leaves to wilt in nature. The point at which tree leaves wilt influences their ability to photosynthesize during drought – so it has large implications for thinking about how much CO<sub>2</sub> trees can absorb in the future under different drought scenarios. The researchers are seeking to identify which species are more robust (e.g., don't wilt as easily) in the face of drought, and how that scales up to whole-tree and ecosystem functioning.

“This research is important because forests take up about 30 percent of carbon emissions, globally,” the researcher at UNH said. “So, understanding how forests will change in the face of climate change, and how these changes influence carbon cycling, is necessary for the accurate forecasting of climate change and its impacts on humans.”

So far, the scientists have found that there is a large array of drought tolerances between species in the Northeast. For example, red oak leaves can handle significant water stress before they wilt. In contrast, red maple leaves wilt much more easily. Within certain species, there can be a significant amount of variation. Additionally, they found that wilting is generally directly related to a whole-tree's drought response (in the form of growth in tree rings).

“The two ultimate goals of this work are to inform models that predict how much CO<sub>2</sub> forests will uptake in the future and to inform forest management practices by providing information about drought resilience of different tree species,” the researcher at UNH said. “This work will give us a better understanding of the role forests can and will play in the carbon cycling of the ecosystem and help us manage for more climate-resilient forests.”

Searching for Compounds Causing Smoke Taint in Wine. With funding from NIFA, an Oregon State University-led research team has discovered a class of compounds that contribute to smoke taint in wine and grapes. For years, a class of compounds known as volatile phenols have been used as markers for smoke taint in wine and grapes. However, they weren't considered good predictors of smoke taint issues. For example, wines with high levels of these compounds often didn't taste smoke tainted and wines with low levels did taste smoke tainted. This led Oregon State University researchers to search for other compounds that were causing smoke taint in wine.

Earlier this year, the researchers, including a NIFA-funded doctoral student, published a paper that outlined a new standard for tasting the smoky/ashy component of smoke taint. As part of that work, scientists discovered the new class of sulfur-containing compounds, thiophenols, that in subsequent analysis was found to cause smoke taint when in combination with volatile phenols.

An assistant professor at Washington State's Wine Science Center, confirmed that these sulfur compounds were found in wines that had been exposed to smoke and not in samples that had no smoke exposure.

Work done by another NIFA-funded postdoctoral scholar, confirmed the structure of the compounds using Nuclear Magnetic Resonance, an instrument that allows the molecular structure of a material to be analyzed by observing and measuring the interaction of nuclear spins when placed in a powerful magnetic field. Ongoing sensory analysis has shown that wines are described as smoke tainted when these sulfur compounds are in combination with the volatile phenols.

The research is important as wildfires are a significant threat to these industries because persistent exposure to smoke compromises the quality and value of wine grapes and adversely affects wines. That threat is particularly pronounced on the West Coast of the United States, where California, Oregon and Washington are three of the nation's top four wine-producing states.

The work aims to provide tools for the grape and wine industries to quickly make decisions about whether to harvest grapes or make wine following a smoke event.

### **Aquaculture Centers**

The current NIFA aquaculture research and extension base is highly diverse in terms of funding mechanisms, areas of research, and species cultured. NIFA also provides leadership, on behalf of the Secretary of Agriculture, to facilitate the coordination of all federal programs in aquaculture. This is done through the Joint Subcommittee on Aquaculture, which reports to the National Science and Technology Council (NSTC) of the Office of Science and Technology Policy in the Office of the Science Advisor to the President.

NIFA's funding of scientific and technology transfer goals to support development of a globally competitive U.S. aquaculture industry includes:

- improving the efficiency of U.S. aquaculture production;
- improving aquaculture production systems.
- improving the sustainability and environmental compatibility of aquaculture production;
- ensuring and improving the quality, safety, and variety of aquaculture products for consumers;
- improving the marketing of U.S. aquaculture products; and
- improving information dissemination, technology transfer, and access to global information and technology in aquaculture.

Examples of funded research include:

Lesser scaup and piscivorous waterbirds, such as double-crested cormorants, consume fish raised via aquaculture and result in economic losses on commercial fish farms. This study by the University of Arkansas at Pine Bluff, Mississippi State University, Virginia Tech, and USDA is the first study to develop on-farm costs of attempts by farmers to prevent losses due to bird depredation. The results show that the greatest costs are for the trucks and manpower used to chase birds and that farmers are spending more money and more time than had previously been thought in efforts to scare birds from their ponds. This information can be used in discussions with policymakers and in attempts to identify ways to reduce the harm to fish farmers from piscivorous birds. Results of the economic analysis show that the economic effects on baitfish/sportfish farms caused by both the fish losses due to consumption by scaup and efforts by farmers to scare birds off their farms are quite high. Even in years with less bird pressure, the risk of severe losses to birds prompts farmers to fully implement bird-scaring efforts that cost approximately \$250/acre. In spite of efforts by farmers to scare birds, fish are still lost to depredating birds. On farms that are targeted by birds in any given year, losses are substantial even with intensive efforts and resources devoted to scaring them.

Commercial Production of Selected Native Freshwater Ornamental Species. Freshwater fishes native to the U.S. have been largely overlooked by domestic ornamental producers. Cultivation of these species for sale within the country as well as to export markets would help increase the resiliency of the U.S. ornamental aquaculture industry through diversification. Furthermore, culture of these endemic species may prove advantageous for U.S. farmers as these species are generally more tolerant of cooler temperatures than their tropical counterparts, allowing them to be extensively cultured across a wider geographic area. Commercial production of North American freshwater species for ornamental markets has generally occurred on a small scale. While a significant number of native species have been cultured in captivity, empirical evidence to support management decisions and production goals is limited. Fundamental information regarding reproduction, larval culture, and production techniques is critical when evaluating a species for commercial propagation and these bottlenecks will ultimately dictate the success of domestication and cultivation efforts.

As a result, scientists at the University of Florida, Louisiana State University and Virginia Tech, defined effective culture protocols for nine species of freshwater fish endemic to the U.S. Culture methods for the Gulf Coast Pygmy Sunfish and Metallic Shiner developed during this project provided a solid foundation for the commercial production of select native North American ornamental fishes, which may be transferable to close congeners. Recommendations on Golden Topminnow broodfish size and expected egg output helped producers with production goals for this species as fecundity is low compared to many other ornamental species. Bluenose Shiner appear to



require a nest mate associate such as a sunfish to initiate spawning as they potentially use the sunfish nest as spawning substrate. These species-specific protocols were immediately transferred to stakeholders within the southern region to aid in commercialization of research species.

### **Sustainable Agriculture Research and Education**

Sustainable agriculture seeks to provide more profitable farm income, promote environmental stewardship, and enhance quality of life for farm families and communities. NIFA promotes sustainable agriculture through national program leadership and funding for research and extension. It offers competitive grants programs and a professional development program, and it collaborates with other federal agencies through the USDA Sustainable Development Council.

Examples of funded research include:

University of Kentucky Researchers Find Better Way to Feed Winter Hay. Livestock farmers in Kentucky are changing the way they feed hay to cattle during the winter to prevent nutrient loss, regenerate pastures and keep animals healthy. Generally, hay is fed to livestock on a feeding pad or sacrifice area or is unrolled in a pasture. In the case of a feeding pad, most of the nutrients imported with the hay are lost to leaching. The potassium and nitrogen from cattle urine are lost, and those animals suffer cold stress from the mud pits that develop. Manure, if not spread, is collected in a pile, and can cause environmental issues, especially on sloped land. Unrolling hay in pasture can cause compaction, either from tractors or from cattle trampling.

University of Kentucky researchers, through a Southern Sustainable Agriculture Research and Education (SSARE) On-Farm Research Grant, have found a better way to feed winter hay: a technique called bale grazing. Bale grazing is a practice where bales are set out on pasture before winter and cattle are fed in a planned, controlled manner. University of Kentucky forage economist Extension professor equates bale grazing to rotational grazing. “Temporary electric fence and posts are used to give cattle access to the bales that you want fed in the current move. The fence is moved to expose new bales, usually 25-100 feet at a time.” “Hay rings that protected the previous bales are rolled to the new bales and flipped over into place. The process is typically repeated every 1-7 days.”

The professor has been toying with bale grazing on his own farm for the past ten years, after he saw the practice being implemented in Canada and more northern U.S. states. He was convinced the practice could work in the South, with some modifications to account for warmer winter weather to avoid pasture damage from cattle. “Properly planned, you will not need to use a tractor the entire winter and nutrients will be deposited where they are needed. Simple, cheap, and effective. A well-executed bale grazing system will substantially reduce tractor use for feeding hay, in many cases by as much as 90 percent. Additionally, cattle generally stay much cleaner through the winter with very little mud on their hides. This is especially important with calves,” said the professor. “If we can alleviate the fear that many cattle farmers have of destroying their pastures through this type of hay feeding, we could promote more widespread adoption of bale grazing, and the associated benefits.”

Mississippi Farmer Develops Integrated Greenhouse System That Boosts Welfare of Rabbits, Improves Strawberry Production. The damage brought about by Hurricane Ida in 2021 was a light bulb moment for a Mississippi farmer, who was looking for ways to maximize production of his two high-demand cash crops: strawberries and rabbits. With the storm came massive flooding, disease, and predators. In less than one season, most of the farmer’s strawberries succumbed to anthracnose and his rabbits (raised colony style) became targets for raccoons looking for food. In addition, the farmer learned that raising chickens with rabbits does not mix; coccidiosis, its spread exacerbated by the flooding, nearly wiped out his rabbit herd.

Undaunted, the farmer used his experience in mechanical engineering and his love for biology to explore an integrated greenhouse system designed to boost the welfare of the rabbits while improving the production of the strawberries. He received a Southern Sustainable Agriculture Research and Education (SSARE) Producer Grant to test his design. The idea behind the design was to create a seamless integrated system that optimized rabbit breeding while maximizing strawberry yields. The result was healthier rabbits and more productive strawberry plants. The farmer also found that the application of the rabbit manure compost tea resulted in similar plant performance compared to using commercially available plant fertilizer. The plants more effectively set fruit, more successfully overcame disease and were generally a healthier crop compared to those in the field.

### **Small Business Innovation Research (SBIR)**

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs at the U.S. Department of Agriculture (USDA) offer competitively awarded grants to qualified small businesses to support high quality research related to important scientific problems and opportunities in agriculture that could lead to

significant public benefits. Awards are based on the scientific and technical merit of investigator-initiated ideas. The SBIR/STTR programs do not make loans and do not award grants for the purpose of helping a business get established.

Examples of funded research include:

In Minnesota, Turning Water-Born Pollution into Fertilizer and Feed. Water-born nutrient pollution in the form of excessive nitrates, phosphates, and organic carbon is a growing problem in the United States and around the world. Once these nutrients find their way to lakes and rivers, they can lead to an overgrowth of algae. The consequence of "algae-blooms" often include the formation of oxygen-depleted "dead-zones" and the release of toxic compounds, which can make the water hazardous to fish, animals, and humans alike.

Fortunately, algae can also be part of the solution. By cultivating algae in contained bioreactors, the excess nutrients which are commonly found in municipal wastewater can be removed prior to the effluent's release. Furthermore, this method of nutrient recovery is superior to conventional processes because it avoids the use of costly chemical additives and it allows the nitrogen component of the wastewater to be converted into algal biomass, rather than being wasted with the release of nitrogen gas. When algae is harvested from the bioreactors, it can be de-watered, dried, and sold for various uses, such as fertilizer, feeds for animals and aquaculture, and as feedstock for biofuel production. This \$100,000 SBIR project focused on the construction and testing of novel photobioreactor technology that allows algae to be easily cultivated at municipal wastewater treatment facilities.

Florida Company Developing RNA Triggers to Control Gypsy Moth. The gypsy moth is a very difficult-to-control insect pest that has a significant impact on many economic sectors, including forestry. Current biological insecticides used in gypsy moth control have not been efficacious enough and chemical insecticides are not selective and cause unnecessary ecological damage. The ranking of the gypsy moth as the third most expensive invasive insect in the world, with an estimated annual 3.2 billion dollars cost just in North America, is indicative of the impact of this pest.

Ribonucleic acid interference (RNAi) represents a viable option for the selective control of the gypsy moth. Current RNAi triggers, however, are quantitatively inefficient, in part due to their instability and deficient transport properties across biological membranes. The Miami-based NanoSUR is proposing the development of RNAi triggers efficacious against the gypsy moth with enhanced stability and delivery properties, which supports the USDA strategic plan goal of ensuring the productive and sustainable use of our national forest system lands. The project specifically contributes to the economic health of rural communities by ensuring that lands and watersheds are sustainable, healthy, and productive while contributing to the reduction of the adverse impacts from insects, diseases, and wildfires.

### Extension Activities

Selected Examples of Recent Progress

#### **Smith-Lever 3 (b) & (c)**

Training Alaskans to Prepare and Preserve Food Safely. Many Alaskans live a subsistence lifestyle or supplement their diets with fish and game meat. Alaska also has a large military population, and most have not previously preserved game meat or fish. Alaska has one of the nation's highest rates of botulism, which occurs in low-acid foods. The state has an average of at least one death every three years, with the most recent occurring in 2019.

In an effort to continue outreach beyond face-to face classes, many Extension instructors turned to online learning platforms, such as Zoom and Facebook Live. For example, between March 2020 and March 2021, a Mat-Su area agent taught 22 online classes and reached 582 people. The Southeast agent redesigned the district's most requested classes to online platforms (Zoom, Canvas, Facebook). Videos of the recorded classes were also sent out to those who registered, so that people who had scheduling conflicts or connection issues could watch the videos later. Agents and program assistants also answered canning and food safety questions by phone and email and offered canner gauge testing to the public. These adaptations allowed people to safely access the information during the pandemic.

In Florida, Farmers Get Much-Needed Health Screens. Florida is home to about 200,000 migrant farmworkers. Most of them lack adequate access to health care. Most also do not eat healthy diets. That means many suffer from chronic conditions such as hypertension and diabetes that often go undiagnosed. It also means health-care practitioners cannot detect Chagas disease, a parasitic infection found throughout Mexico, Central and South

America. Chagas can cause heart failure and sometimes be fatal, often going overlooked among the Latin American population.

CAF Latino, part of University of Florida/IFAS Extension, teamed up with the UF College of Medicine to establish health screenings for farmworkers and their families. They started with an event in Wimauma in Hillsborough County. There, they provided health tests and information to lead healthier lifestyles. They conducted a similar fair in Wauchula, in Hardee County, and eventually went to Colombia in a partnership with Children Beyond Our Borders and the Universidad de Antioquia in Medellin.

A total of about 200 farmworkers attended health screenings in Hillsborough and Hardee counties. They were tested for high blood pressure, depression, diabetes mellitus and Chagas disease. Testing results from the Wimauma event revealed a critical and perhaps lifesaving outcome: many farmworkers had diabetes mellitus, including some who were undiagnosed. UF/IFAS Extension agents affiliated with CAF Latino also distributed information about healthy eating lifestyles. The team provided education on the disease and local community resources for further management.

In Indiana, Helping Beginning Farmers Learn How to Grow Operations. The average age of Indiana farmers is increasing, as documented by the USDA Census of Agriculture (55.5 years old in 2017 vs. 53.9 years old in 2012). Beginning farmers who are replacing retiring producers need additional knowledge to effectively manage agricultural production systems, understand risk management tools, and use business management skills.

A statewide team of Purdue Extension educators adapted “Grow Your Farm Operation,” an agronomic/farm management program from the University of Nebraska Extension, targeting farmers with less than five years of experience. The eight-session virtual series taught farm principles, with courses touching on subject areas that ranged from using drones for yield maps and precision soil mapping to financial management of the farm business. Twenty-four individuals across Indiana participated in the series.

Reducing Pesticide Use in the Greenhouse in Vermont, New Hampshire, and Maine. Greenhouse ornamentals are a major agricultural commodity in New England, generating over half a billion dollars annually. These agricultural crops are highly susceptible to insect and disease pests, and because they are grown for their beauty, tolerance for cosmetic damage is low. However, because of the toxicity and limited efficacy of chemical pesticides, growers have been encouraged to adopt integrated pest management (IPM) practices that reduce reliance on these compounds.

For 26 years, the Tri-state Greenhouse IPM Program has been coordinated by University of Vermont Extension, which brings together Extension specialists, researchers and state agricultural personnel from Maine, New Hampshire, and Vermont to share their knowledge of IPM with growers. A cornerstone of this collaboration has been the annual Greenhouse IPM Workshops, geared to growers with greenhouses or high tunnels, as well as Cooperative Extension specialists, and professional pest managers of all experience levels. Until the COVID-19 pandemic, the committee developed one new, day-long program annually that was offered in-person once in each of the three states. Post-COVID, the sessions have been held online, which has increased participation by growers beyond northern New England.

In post-event surveys, over 65 percent of the 85 attendees in 2021 and 2022 indicated that they preferred a virtual format over in-person meetings. Attendees of the 2022 sessions rated the program 4.5 out of 5 for usefulness. Over 78 percent of individuals who completed the evaluation said that they learned new techniques that they intend to implement in the future.

### **Extension Services at 1890 Institutions**

The nation’s 1890 LGUs are advancing the well-being of families, businesses, and communities. Whether modernizing food systems, supporting local economies or mentoring youths, this system of 19 historically Black LGUs is successfully bridging access to knowledge and shaping a brighter future for their communities through innovative Extension efforts in multiple ways.

Examples of funded projects include:

Improving Youth Literacy. Improving a child's ability to read increases academic success and reduces future school dropout rates. Alabama A&M University’s Parent-Child Reading Enhancement Program is designed to teach parents and guardians skills to improve child literacy in five areas: phonemic awareness, phonics, vocabulary, comprehension, and fluency. Last year, the program reached 455 participants. Participation increased awareness of the components by 139 percent. In addition, an evaluation conducted a month after the program indicated that 86

percent were using the five components to improve a child's reading level, 85 percent saw an improvement in their child's reading ability, and 76 percent were spending more time helping their children to read better.

**Helping Farmers Adjust to Climate Change.** A microclimate study conducted by West Virginia State University (WVSU) Extension Service is helping landowners learn more about the impact of climate change on regional weather, with the goal of minimizing negative impact on seasonal crops and overall farm livelihood. Landowners and farmers often face the challenge of unknown weather trends and patterns, which can take a negative toll on seasonal crops. Additionally, the adverse consequences of climate change affecting their property and livelihood remain a growing concern. WVSU Extension Service is conducting a microclimate study to expand programming to agriculturalists to open up a dialogue about such issues. Starting in March 2020, the West Virginia Weather Data Collection Project provided 90 farmers, producers, landowners, schools, and other organizations with personal, professional-grade weather stations that transmit temperature, humidity, precipitation, and wind speed data via Wi-Fi directly to a database. The data is used to create seasonal reports for the entire state and provide participants with personalized weather readings, which help influence the decisions of farmers and other landowners operating in these microclimates by helping them gain understanding of how their growing seasons or precipitation patterns differ. Schools are also utilizing the weather stations to supplement lessons on weather and climate change. The study has also opened up opportunities to collaborate on regional climate change programs with other institutions in the northeast and will help other Extension agencies understand differences in how weather information is being reported.

### **Facility Improvements at 1890 Institutions**

The 1890 Facilities Grant Program is intended for the acquisition and improvement of agricultural and food sciences facilities and equipment, including libraries, so that the 1890 LGUs may participate fully in the development of human capital in the food and agricultural sciences. For many 1890s, such funding is crucial to ensure campuses offer modern, up to date equipment, materials and facilities for preparing the next generation of the agricultural workforce.

West Virginia State University (WVSU) used 1890 Facilities funding to open the Dr. Hazo W. Carter, Jr. Integrated Research and Extension Building and the Dr. Hazo W. Carter, Jr. and Judge Phyllis H. Carter Food and Agriculture Complex, named in honor of its tenth president and his wife. The center previously provided on-site vocational and rehabilitation services to individuals with disabilities. WVSU acquired the approximately 20 acres of property and began work to turn the facility into a state-of-the-art research center. Today, the building houses five research labs that are used to conduct research associated with aquatic toxicology, bioenergy, plant genomics and horticulture, and soil science. It features a host of amenities, including a brand-new auditorium, a multipurpose classroom, a dual conference room, an instructional kitchen classroom, a microscopy room, a walk-in cooler, and an additional soil laboratory.

“The vision for this property was 20 years in the making,” said a WVSU administrator. “Bringing it to fruition would not have been possible without the 1890 Facilities program.”

Additional long-term plans for the complex will include renovation of a neighboring building to expand Extension programs, community space and multidisciplinary academic programs. In addition, the property comprising the complex will allow for expansion of the campus arboretum and further development of campus walking trails.

### **Rural Health and Safety Education Programs**

The Rural Health and Safety Education (RHSE) grants program funds community-based outreach education programs, such as those that provide individuals and families with information as to the value of good health at any age; information to increase individual or family motivation to take more responsibility for their own health; information regarding rural environmental health issues that directly impact human health; information about and access to health promotion and educational activities; and training for volunteers and health services providers concerning health promotion and health care services for individuals and families in cooperation with state, local and community partners.

Many projects funded through RHSE seek to address the nation's growing opioid epidemic.

With RHSE funding, the University of Kentucky launched PROFIT (Promoting Recovery Online through Financial Instruction and Addiction Training), a state-level, scaling-up effort to address the opioid epidemic. Utilizing Cooperative Extension as a mode of program outreach and delivery, the project is improving the professional capacity of community-based educators and health care providers – especially as related to intersecting factors that

may mitigate relapse, including financial stress. PROFIT is leading to a comprehensive, distance education training platform to increase professional capacity in substance use prevention and recovery efforts.

The University of Missouri created a project to increase awareness and education capacity relating to chronic stress and opioid/substance misuse and stressors related to the COVID-19 pandemic for diverse individuals and families living in minority rural communities. The Show-Me ACEs Prevention Project is directing individuals, families, and caregivers to support services and providing educational opportunities by creating health equity and well-being promotion resources that address awareness, prevention and resilience in youths and adults.

Opioid misuse has increased sharply during the COVID-19 pandemic, especially in rural areas. In response, the University of Georgia is using RHSE funds to address opioid misuse across Georgia and in 6 rural Georgia counties through a multi-pronged strategy. The project is (1) assessing statewide and community needs, perceptions and resources related to opioid misuse; (2) building community capacity to address opioid misuse by creating community-based hubs for information and support; (3) providing specialized training to prepare Extension professionals, medical providers and other community professionals to recognize and respond to opioid-related mental health issues; and (4) increasing youth and community awareness of the risks of opioid misuse and strategies to reduce those risks in rural communities.

### **Food Animal Residue Avoidance Database**

Livestock producers, veterinarians and feed producers recognize food residue avoidance as the key to consumer confidence, and they are enhancing and formalizing programs that will permeate every facet of the production system. The development of effective residue avoidance and quality assurance programs requires access to a vast array of information. The Food Animal Residue Avoidance Databank (FARAD) offers the means to provide this information.

NIFA administers the funding that establishes and maintains FARAD, a computer-based decision support system designed to provide livestock producers, Extension specialists and veterinarians with practical information on how to avoid drug, pesticide, and environmental contaminant residue problems. The drugs and pesticides used in modern animal agriculture improve animal health and thereby promote more efficient and humane production.

Wherever drugs are used to treat sick animals or prevent disease, there is a potential that residues may be incurred. The U.S. Food and Drug Administration (FDA), which must approve all drugs meant to be marketed for use in animals, establishes tolerances for drug residues (similar to speed limits) to ensure food safety. The FDA also establishes “withdrawal times” or “withholding periods,” which are times after drug treatment when milk and eggs are not to be used for food and during which animals are not to be slaughtered. This allows time for the animals to eliminate the drug residues.

FARAD is a repository of comprehensive residue avoidance information. FARAD also is sanctioned to provide these estimates to the U.S. Pharmacopeia-Drug Information (USP-DI) Veterinary Medicine Advisory Committee. Since 1982, FARAD has been working with producers, Extension specialists and agents, and veterinarians to help avoid and mitigate residue problems. As a cooperative multistate program, FARAD is available nationwide to offer advice about residue avoidance.

### **Women and Minorities in Science, Technology, Engineering, and Mathematics (STEM) Fields**

Women and Minorities in STEM Fields Program supports research, education/teaching and Extension projects that increase participation by women and underrepresented minorities from rural areas in STEM. This program addresses educational needs within broadly defined areas of food and agricultural sciences. In 2019, more than 51 percent of all farming operations in the United States had at least one woman operator, according to the USDA Economic Research Service’s 2019 Agricultural Resource Management Survey. Off the farm, women are leading scientists, Extension agents and heading NIFA-funded programs that empower women and girls.

Examples of funded projects include:

Engaging Women and Minorities in Agriculture-Related STEM Disciplines through Mentoring, Leadership Development and Experiential Learning. Mississippi State University is working to increase the number of women and minorities from rural areas in food, agriculture, natural resources, and human STEM fields to support Mississippi’s agricultural communities and national priorities of environmental sustainability, food security, and economic stability. This goal will be met by providing experiential learning opportunities to develop their academic, technical, and professional skills in STEM discipline areas, developing mentoring relationships and leadership skills.

Pathways to Sustainable Materials Science and Engineering: Supporting Rural Women from College to Career. At North Carolina State University, educators are working to expand opportunities for professional careers and educational equity in sustainable materials, science, and engineering for women attending community colleges. This will be accomplished by providing a multi-tiered support system in every phase of the student's postsecondary academic career, specifically through community support, academic mentorship, experiential learning, community research projects, professional development, and university scholarship/admission guidance. The project will enhance the participants' scientific and professional competencies, leadership and communication skills, professionalism, critical and problem-solving skills, and ability to work in teams.

### **Food Safety Outreach Program**

The Food Safety Outreach Program (FSOP) focuses on the delivery of customized training for owners and operators of small to mid-sized farms, beginning farmers, traditionally underserved farmers, small processors, and small fresh fruit and vegetable merchant wholesalers. FSOP supports agriculture education through three program components. Community Outreach Projects support the development of new food safety education and outreach programs in local niche and hard-to-reach communities; Collaborative Education and Training Projects support the development of multi-county, statewide or multi-state programs; and Collaborative Engagement Supplements are available for applications that support coordination among multiple LGUs.

Outbreaks associated with dried produce implicate that processors need to enhance food safety management and use validated food safety procedures to ensure food safety of their products. Small and very-small scale dried produce processors have unique barriers and challenges when building food safety plans. In response to these issues, Purdue University in Indiana developed an active-learning food safety program, "Dehydrating Safely," to increase food safety knowledge and behavior compliance that will help to promote food safety culture in the dried produce industry and to reduce foodborne illness.

Examples of funded projects include:

Auburn University launched the "Empowering Farmers Project" to help limited-resource minority growers in the Black Belt region of Alabama meet challenges faced by local farmers. The outreach is providing food safety training and opportunities to underserved communities in a 12-county region noted for their especially low economic status.

The University of Maryland's FSOP is providing small- and medium-sized farms that grow, harvest, pack and hold covered produce with training and tools to enhance and sustain an operational culture that champions food safety while supporting workers to provide Americans access to a safe, nutritious, and secure food supply.

The Carolina Farm Stewardship Association is partnering across California, North Carolina, South Carolina, and New Mexico to develop and deliver curriculum for diversified, sustainable, organic, beginning and traditionally underserved farmers growing produce for local and regional food markets.

### **Farm and Ranch Stress Assistance Network**

NIFA's Farm and Ranch Stress Assistance Network (FRSAN) connects farmers, ranchers, and others in agriculture-related occupations to stress assistance programs. Creating and expanding a network to assist farmers and ranchers in times of stress can increase behavioral health awareness, literacy, and positive outcomes for agricultural producers, workers, and their families. Projects funded through the FRSAN must initiate, expand, or sustain programs that provide professional agricultural behavioral health counseling and referral for other forms of assistance as necessary through farm telephone helplines and websites; training programs and workshops; support groups; and outreach services and activities. Last year, NIFA invested an additional nearly \$25 million in 50 grants that supported projects at state departments of agriculture.

Examples of funded projects include:

Four \$480,000 grants issued in 2019 created assistance networks in the Western, Southern, Midwestern and Northeast regions of the United States, each leveraging existing relationships with state governments, Land-grant Universities, community organizations and other nonprofits to provide avenues for outreach that coincide with preexisting points of outreach.

In the west, for example, the current network includes representation from all 13 states and 4 territories in the region, and monthly meetings to highlight for FRSAN members program activity updates, upcoming events, major partners, and available resources.

**Smith-Lever 3(d)**

In Wyoming, Removal of Invasive Species in the Popo Agie Weed Management Area. The Popo Agie watershed covers 513,562 acres in Fremont County. According to the Popo Agie Conservation District, 63 percent of the land within the Popo Agie Watershed is publicly owned federal lands managed by the U.S. Forest Service and the Bureau of Land Management. Wind River Indian Reservation tribal lands cover approximately 7 percent of the watershed and 7 percent is state-owned. The remainder of the watershed is either privately owned, county or municipal. Russian Olive trees were originally planted as an ornamental windbreak, but they have escaped cultivation and are starting to encroach on the riparian areas throughout the watershed, outcompeting native riparian vegetation and creating a habitat which is inhospitable to wildlife. Russian Olive trees also consume a lot of water in an arid environment where water resources are needed for irrigation.

The Popo Agie Weed Management group, a collaborative partnership of 32 agencies and organizations including UW Extension, focuses on invasive species within the Popo Agie watershed. With the support of the Smith-Lever 3(d) program, the group provides education at events such as garden expos and outdoor days to inform the public and landowners about noxious weeds and invasive species. One of their goals is to help participants identify and then alert officials of the location of invasive species in the watershed. The group also undertakes weed management projects.

Sixty-five landowners and personnel from federal and state organizations and agencies benefitted from the programs conducted by the Popo Agie Weed Management group. Almost 20 acres of Russian Olive trees were removed from individual properties within the Pop Agie Watershed. In particular, the removal of the Russian Olive created open spaces allowing for easier wildlife migration and healthier riparian habitats as well as making more water available for irrigation and in-stream flows. Twelve properties with Russian Olive encroachment were identified within the watershed. Treatment plans were approved, and removal of Russian Olive trees and herbicide treatment were completed on these 12 properties.

**Expanded Food and Nutrition Program**

The Expanded Food and Nutrition Education Program (EFNEP) is the nation's first federal nutrition education program for low-income populations, established in 1969. Through nutrition and physical activity education, EFNEP works to change health behaviors with efforts reaching all 50 states, six U.S. territories, and the District of Columbia. More than 88,000 adults and 300,000 children participate annually, and an additional 250,000 family members are reached indirectly. Roughly 80 percent of adult participants are at or below the federal poverty line, and more than 70 percent of adult participants are people of color and/or of Hispanic ethnicity. Annually, more than 90 percent of participants report improved behaviors. Last year, 95 percent of adults improved their diet, including consuming additional fruits and vegetables, with program graduates reporting a collective food cost savings of \$469,698.80. Additionally, EFNEP provided employment to 1,363 peer educators who are members of the communities they serve.

Examples of funded projects include:

In Massachusetts, a native of West Africa enrolled in English for Speakers of Other Language (ESOL) classes at the Worcester Adult Learning Center. Through a partnership with EFNEP, she was also able to take classes which incorporated cultural foods and reinforced English language skills. Prior to EFNEP, the family's main meal consisted of basic staple foods, such as bread, rice, eggs, and chicken. Little or no produce and whole grains were included. After completing EFNEP, the mother planned balanced meals for her family that included fresh green salads, berries, fruit, vegetables, and whole grains. Her overall fiber intake increased, and her total fat intake decreased by 21 percent. She also increased her buying power, as she learned about accessing SNAP benefits.

The University of Arkansas at Pine Bluff's EFNEP efforts provided sound, research-based nutrition practices through hybrid educational sessions to address how families can stay healthy during the pandemic. During the sessions, participants were taught ways to choose healthier food options and to incorporate physical activity while working and schooling their children from home. The participants were provided easy, healthy recipes they could prepare along with user-friendly exercises for the family. In one county alone, 89 percent of adult and 78 percent of youth participants reported improved nutrition practices (eating more fruits and vegetables, drinking less sugary drinks and cooking dinner at home), and 76 percent of adult participants are now more physically active. At the end of the program, one participant said, "All the lessons were essential. The program taught me ways to include healthier food options and portion control with what I eat daily. As a result, I lost 15 pounds. I went from a 3XL to 2XL in shirts, and I was a 40 in the waistline, and now I am a 38. Participating in the classes has built my confidence. I'm continuing to enjoy eating healthy."

## **New Technologies for Ag Extension**

The New Technologies for Ag Extension program aims to increase the capacity of the Cooperative Extension System to adopt new and innovative technology applications for delivering science-based educational resources from Land-grant and other partner institutions about matters of high importance to the general public like Diversity, Equity, Inclusion, and Accessibility; Climate; Economic & Workforce Development; Health Equity; Positive Youth Development; Urban Programs; and Broadband Access.

Examples of funded projects include:

To build strength and secure the future of the Latinx student and support program Siempre Juntos (Always Juntos), an Extension team created a flipping book that is available on the Extension Foundation bookshelf. The Juntos program focuses on educating high school Latinx students and equipping their families with the knowledge, skills, and resources to ensure high school graduation and increase college access and attendance rates. This publication provides an overview of a sustainability guide that the North Carolina State University Juntos team created and provides tips for creating Juntos programs that will last. It will be helpful to those working in youth development programs.

Utah State University Cooperative Extension launched the Rural Online Initiative (ROI), a training and certification program to boost the capacity of program participants to be effective remote workers. Since its launch, more than 300 rural residents have secured employment after completing the Master Remote Work Professional certificate course and overall participants who found remote work experienced an increase in median salary of 88 percent. In addition, 82 percent of participants drove to a physical workplace before finding remote work. Since starting remote work, 41 percent drove to a physical workplace, resulting in a 55 percent reduction in total miles driven per month. This equates to a personal savings of \$368 per month and total reduction of 0.83 metric tons of carbon per month.

The mission of the National Extension Tourism network (NET) was created to integrate research, education and outreach within Cooperative Extension and Sea Grant to support sustainable tourism. This work contributes in meaningful ways to the long-term economic development, environmental stewardship and socio-cultural well-being of communities and regions. The group recently published the National Extension Tourism 2021 Conference Proceedings as a way to increase access to the impactful work presented at the conference, “Navigating the Uncharted.” It covers three categories of information: data, training, and marketing. In addition, it provides an overview of the U.S. recreation economy (including the impacts of COVID-19), results of a national agritourism survey, and case studies that will prove helpful for Extension and other organizations.

## **Youth and Families at Risk**

The Children, Youth, and Families at Risk (CYFAR) program allocates funding provided by congressional appropriation to LGU Cooperative Extension Programs. To ensure that critical needs of at-risk youths and families are met, CYFAR supports comprehensive, intensive, community-based programs developed with active citizen participation throughout all phases. CYFAR promotes building resiliency and protective factors in youths, families, and communities. One example of how CYFAR is helping impact the Hispanic and Latino community through youth development comes from the Juntos 4-H program.

For 119 years, 4-H has been dedicated to helping young people and their families gain the skills needed to be proactive forces in their communities and develop ideas for a more innovative economy. A CYFAR-funded program, Juntos 4-H was launched to help Latino youths in grades 8 to 12 and their families gain the knowledge and skills they need to bridge the gap between high school and higher education. Juntos 4-H (Juntos translates to “together”) provides students and families with encouraging family engagement through attending high school and middle school workshops, family nights and events.

Juntos 4-H clubs focus on academics, tutoring, life-skill activities, and community service while providing mentoring. Programs are available to English- and Spanish-speaking students and their families in numerous communities across the U.S. According to 4-H, Juntos 4-H participants reported a greater sense of belonging and confidence in their futures:

- 87 percent of participants feel like they now belong in school.
- 93 percent of students feel that Juntos helped them belong at school.
- 91 percent of youth improved their grades in school.
- 92 percent of students feel confident that they will graduate from high school.



Iowa State University Extension implemented a CYFAR-funded Juntos program in two counties to help youths in the area achieve academic success and explore paths to higher education. Through this program, the counties offer trained community facilitators who conduct educational sessions that involve youths and their parents/caregivers to help them gain knowledge, skills and resources needed to help youths academically succeed. Students also work one-on-one with an academic success coach who provides information about study skills, tutoring options, and additional support to help the students succeed in school. This bi-weekly, after-school club focuses on helping youths strengthen their self-confidence and develop life skills such as communication, leadership, and team building. The program also provides an opportunity for youths to experience university campus life, learn about career opportunities, and connect with other Latino students from around the state.

### **Farm Safety and Youth Farm Safety Education**

Established in 2001, the Youth Farm Safety Education and Certification (YFSEC) program provides instruction that leads to industry-recognized credentials for agricultural students and professionals. The program also ensures that vocational agricultural program curricula align with current career standards and agricultural safety and health regulations.

Purdue University launched a YFSEC Instructor Training Project, providing evidence-based training for secondary school agricultural educators, 4-H Extension educators and qualified county-level volunteer YFSEC instructors. Ultimately, the project conducts timely, pertinent, and appropriate activities designed to enhance the availability and quality of farm safety education and certification training for youths seeking employment or already employed in agricultural production. Program organizers developed a curriculum entitled “Gearing Up for Safety,” consisting of a website, PowerPoint presentations and video lessons, that has been shared with 3,190 county Extension offices and 12,900 high school agricultural science programs in 2022.

### **Federally Recognized Tribes Extension**

The Federally Recognized Tribes Extension Program (FRTEP) works to establish and support Extension outreach on Federally Recognized Indian Reservations and Tribal jurisdictions of Federally Recognized Tribes.

Examples of funded projects include:

Tribal Food Sovereignty. The Duck Valley Shoshone-Paiute Indian Reservation is in a rural and isolated area in Northeastern Nevada and Southern Idaho where economic survival has historically been based on agriculture. Despite Duck Valley’s status as the largest agricultural producing reservation in Nevada, access to fresh food has been a significant challenge in recent times. That is gradually changing as access to fresh produce is encouraging tribal communities to revert to traditional practices and foods. The Duck Valley Hoop House and Garden Project is part of that transition.

The hoop house project is being led by the University of Nevada Cooperative Extension Program thanks to funding from the Federally Recognized Tribal Extension Program (FRTEP), the Indian Land Tenure Foundation (ILTF), the Duck Valley Shoshone-Paiute Tribes, and the Coronavirus Aid, Relief and Economic Security (CARES) Act. The project is an expansion of an existing program conducted in cooperation with the Nevada Gold Summer Youth Internship program. The goal is to promote food sovereignty on the Duck Valley reservation.

The project includes the construction of some 50 hoop houses at or near the home sites of individual Indian landowners. Hoop houses are a less expensive alternative to greenhouses that are constructed by covering a PVC or metal hoop structure with one or two layers of clear plastic. This low-tech, low-cost solution traps heat inside the structure which keeps the soil warmer. This extends the growing season by providing protection from wind, frost, snow and ice. On the reservation it is a practical way for tribal members to grow their own vegetables without the cost and complexity of constructing greenhouses.

Metal or PVC frames have been fabricated on site along with doors and vents. In addition, 200 raised grow boxes are being built on site. Vegetables have been transplanted from greenhouses elsewhere into these 4-foot x 4-foot x 8-foot boxes. Topsoil has been trucked to the site using local haulers. In addition to the new construction, a number of hoop houses have received fresh plastic covering to replace old materials that had been damaged by wind and extreme weather that is not uncommon on land located more than 5,000 feet above sea level.

The hoop house project offers educational opportunities for children and adults while providing farm-fresh vegetables for elders and families in need, as well as supplying other tribal and community members and the local farmer’s market. Even before the COVID-19 pandemic struck, grocery stores on the reservation had difficulty

providing fresh produce to the extent that the hoop houses have, and the requests for hoop houses and community gardens continues to grow.

A Pathway for Youth. Agriculture is the primary economic industry on the Blackfeet Reservation with some 800 producers managing 1.5 million acres of land. Limited access to credit, capital and lack of a credit history has prevented beginning farmers and ranchers from returning to family farms, which threatens the sustainability of agriculture on the reservation.

Program director and FRTEP agent(s) extend lifelong learning to individuals through unbiased, research-based education and information that integrates learning, discovery, and engagement. This, in turn, strengthens the social, economic, and environmental fabric of communities on the Blackfeet Reservation. The program's priorities are focused on Indian farmer and rancher productivity and management, and tribal youth and 4-H.

The 4-H program was established on the Blackfeet Reservation over 20 years ago and has grown from four participants to more than 100. With the assistance of partners and local volunteers, Extension designed 4-H programs that were a good cultural fit. This included the establishment of a unique local fair where every youth's accomplishment(s) could be recognized. As a result, the majority of youth are staying involved in 4-H until they graduate from high school, not dropping out after 7th or 8th grade.

FRTEP is considered a valuable, trusted community resource. Community members recognize that the Blackfeet Extension office serves an important function in the community with the capacity to connect people to other programs and services. FRTEP has utilized a dedicated cadre of volunteers who design innovative programs specifically for youth, helping them to forge a connection between the land and its natural resources. These volunteers have managed a natural resource youth camp for the past 16 years.

The Montana Junior Ag Loan Program, administered by the Montana Department of Agriculture, assists, and encourages youth and new farmers and ranchers in financing agricultural projects. The program has helped revive agricultural traditions on the Blackfeet Reservation and given participants the opportunity to build their capital and credit. They can continue to borrow through other loan programs such as the Farm Service Agency (FSA) and Community Development Financial Institutions (CDFI's). Many have built up their cattle herds and collateral and have been able to establish cattle operations. Several participants have used the profits from those operations to fund their college education.

As farmers and ranchers age, it is becoming more important for Blackfeet youth to acquire the knowledge about agriculture and natural resource programs that will help them be successful farmers and ranchers in the future. Extension specialists are an integral part of that educational process, providing research-based knowledge to an audience who may not otherwise have that learning opportunity. Support from, and engagement with, the tribal government and elders is integral to growing agriculture on the Blackfeet Reservation, as is collaboration with the tribal business counsel to help stimulate economic development.

Providing Pandemic Relief. Indian Country has been particularly hard hit by the impact of the COVID-19 crisis, but few people have been better positioned to provide assistance than Tribal Extension agents. As local leaders in the Federally Recognized Tribes Extension Program (FRTEP), these individuals have gone to great lengths to respond to the greatest needs on reservations across the country. From distribution of emergency food supplies and protective facemasks to helpful videos on how to make hand sanitizer and successfully grow your own food, extension agents have been a vital resource for Indian people, tribal leaders, and government agencies.

Although the numbers are difficult to quantify, there is no doubt that much of Indian Country has been hit harder by the coronavirus than the many parts of the nation. The combined impact of poverty, large numbers of individuals with pre-existing medical conditions, and inadequate medical facilities has been devastating.

“The medical systems are easily overloaded and there have been a lot of deaths,” said the Director of Tribal Extension at the University of Arizona, whose program serves seven different reservations. “For smaller tribes, the number of deaths has been more impactful as a whole because the population is small, and everybody knows everybody. We lost one of our 4-H leaders and the tribes have lost cultural and language people. It has changed the way ceremonies and funerals are done and the people are trying to figure this all out. It's just a complete paradigm shift.”

Fortunately, the FRTEP agents have been able to provide assistance. Some have distributed masks through food banks, soup kitchens and crisis shelters. Others have provided cloth and sewing materials so students in 4-H programs could make masks. At Hualapai there was no hand sanitizer available, so FRTEP agents created a video to help community members make their own. Some agents distributed latex gloves and other Personal Protective

Equipment (PPE) to tribal communities while others organized the acquisition and distribution of emergency supplies of hay, firewood, and food. In Alaska, the Bristol Bay tribal extension program has distributed more than 4,000 meals to youth and 3,000 pounds of produce to elders in remote communities.

“The networks we have with tribes and the USDA (U.S. Department of Agriculture) has been critical, and the relationships that have been built up over time have been integrated into a lot of the efforts taking place,” the director explained. Tribal extension agents have been working in conjunction with government agencies, non-profit organizations, and corporations to coordinate logistics for emergency aid to tribal communities. “There has been a lot of collaboration,” the director said. “One of the important aspects has been having that one person as a point of contact with the tribes. This situation really highlights the importance of maintaining that.”

Even during the height of the pandemic response, agents are still serving farmers and ranchers, tribal youth, and tribal communities with socially distant services. Demand for information on how families can grow their own food has been greater than ever, programming for children and teens has been adapted for online delivery, and agents are finding new ways to communicate with stakeholders. “This crisis has actually brought to life just how critical extension agents and programs are for the tribes,” the director said. “We have known for a long time how important it is to have someone in there who has the education and access to the resources that tribes need. Now the USDA and others are finally realizing the importance of that, too.”

Respecting Roots and Growing for the Future with the Mashantucket Pequot Tribal Nation. Six years ago, there was a 300-acre parcel of wooded land in North Stonington, Connecticut. A dirt road led into the property, and the executive director of the Mashantucket Pequot Tribal Nation (MPTN) Department of Agriculture, had a dream of building a farm for the tribe on the land and reconnecting to their agricultural roots.

That parcel of land has transformed into Meechooôk Farm, a vibrant agricultural operation for the tribe. Today, there are two parcels of land that total 600 acres. Now the land is used for production, with greenhouses growing hydroponic lettuce and tomatoes year-round, fruit plantings, livestock, and plans to further expand the farm and the agricultural products they can grow.

The transformation of the land was made possible through support from UConn Extension educators and the Federally Recognized Tribes Extension Program (FRTEP). The USDA recently funded the project for an additional four years thanks to the success of Meechooôk Farm and other programs that strengthen the tribal community, their land-base, and self-sufficiency. “It’s brought back a lot of traditions that were lost,” says the director. “This project means everything to me because we’re growing food for our people and training family to grow their own food.”

### **Beginning Farmer and Rancher Development Program**

The Beginning Farmer and Rancher Development Program (BRDDP) supports a wide range of professional development activities across an array of important topics for new farmers and ranchers, such as managing capital, acquiring, and managing land, and learning effective business and farming practices.

Examples of funded projects include:

The University of Arkansas Pine Bluff’s Beginning Farmer and Rancher Development Program provides training in agricultural business, production, marketing, the use of USDA programs and risk management to new and beginning minority and traditionally underserved farmers. Last year, more than 100 participants took part in classes covering business planning and structures, soils and soil health, USDA programs and their use, marketing, crop and livestock production, risk management education and farm equipment use and safety.

### Integrated Activities

Selected Examples of Recent Progress

### **Methyl Bromide Transition Program**

The Methyl Bromide Transition Program supports the discovery and implementation of practical pest management alternatives for commodities and uses affected by the phase-out of methyl bromide (MB), an ozone layer-depleting gas that was previously used for pest control. Methyl bromide is an odorless, colorless gas used to control a wide variety of pests in agriculture and shipping, including fungi, weeds, insects, and nematodes. However, in the atmosphere, methyl bromide depletes the ozone layer and allows increased ultraviolet radiation to reach the earth's surface. Hence, this soil fumigant was banned from several agricultural usages, exposing the need for new sources and methods for its replacement. The pressure to completely phase-out MB has created an urgent need for new economical and effective pest control tactics to control soil-borne and post-harvest pests, and pests in the processing

and shipping industries. Funded projects include those that seek to solve pest problems in key agricultural production and post-harvest management systems, processing facilities and transport systems for which MB has been withdrawn or withdrawal is imminent.

Examples of funded projects include:

Sustainable Weed Management Programs for Intensive Vegetable Production. University of Florida scientists are developing an integrated weed management (IWM) program for plasticulture production systems. Specialty crop growers in many regions of the U.S. rely predominately on plastic mulches and fumigants for weed control. Preemergence herbicides or the use of fumigant combinations that include Methyl Isothiocyanate (MITC) products can improve weed control and may decrease tuber and weed seed densities in the soil over time. The overall goal of the project is to identify fumigant and herbicide combinations that optimize weed control and reduce weed seedbanks and soil tuber populations over time when incorporated into IWM program. Scientists are confident the research will lead to increased adoption of sustainable weed management programs in plasticulture vegetables.

Integrating Pest and Management Practices to Improve Tomato and Strawberry Crop Health. Virginia's agriculture provides more than 334,000 jobs every year. Tomatoes and strawberries are two of the largest industries in the state, with fresh tomatoes ranked ninth among all U.S states and strawberries providing an average of \$9 million in revenue for small farmers every year. These two specialty crops contribute greatly to the agricultural economy of Virginia but were also predominantly affected by the prohibition of methyl bromide in 2005. Currently, many Virginian farmers' first line of defense is a shank fumigation (knife injection). However, shank fumigation requires specialized equipment, and its effectiveness can be erratic. A cost-effective alternative to shank fumigation is the application of fumigants through the drip irrigation line. However, the efficiency of this method is often dependent on the complete wetness of the planting bed, which is challenging to achieve on the sandy soils typical in most vegetable production regions of Virginia and the southeastern U.S. Additionally, the always-increasing cost of agricultural inputs such as fertilizers (81 percent increase in 2022) and pesticides forces growers to prioritize cost-effective methods of pest control in their farms. To increase the efficiency of the application, Virginia Tech scientists are developing an innovative production system that promotes better wetting of the beds and consequently, improves the distribution of the fumigant. The system has the potential to reduce the net amount of fumigant and other pesticides applied to tomato and strawberry fields while maintaining pest management equal or better than traditional fumigations. The holistic management approach will require minimal changes to the current production systems for tomatoes and strawberries in Virginia. In addition, it offers a potential increase in profitability for growers that adopt this technology as a byproduct of reducing the bed dimensions and increasing the potential yield per area of their system.

### **Organic Transition Program**

The Organic Transition Program (ORG) focuses issues related to the needs of growers and processors who are adopting organic practices and ecosystem services of organic agriculture. The ORG program supports the development and implementation of biologically based management practices that mitigate the ecological, agronomic, and economic risks associated with the transition from conventional to organic agricultural production systems. The program addresses new and emerging hurdles for producers transitioning to organic production. The program helps develop innovative management strategies to inform transition choices and improve soil health and other ecosystem services of organic agriculture. It also invests in the development of alternative strategies following the loss of critical tools, like the use of antibiotics for disease management in organic systems.

Examples of funded projects include:

Clemson Aims to Boost Organic Rice Production in Salty Coastal SC. Clemson University-led project aims at reviving South Carolina's rice industry. Increasing Coastal Organic Rice Production in South Carolina Using Salt Tolerant Cultivars tackles many issues regarding the environment and agriculture that researchers believe could become a model research project for climate resilience in agriculture. South Carolina's premier rice cultivar, "Carolina Gold," is salt-sensitive. It has been a staple of the food and culinary ways of Charleston dating back to colonial days and antebellum days — all the way through the present. But for a long period of time after the Civil War, Carolina Gold rice production dwindled down to nothing. Now, much of the land on which the crop was originally grown has succumbed to saltwater intrusion. In Beaufort and Savannah, saltwater is being drawn into aquifers as fresh water is pumped out. This "plume" of salt is drawn into the aquifer as fresh water is removed. Research and Extension project will detail cultivation practices and economics of growing rice in salt affected coastal areas, enabling growers to make informed decisions. And ultimately, new cultivars would expand acreage under organic rice production, while ensuring the economic stability of producers and enhancing ecosystem services.

Integrating Biological Controls for Root-Knot Nematodes, Weeds in Organic Farming. While weeds and plant parasites are a concern for all agricultural producers, organic producers are doubly challenged to combat these problems without chemical solutions. A University of Georgia researcher is working to discover and integrate biological products and cover crops to control nematodes and weeds in organic vegetable production. The researcher has found that the root-knot nematode is the most prevalent based on distribution, soil population density and incidence. Root-knot nematodes can enter a plant's roots and move through its cells, where they grow, produce eggs, and cause the roots to swell. This reduces the plant's growth and yield potential in a relatively short timeframe and can lead to severe yield losses for organic farmers. South Georgia's sandy soils allow root-knot nematodes to reproduce frequently because they can move easily through the soil's loose texture and infect almost all vegetable crops. If the nematodes can't be controlled in organic production systems, the producer may have to abandon the field and move operations to an uninfected area. Scientists are identifying native strains of *Bacillus thuringiensis* (Bt) crystal proteins, which have nematicidal tendencies against root-knot nematodes. The team also is investigating the use of entomopathogenic nematodes (EPNs) — nematodes that can kill other nematodes — and their bacterial metabolites to try to control root-knot nematodes. Because weed control is another concern for organic production and farmers cannot use chemical herbicides, the team is testing several cultivars of summer and winter cover crops in the field for the greatest nematode- and weed-suppressive qualities.

Improving Organic Milk Production Through Use of Legume-Grass Mixtures. The University of New Hampshire led a five-year study to determine how changes in various legume-grass mixtures across multiple years affect forage quality, milk production and greenhouse gas emissions when fed to organic dairy cows. Among the study's goals: deliver best management practices directly to farmers on how to produce nutritionally superior organic milk. The research, funded through the Organic Transitions program, revealed a number of findings, including second and third cuttings generally improve nutritive value. The research team shared these and other results with organic and conventional dairy farmers across the Northeast, as well as with Extension educators, industry stakeholders and academic communities, through workshops, webinars, pasture walks and field days.

University of Vermont Helps Increase Organic Production of Maple Syrup. At the University of Vermont, researchers and Extension specialists capitalized on funding from NIFA's Organic Transition Program to help increase organic production of maple syrup to benefit consumers and producers. Despite a growing demand for organic maple syrup, barriers exist for conventional producers to transition too organic. However, findings on tree health, syrup yields of various sizes of trees, and the most effective certified organic defoamers have reduced these burdens. Now maple syrup producers have additional information and resources to improve organic maple syrup operations, increase the market for this in-demand product, and increase profitability.

### **Regional Rural Development Centers**

In 2022, the Regional Rural Development Centers (RRDCs) shared their preliminary report from a Listening Sessions Initiative to gather feedback from stakeholders engaged in developing America's rural communities. The report summarizes results from a survey of stakeholders, identifying their views on top priorities for rural community development, as well as their organization's capacity and interest to engage on key issues.

Examples of funded projects include:

Developing GIS Data in the West to Inform Land Use and Management Planning. Through a \$475,000 grant in 2020, the Regional Rural Development Centers program funded a number of activities at the Western Rural Development Center in Utah to facilitate rural prosperity and economic development. Notable among these is the WRDC's Land Use and Management Planning Initiative. Nearly one million square miles (55 percent) of the land in the western United States is managed by the federal government, and in recent years federal land management decisions in the region have been prominent and divisive. The WRDC's land use and management planning initiative seeks to develop a comprehensive GIS data set on all land west of the 98th meridian in the continental U.S. to explore the consequences of various land management approaches.

Promoting Rural Workforce Development in the North Central Region. At Purdue University in Indiana, the Regional Rural Development Center program helped support the operation of the North Central Regional Rural Development Center (NCRDC), which is focused on creating resilient communities and economies, developing leadership and civic engagement, and promoting community health and wellness. In 2021, the NCRDC partnered with the Association of Public and Land-grant Universities on a successful Ascendium Foundation grant to build a workforce engagement model that supports Extension professionals in forming and supporting a local community team to understand and address a community's workforce needs.

Supporting Underserved Farmers, Ranchers, and Communities in the South. The Southern Rural Development Center at Mississippi State University has made considerable progress in developing programs and providing resources to help underserved communities. Activities include the development of a basic grant writing workshop for use in underserved communities; exploration of opportunities to advance assistance to socially disadvantaged farmers/ranchers; and helping rural communities and disadvantaged groups increase access to USDA and other resources. Also, with additional AFRI funding, the SRDC began working in partnership with 1890 LGU colleagues on designing and disseminating tools for helping close the digital divide among underserved communities.

Building upon the work begun in 2017, the SRDC — along with its partners — continues to build capacity to address heirs' property concerns. Five teams, formed in spring 2020, continue to meet with SRDC to address concerns. A group including Mississippi State University, Tuskegee University, the Center for Heirs' Prosperity Preservation, and the USDA Forest Service has already been able to leverage \$499,998 to support research efforts. In the last year, the SRDC's efforts resulted in 40 training workshops conducted, eight multistate teams formed or supported, five curricula developed or expanded, \$500,000 in new funds leveraged, multiple virtual engagement practices adopted, and several new partnerships established, each of which has served to advance rural development.

Advancing Agritourism, Women-Owned Businesses in the Northeast. The Northeast Regional Center for Rural Development (NERCRD) at Pennsylvania State University has richly explored the roles of agritourism and female-operated farms in maintaining agricultural vitality at the county-level. As part of a NIFA-funded multistate project on agritourism, NERCRD faculty have assisted small and medium-sized farms engage in agritourism ventures, and staff supported the dissemination of those findings by hosting a webinar, editing, and publishing the report, and publicizing it across the RRDC networks. The report has been downloaded more than 300 times and provides practical tips and strategies for others interested in establishing a beverage-related tourism attraction in their locale.

Other priorities undertaken by the NERCRD include new grant opportunities (both in agritourism and intergenerational programming); rural-urban interdependencies as reflected in models of spatial supply chains; documenting how the rural Northeast (NE) differs from the nation and also what the NE states have in common agriculturally; behavioral and mental health in rural communities and how they interact with quality of life factors; changing agricultural production conditions in the Northeast and the nation; and the barriers and opportunities for innovation to occur in different types of communities.

### **Food and Agriculture Defense Initiative (FADI)**

Building a Network to Enhance Collaboration for Agricultural Biosecurity. Agricultural biosecurity is vital to maintain sustainability in the U.S. food and agriculture industry against threats from pests and diseases. NIFA engages in many programs, working groups and networks — in both plant and animal systems that support the tactical sciences for agricultural biosecurity mission — by identifying and preparing for the entry, outbreak or spread of both diseases and pests. More specifically, these programs involve plant and animal health, antibiotic resistance, food safety, education for disaster response and others.

In 2018, NIFA funded the Tactical Sciences Coordination Network (TSN), managed by Kansas State University, which focuses on bringing agricultural biosecurity-related programs together. This network works to identify the challenges, shared ideas and opportunities for collaboration that elevate nutritional security, early detection and rapid response, and agricultural biosecurity. TSN's objectives are to organize meetings with tactical science-related programs to identify common issues, develop strategies for outreach and develop a public-private partnership model to protect the U.S. agriculture industry.

Currently, the TSN has engaged with the three Food and Agriculture Defense Initiative programs: National Plant Diagnostic Network, National Animal Health Laboratory Network, and Extension Disaster Education Network. TSN has also engaged with NIFA's Crop Protection and Pest Management programs, Minor Crop Pest Management Program (IR-4), and the Minor Use Animal Drugs Program. These programs have their own crucial functions within the network, which includes developing and implementing surveillance programs, detection of plant or animal disease, supporting outbreak response, and coordinating management and recovery programs.

Examples of additional funded projects include:

Network Keeps Tabs on Phytophthora, the Cause of Sudden Oak Disease. This network supported industry and regulatory partners through testing and reporting. An example of this is for *Phytophthora ramorum*, the cause of sudden oak death. The network tested more than 6,000 woody plants in 2021 and 2022 for *Phytophthora*. Of those, 1100 were tested for *Phytophthora* in 2021 and 820 in 2022, with just 40 positive in 2021 and only six positive in 2022. Because the network is such a distributed and nationwide set of labs, it can handle thousands of samples in

short time, keeping the flood of samples from overwhelming the relatively small number of regulatory labs and responding to industry and partners in a short time period. This supports trade, plant health and regulatory response when needed. These high numbers are even more remarkable when you consider the supply chain issues for lab consumables and workforce impacts of COVID.

Network Detects First Incidence of Laurel Wilt Disease in Virginia. Virginia Tech detected the first incidence of laurel wilt in Virginia as a result of increased awareness and capacity in the network. Laurel wilt is a lethal vascular disease affecting native laurels in North America. Its fungus and the beetle that has a symbiotic relationship with it, the redbay ambrosia beetle, are native to Asia. Since their introduction near Savannah, Georgia, in 2002, laurel wilt has spread rapidly, resulting in extensive mortality of redbay. It also threatens other laurels such as sassafras and northern spicebush. At a regional meeting, a Florida diagnostician reported a case of laurel wilt. Virginia Tech diagnosticians also in attendance recognized the symptoms and signs of the disease in a sample June 2021. The Florida diagnostician shared the PCR protocol, controls and worked with the Virginia Tech lab to implement the morphological and molecular identification tests. The detection was confirmed by the National Identification Service via sequencing. Sassafras and northern spicebush are widespread in Virginia and their range extends into the northeastern United States and lower Canada. Laurel wilt poses a serious threat to these species and their ecosystems.

Lab Network Tracks Highly Pathogenic Avian Influenza. Americans eat more poultry than any other type of meat protein, and that means poultry production is big business in the United States. In 2020, the total production value of all poultry products topped \$35.5 billion, according to USDA's National Agricultural Statistics Service. During 2022, members of the National Animal Health Laboratory Network and USDA's Animal and Plant Health Inspection Service (APHIS) diagnosed numerous cases of highly pathogenic avian influenza in multiple states. HPAI was detected in commercial broiler and turkey flocks as well as in a backyard flock. It also was found in migrating waterfowl. Migrating waterfowl such as ducks and geese are the primary reservoir for avian influenza viruses. In 2015, 15 states suffered an HPAI outbreak, and the poultry industry lost more than 51 million chickens and turkeys. Reducing the threat of another large outbreak is crucial to a safe food supply and a stable poultry industry.

### **Crop Protection and Pest Management**

The Crop Protection and Pest Management (CPPM) program supports projects that increase food security and respond effectively to other major societal challenges with comprehensive IPM approaches that are economically viable, ecologically prudent, and safe for human health. The CPPM program addresses pest management challenges with new and emerging technologies. The outcomes of the CPPM program are effective, affordable, and environmentally sound IPM practices and strategies supporting more vital communities.

Examples of funded projects include:

In Colorado, Developing Innovative Strategies for Hemp Russet Mite Control in Industrial Hemp. Despite the long history of hemp production in North America, industrial hemp being grown in the current era can be considered a new crop in most all aspects. Historical research on the arthropod pest management needs is essentially non-existent, although several important arthropod pest problems have been identified on the crop. Hemp russet mite is a species presently thought to be restricted to Cannabis spp. crops with essentially no significant associated research, even regarding basic information on life history. As a russet mite on an herbaceous crop, there is little to guide development of research-based Integrated Pest Management systems. Current pest management technologies and practices used for control of hemp russet mite are inadequate, at best.

In a \$200,000 project led by Colorado State University, researchers sought to develop the methods that can be used to eliminate hemp russet mite during the point in hemp production — clonal propagation — where it is most vulnerable to control. The developments of these methods, and their subsequent communication to hemp producers in the United States, should provide a means to produce plants that are free of this pest, obviating the need for any subsequent use of pesticides for this pest on hemp crops.

Despite delays caused by the COVID-19 pandemic, researchers determined the efficacy of pest management products presently allowed for use on hemp to be used in hemp russet mite (HRM) eradication strategies during early stages of hemp plant production. The research team found that using sulphur resulted in a 95 percent reduction in number of HRM on two cultivars. The team is continuing its research while providing research-based information about hemp russet mite IPM to hemp producers throughout the United States, presenting their findings to growers in Oregon and Washington as well as to the scientific community.

Managing the Emerging Insect-Transmitted Cotton Leafroll Dwarf Virus in the Southern U.S. Cotton blue disease (CBD), caused by the aphid-transmitted cotton leafroll dwarf virus (CLRDV), is an emerging disease that poses a significant threat to the profitability of the U.S. cotton industry. CLRDV is regarded as the second most damaging virus disease to commercial cotton worldwide and is the first virus reported to cause yield loss in the Southeast. CLRDV was initially identified in symptomatic cotton collected from two Alabama counties in 2017, with a yield loss estimated to be \$19 million. Although information on the geographic range, symptoms and incidence are preliminary, they demonstrate the potential for this disease to reduce plant health and yield.

With \$325,000 in NIFA funding, a multidisciplinary research team began addressing agronomics, crop genetics and insect pest management components of cotton production impacting CBD severity. Knowledge was generated about aphid population dynamics responsible for virus spread in the landscape and the efficacy of currently available management practices to reduce virus incidence and severity, leading to cotton breeding efforts to develop varieties resistant to CBD.



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**SMALL BUSINESS INNOVATION RESEARCH AND SMALL BUSINESS TECHNOLOGY TRANSFER PROGRAMS**

The Small Business Innovation Research Act (SBIR) and the Small Business Technology Transfer (STTR) Act are codified at §9 of the Small Business Act, 15 U.S.C. §638. The SBIR program was designed to strengthen the role of small, innovative firms in federally funded research and development (R/R&D). The STTR program requires participating agencies to allocate a certain percentage of its extramural R/R&D budget to be reserved for awards to small business concerns for cooperative research and development.

The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) reauthorizes SBIR and STTR programs and pilot programs thru 2025 with a set aside of not less than 3.2 percent of appropriations in fiscal year 2017 and each fiscal year thereafter for the SBIR program and a set aside of not less than 0.45 percent for fiscal year 2016 and each fiscal year thereafter for the STTR program.

*Table NIFA-23 Funding for SBIR by Agency (thousands of dollars)*

Agency	2021 Actual	2022 Actual	2023 Budget	2024 Estimate
Agricultural Research Service .....	\$4,413	\$5,452	\$7,558	\$7,558
Animal and Plant Health Inspection Service .....	31	31	65	65
National Institute of Food and Agriculture .....	22,697	27,293	29,950	31,416
Economic Research Service.....	152	152	138	144
Forest Service .....	1,182	990	1,044	975
National Agriculture Statistics Service .....	22	25	34	34
<b>Total.....</b>	<b>28,497</b>	<b>33,943</b>	<b>38,789</b>	<b>40,192</b>

Note: Estimate has been provided for 2024. A report to the Small Business Administration for planned investments in 2023 and 2024 will be updated based on final appropriations.

*Table NIFA-24 Funding for STTR by Agency (thousands of dollars)*

Agency	2021 Actual	2022 Actual	2023 Budget	2024 Estimate
Agricultural Research Service .....	-	-	\$1,063	\$1,063
Animal and Plant Health Inspection Service .....	-	-	9	9
National Institute of Food and Agriculture .....	-	-	4,305	4,517
Economic Research Service.....	-	-	19	20
Forest Service .....	-	-	147	137
National Agriculture Statistics Service .....	-	-	5	5
<b>Total.....</b>	<b>-</b>	<b>-</b>	<b>5,548</b>	<b>5,751</b>

Note: Estimate has been provided for 2024. A report to the Small Business Administration for planned investments in 2023 and 2024 will be updated based on final appropriations.

The staff functions of USDA’s SBIR program 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 (8.1): Focuses on the health, diversity and productivity of forests and grasslands by sustaining forest resources, addressing climate change impacts, developing value-added materials and protecting existing ecosystems.
2. Plant Production and Protection (8.2): Biology -Enhances crop production and protection through biological approaches that reduce the impact of harmful agents, advance plant improvement methods, and develop new food and specialty crop plants.
3. Animal Production and Protection (8.3): Develops and markets innovative technologies to help agricultural animal producers improve production efficiency, prevent diseases and outbreaks, conserve resources, and reduce costs of production.

4. **Conservation of Natural Resources (8.4):** Creates technology for conserving and protecting essential resources while sustaining optimal agricultural productivity by enhancing air, soil, and water quality; developing irrigation techniques; reducing erosion and pollution caused by agriculture enterprises; and promoting these new technologies.
5. **Food Science and Nutrition (8.5):** Develops products and processes from new knowledge; improves methods of processing and packaging for better quality and nutritional value; and promotes programs and products that increase consumption and understanding of healthy foods while reducing childhood obesity.
6. **Rural and Community Development (8.6):** Conceptualizes and commercializes new and existing technology, products, processes, and services that enhance efficiency and equity of public and private investments; builds a diversified workforce; increases resilience to natural and human disasters; and improves economic vitality of rural communities and the reduction of poverty.
7. **Aquaculture (8.7):** Improves private sector production and competitiveness by increasing reproductive efficiency and genetic improvement in fish and shellfish; enhancing animal health, food safety, production efficiency, and cost-effective production of alternative proteins; and reducing water usage.
8. **Biofuels and Biobased Products (8.8):** Promotes product usage through innovative technologies that increase biofuels and biobased products from agricultural materials and provide new opportunities to diversify agriculture's role in the raw materials industry.
9. **Small and Mid-size Farm (8.12):** Increases sustainability and profitability of farms and ranches through newly developed plant, animal, organic and natural products; enhanced farm safety; increased operation efficiency; and conservation of natural resources.
10. **Plant Production and Protection – Engineering (8.13):** Enhances crop development and safety by reducing the impact of harmful agents and developing economically and environmentally sound production, post-harvest, and storage systems.

**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 2018 Farm Bill. The scope of the final RFAs will depend upon the final levels of appropriations enacted by Congress. The actual publication dates may change due to factors such as amount and timing of appropriations, unexpected delays in the review process, and new developments in science. For the most up-to-date AFRI RFA publication schedule, please refer to the NIFA website at: <https://www.nifa.usda.gov/grants/programs/agriculture-food-research-initiative-afri/afri-request-applications>.

The Expected 2024 Publication Dates for the AFRI Foundational and Applied Science, Education and Workforce Development, and Sustainable Agricultural Systems RFAs will be December 2024, January 2025, and February 2025, respectively. NIFA will continue to release the Foundational and Applied Science RFA and the Education and Workforce Development RFA as single funding opportunity announcements for each respective program spanning two years of appropriations (i.e., 2024 and 2025). In contrast, the yearly Sustainable Agricultural Systems RFA will span a single year of appropriations to reflect the changing goals of the program. Funding amounts for AFRI reflect those amounts of appropriated funds anticipated for programs including interagency programs and legislative set-asides for programs such as the Small Business Innovation Research program, except where noted otherwise.

**2024 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: 1) plant health and production and plant products; 2) animal health and production and animal products; 3) food safety, nutrition, and health; 4) bioenergy, natural resources, and environment; 5) agriculture systems and technology; and 6) agriculture economics and rural communities. The alignment of AFRI program Requests for Applications (RFAs) with the Farm Bill priorities is described in this document.

Through AFRI, NIFA seeks to ensure our nation’s food security and safety by addressing challenges to U.S. agriculture, promoting America’s global competitive edge in agricultural exports, driving research and development to support rural economic development, and supporting the country’s investments in agricultural research, education, and extension. A major food systems challenge is the need to substantially increase food production, while reducing food waste and loss, and to ensure nutrition security for a burgeoning global population, projected to approach ten billion in less than three decades. Increased domestic and global production of food, however, must occur on diminishing arable land and increasingly adverse impacts of climate change. Additionally, American agriculture will need to build upon its global competitive edge. A well-trained workforce and next generation of researchers are needed to meet these challenges posed by the ever-changing landscape of production agriculture. Transformation of agriculture in response to these challenges requires ethical use of data and artificial intelligence (AI), scale-neutral technologies that support small, medium and large producers, and prudent management practices coupled with promotion of local and regional food systems and expansion of market opportunities for ensuring equity and access to historically underserved producers, communities and consumers.

AFRI supports the creation, delivery, and application of new knowledge in a broad range of agriculturally relevant areas, including sustainable livestock and crop production systems, farm profitability, resiliency of agriculture to impacts of climate change, water management, natural resources and the environment, rural development, human nutrition, food safety, and the food and agriculture workforce pipeline. These efforts are addressed through the three major components of AFRI; the Foundational and Applied Science Program, the Sustainable Agricultural Systems Program, and the Education and Workforce Development Program. Research, education, and extension efforts are supported by AFRI in the six priority areas established in the Farm Bill cited above.

Fundamental and applied research that aligns with the six Farm Bill priority areas is supported by the AFRI Foundational and Applied Science Program. The Foundational and Applied Science Program also funds several cross-cutting programs that support interdisciplinary work in two or more AFRI Farm Bill priorities to generate knowledge to position U.S. agriculture at the global forefront, including the Critical Agricultural Research and Extension (CARE) program area which is intended to result in rapidly-implementable solutions to critical problems faced by food producers and consumers.

Sustained funding for the Foundational and Applied Science Program will increase the funding rate (i.e., the number of grants awarded), especially for new investigators and minority-serving institutions, which is essential for continued development of the pipeline for the next generation of diverse scientists critical for maintaining a vigorous research enterprise in food and agricultural science. Discoveries made through research supported by the Foundational and Applied Science Program, in turn, provide the knowledge base required for subsequent transformative future research, extension, and education programs at NIFA (including those in the AFRI Sustainable Agricultural Systems Program) that aim to solve problems in applied areas of the food and agricultural sciences. Additionally, discoveries derived from the Foundational and Applied Science Program often led to innovations that are commercialized and drive local economic development. Additional high-priority science will be supported in collaboration with other Federal science agencies and international science agencies. These interagency programs are aligned with NIFA’s relevant programs aimed at developing the foundational knowledge needed to address challenges to the food and agriculture production system. In addition, interagency programs with science agencies in other countries provide an opportunity for NIFA to exert global leadership in agriculture through opportunities such as the Agriculture Innovation Mission for Climate (<https://www.aimforclimate.org/>).

Through AFRI grants, NIFA will support the 2024 Administration priorities of addressing climate science (including developing and promoting climate-smart agriculture and forestry practices), measurement and monitoring of agricultural greenhouse gas emissions, improving nutrition security, driving innovation in clean energy production and adoption, expanding markets for agricultural producers, and promoting prosperity in America’s rural and underserved communities. NIFA will also incorporate the Administration’s priorities for research and development (<https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-32-Multi-Agency-Research-and-Development-Priorities-for-FY-2023-Budget.pdf>). NIFA will use \$20 million, an increase of \$10M from 2023 President’s Budget, to support the Administration’s efforts on Cancer Moonshot through work on nutrition to reduce diet-related chronic disease, production of healthy foods that prevent or reduce the risk of cancer, creation of biobased agricultural products as anticancer supplements and therapeutic agents, and use of dual purpose with dual benefit studies in animals.

#### **Agriculture and Food Research Initiative Requests for Applications**

In 2023, the AFRI program will issue three Requests for Applications (RFA) to solicit new applications; the Foundational and Applied Science RFA, the Sustainable Agricultural Systems RFA, and the Education and Workforce Development RFA. All three of these RFAs collectively address the six AFRI priority areas established in the 2014 Farm Bill.

**Table NIFA-25 Agriculture and Food Research Initiative 2024 Requests for Applications (In dollars)**

Program	New Grant Awards
Agriculture and Food Research Initiative	\$550,000,000

The NIFA 2024 Budget proposes to support the AFRI program at \$550,000,000, which includes:

- Climate science that promotes development of climate-smart agriculture and forestry and carbon-neutral agricultural practices to support adaptation to climate change and to achieve net-zero greenhouse gas emissions by 2050
- Monitoring and measuring greenhouse gases emissions from agricultural and food production systems
- Innovations in clean energy production and use in food and agricultural systems that contribute to development of rural circular economies through clean energy technologies and creation of high-value biobased products from agricultural feedstocks
- Precision nutrition including support for the Cancer Moonshot through work on food and nutrition security, production of healthy foods, creation of biobased supplements and therapeutic agents, and dual purpose with dual benefit studies in animals
- Support for understanding and using Indigenous Traditional Ecological Knowledge in a broad range of food and agricultural topics (<https://www.whitehouse.gov/wp-content/uploads/2021/11/111521-OSTP-CEQ-ITEK-Memo.pdf>)
- Increased investment in the Foundational and Applied Science Program, including continuation of the increased support for new investigators, continued promotion of equity and inclusion in the food and agricultural sciences, and increased investments in addressing challenges faced by underserved communities
- Increased investments in the Sustainable Agricultural Systems Program, to support innovative, transformative, integrated, and transdisciplinary systems-level approaches for development of sustainable production systems,

climate-smart agriculture and forestry, carbon-neutral agricultural practices, local and regional food systems for improved production, food and nutrition security, clean energy technologies and high-value biobased products, and equitable economic development

- Increased investments in the Education and Workforce Development program for training and retraining of agricultural workers and the next generation of food and agricultural scientists, with special emphasis on underserved rural communities and use of technology
- Investments to enhance support for innovation, translation and entrepreneurship training, and support for underserved rural communities
- Sustained support for Plant and Animal Breeding, including adaption and resiliency to climate change through climate-smart agriculture and forestry
- Continued support for high priority areas including sustainable production agriculture, soil health, agricultural biosecurity, food and agricultural microbiomes, nanotechnology, food safety, water quality, food loss and waste, and pollinator health
- Continued fostering of interagency collaborations to leverage greater investment in food and agriculture-relevant areas of science, and to attract new communities of scientists to address challenging agricultural issues

### **AFRI Requests for Applications:**

**Foundational and Applied Science RFA** | The AFRI Foundational and Applied Science RFA is organized by, and directly aligns with, the six priority areas established in the 2014 Farm Bill. The Foundational and Applied Science Program priorities are designed to include the scope of topics listed within each of the six AFRI priority areas established in the Farm Bill. NIFA will invest \$332,000,000 of appropriated AFRI funds to support new grants in the Foundational and Applied Science Program, as well as interagency programs, and \$23 million to support existing grant commitments from previous years. These investments will allow increased foundational efforts on mitigation of greenhouse gases, adaptation and resiliency of agricultural systems to climate change, as well as enhanced focus in promising new areas of agricultural science such as robotics, sensors, cyberphysical systems and application of big data. NIFA proposes to continue increased investments in the plant and animal breeding program area priorities that support classical breeding efforts to improve crop and animal productivity, local adaptation of cultivars and breeds, and development of public cultivars. Investments will also be made through interagency programs related to technology and data-driven solutions in agriculture such as the application of artificial intelligence to climate-smart agriculture and forestry and food system supply chains. To ensure American prosperity, additional investments will be made in emerging technologies such as gene editing for agricultural applications, autonomous systems and machine learning for agricultural applications, and production of new agriculture-based products, including clean energy. Enhanced investments will also foster research on agricultural biosecurity; precision livestock farming; the microbiome of foods, human gut, food animals, plants, and soils; food waste and loss; and on strategies to mitigate antimicrobial resistance. Increased funding for new investigators to support the next generation of scientists and educators will ensure America’s food security, as well as its preeminence in the agricultural and food sciences continues into the future.

In 2024, the AFRI Foundation and Applied Science program will include the following additional goals:

- \$10 million to support climate science, including mitigation, adaptation, and resiliency of agricultural systems to climate change in all program areas and cross-cutting programs to provide foundational knowledge needed to support related work in the Sustainable Agricultural Systems program
- \$20 million to support and expand ongoing innovative foundational and applied research on clean energy to provide knowledge required to support related work in the Sustainable Agricultural Systems program necessary to develop cost-competitive bioproducts with environmental for a circular bioeconomy
- \$10 million for precision nutrition and \$20 million for the Moonshot for Cancer through work on food and nutrition security, production of healthy foods, creation of biobased supplements and therapeutic agents, and dual purpose with dual benefit studies in animals
- Increase investment in the novel “Rapid Response to Extreme Weather Events” cross-cutting program to rapidly deploy strategies and fill knowledge gaps that protect the nation’s food and agricultural supply chains during and after extreme weather events and natural disasters
- Enhance capacity of diverse educational institutions, promote equity and inclusion, and serve underserved communities through increased proportion of Food and Agricultural Science Enhancement (FASE) awards
- Continuation of increased support for new investigators through awarding of New Investigator Seed Grants and New Investigator Standard Grants
- Incorporation of Indigenous Traditional Ecological Knowledge in appropriate priority areas

- Development of precision agricultural technologies concomitant with educational programs to enhance adoption of these technologies by small- and medium-sized farmers and ranchers.
- Continued fostering of interagency collaborations to leverage greater investment in agriculturally relevant areas of science, and to attract new communities of scientists to address challenging agricultural issues.

**Table NIFA-26 Foundational and Applied Science 2024 RFA (In dollars)**

Request for Applications (RFA)	New Grant Awards
Foundational and Applied Science Program	\$355,000,000

**Sustainable Agricultural Systems RFA** | In 2024, NIFA will invest \$140,000,000 of appropriated funds in the AFRI Sustainable Agricultural Systems Program, which will build on advances made in research, education, and extension outcomes through previous AFRI investments, and which will support the Administration’s climate crisis priorities that were presented in EO 14008, including development of clean energy technologies, monitoring and measurement of greenhouse gas emissions, climate science, development of climate-smart agriculture and forestry practices, and application of carbon-neutral agricultural practices to achieve net-zero emissions of greenhouse gases by 2050. The integrated transdisciplinary approach taken in the Sustainable Agricultural Systems Program will enable NIFA’s goal of advancing the convergence of agricultural and food sciences with engineering, social sciences, technology, computational sciences, and advanced manufacturing to generate new scientific discoveries, new products, new markets and, consequently, new high-skill jobs. These systems-level projects will marshal the many facets of the agricultural system, from farms to supply-chain businesses to consumers, to transform the way we produce, process, transport, and consume food. In doing so, it will address interrelated challenges of agricultural productivity, climate change, water quality and availability, food safety, environmental resilience, and nutrition security. Through investments in technology, data, and innovation, NIFA will catalyze transformative changes throughout U.S. agricultural systems and contribute to the following goals:

- Invest \$74 million to support innovations in clean energy production and use in food and agricultural systems that contribute to development of rural circular economies through clean energy technologies and creation of high-value biobased products from agricultural feedstocks
- Provide \$23 million for climate science including development and application of climate-smart agriculture and forestry practices to improve mitigation, adaptation, and resiliency of agricultural and food systems to climate change
- Invest \$12 million for monitoring and measuring emissions of greenhouse gases from agricultural and food production systems
- Create more and better market opportunities in the food and agricultural sector, especially for socially disadvantaged and historically underserved producers and communities: these opportunities include high-value biobased products, circular agricultural economies, local and regional food systems, and use of scale-appropriate technologies and management practices
- Improve nutrition security by enhancing the contribution of food and agriculture to health of the nation through development, adoption, and application of new or existing technologies, tools, education, and other resources to ensure access to sufficient quantities of safe, nutritious, and affordable food
- Invest in systems-level Coordinated Agricultural Projects (CAPs) up to \$10 million per project focused on clean energy technologies, greenhouse gas emissions, climate science and climate-smart agriculture and forestry to generate transformative new scientific discoveries, new products, and new markets that will provide high-skill jobs and ensure America’s global leadership in agriculture
- Provide research, education, and extension to support urban and indoor agricultural systems to solve key problems of local, regional, and national importance
- Offer opportunities for mid-size integrated Research, Education and Extension projects of up to \$3-5 million each that include work on clean energy technologies, greenhouse gas emissions, climate science and climate-smart agriculture and forestry

**Table NIFA-27 Sustainable Agricultural Systems 2024 RFA (In dollars)**

Request for Applications (RFA)	New Grant Awards
Sustainable Agricultural Systems Program	\$140,000,000

**Education and Workforce Development RFA** | NIFA will invest \$47,000,000 of appropriated AFRI funding in new grants and \$8,000,000 million in existing grants for Education and Workforce Development that focus on further enhancing three distinct components of the pipeline for developing the workforce in the food and agricultural sciences, including those needed to support the Administration’s priorities of creating innovations in clean energy, advancing climate science, mitigating greenhouse gas emissions, and improving nutrition and food security. The first component is enhancing agricultural and climate literacy through institutional grants to help increase knowledge of food and agricultural sciences in K-14 teachers and administrators and helping them develop improved curricula to train the food and agricultural workforce of the future. This will also include training or retraining of agricultural workers for the new economy to create a technology and data-savvy workforce that is ready for the field or industrial jobs. The second component is developing pathways for providing undergraduates in the food and agriculture sciences and related disciplines with the applied technical and leadership skills required for careers in agricultural sectors and farming enterprises or in graduate programs. Finally, the third component will advance science to support graduate and post-graduate education in food, agriculture, and related disciplines by awarding pre- and post-doctoral fellowships. These investments will address the projected shortfalls in the availability of a qualified scientific workforce in food and agriculture in the United States.

In 2024, the AFRI Workforce Development RFA will increase emphasis on:

- Investments to enhance support for innovation, translation, and entrepreneurship training, especially in underserved rural communities in order to solidify U.S. global leadership in circular bioeconomic development
- Workforce development at diverse educational institutions, promote equity and inclusion, and support historically underserved communities
- Continued support for predoctoral fellowships, postdoctoral fellowships, and experiential learning for undergraduate students at the baccalaureate and community college level.
- Increased support for STEM education.

**Table NIFA-28 Education and Workforce Development 2024 RFA (In dollars)**

Request for Applications (RFA)	New Grant Awards
Education and Workforce Development Program	\$55,000,000

**Table NIFA-29 Funding Allocations by Request for Applications for the 2024 Budget for AFRI (In dollars)**

Request for Applications (RFA)	New Grant Awards
Foundational and Applied Science Program <sup>1</sup>	\$355,000,000
Sustainable Agricultural Systems Program	\$140,000,000
Education and Workforce Development Program	\$55,000,000

<sup>1</sup> Funding for interagency programs is included within the Foundational and Applied Science Program, as appropriate.

**Table NIFA-30 Estimated Funding Allocations by Farm Bill Priority Area for the 2024 Budget for AFRI (In dollars)**

Farm Bill Priority Area	Total, Percentage of AFRI	Foundational and Applied Science	Sustainable Agricultural Systems	Education and Workforce Development
A. Plant Health and Production and Plant Products	19%	20%	15%	23%
B. Animal Health and Production and Animal Products	17%	17%	15%	19%
C. Food Safety, Nutrition, and Health	16%	17%	12%	16%
D. Bioenergy, Natural Resources, and Environment	22%	19%	31%	16%
E. Agriculture Systems and Technology	17%	17%	16%	17%



F. Agriculture Economics and Rural Communities	10%	10%	11%	9%
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**Table NIFA-31 Funding allocations by RFA for 2019 to 2023 Enacted, 2024 Budget for AFRI (In dollars)**

AFRI Program Areas	2019 Enacted	2020 Enacted	2021 Enacted	2022 Enacted	2023 Enacted	2024 Budget
Foundational and Applied Science Program	\$273,282,000	\$279,242,000	\$304,330,000	\$326,584,000	\$317,901,000	\$355,000,000
Sustainable Agricultural Systems Program	98,374,000	87,210,000	74,215,000	77,159,000	82,873,000	140,000,000
Education and Workforce Development Program	43,344,000	58,548,000	56,455,000	41,257,000	54,226,000	55,000,000
<b>Total</b>	<b>415,000,000</b>	<b>425,000,000</b>	<b>435,000,000</b>	<b>445,000,000</b>	<b>455,000,000</b>	<b>550,000,000</b>

**Other Competitive Program RFAs:**

Non-AFRI competitive programs Requests for Application are listed below. 2023 estimates for discretionary funding are based on the 2023 Consolidated Appropriations Act. Programs funded by mandatory funding are included based on the Agriculture Improvement Act of 2018 (2018 Farm Bill). 2023 and 2024 mandatory funding reflects the impact of a 5.7 percent sequestration reduction.

**Table NIFA-32 Other Competitive Program RFAs (thousands of dollars)**

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
Sustainable Agriculture Research and Education (SARE) Program	7 U.S.C. 5811, 5812 5831, and 5832	The 2023 RFAs will fund four regional centers and one national coordination center. The centers will emphasize innovative projects to help farmers and ranchers to adopt practices that are productive, profitable, environmentally sound, and enhance the quality of life for farmers, and society as a whole. Proposals for projects are submitted by scientists at academic institutions, public and private sector agricultural professionals and directly by farmers and ranchers. To promote development of the next generation of agricultural scientists, the SARE program has also pioneered accepting grant applications directly from	\$50,000	\$60,000	2023: August 15, 2022  2024: directed RFA projected late 2023
		graduate students in agricultural discipline. Grants awarded by the four regional administrative councils will support applied projects that address crop and livestock production and marketing, stewardship of private lands, the rural economy, and quality of life.			

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
		<p>The program will support development of technical guides and handbooks and education and training for Cooperative Extension System agents, and other agricultural professionals involved in the education and transfer of technical information concerning sustainable agriculture.</p> <p>The 2024 directed RFA will continue funding the centers for competitively reviewed projects to help farmers and ranchers.</p>			
Methyl Bromide	7 U.S.C. 7626	<p>The 2023 RFA focuses on supporting the discovery and implementation of practical pest management alternatives for commodities and uses affected by the methyl bromide phase-out. This program will request integrated and extension-only projects. The program focuses on integrated commercial and field-scale research on methyl bromide alternatives and associated extension activities that foster the adoption of these alternatives. The program will support new methodologies, technologies, strategies, and systems for controlling economically important pests for which methyl bromide has been the only effective pest control option.</p> <p>The 2024 RFA will consist of similar priorities to the 2023.</p>	\$2,000	\$2,000	<p>2023: November 17, 2022</p> <p>2024: November 15, 2023</p>
Minor Crop Pest Management Program – Interregional Research Project #4 (IR-4)	7 U.S.C. 3157(e)	<p>The 2023 and 2024 RFA will focus on continued funding for projects that provide safe, effective, and economical pest management solutions for minor agricultural uses and specialty crops. NIFA anticipates funding one national project that will consist of an administrative headquarters and four geographically based regional IR-4 centers (North Central, Northeastern, Southern, and Western). The funding period will be four years and the project will be funded as a continuation project.</p> <p>IR-4 will use the increase to help supplement field work and laboratory studies, for increased</p>	\$15,000	\$16,500	<p>2023: February 15, 2023</p> <p>2024: projected Spring 2024</p>

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
		costs; cover costs of a new electronic field data book for its data collection in the field trials; and it will help defray increased costs as IR-4 is paying up to 10 percent indirect funds beginning this year.			
Organic Transition Program (ORG)	7 U.S.C. 7628	<p>The 2023 and 2024 RFAs will focus on the development and implementation of research, extension, and higher education programs to solve critical organic agriculture issues, priorities, or problems to improve the competitiveness of organic livestock and crop producers, as well as those who are adopting organic practices. Practices and systems to be addressed include those associated with organic crops, organic animal production, and organic systems that integrate crop and animal production. The program will focus on (1) Documenting and understanding the effects of organic practices on soil health and fertility, greenhouse gas mitigation, enhanced biodiversity, and understanding of weed, pest and disease dynamics for better management; (2) Developing improved technologies, methods, models, and metrics to document and optimize the ecosystem services and the climate variability adaptation and mitigation ability of organic crop, livestock, and integrated crop-livestock production systems; (3) Developing cultural practices and other allowable alternatives to substances recommended for removal from NOP’s National List of Allowed and Prohibited Substances; and (4) Overcoming barriers to organic transition.</p> <p>The 2024 RFA will include priorities similar to the 2023 priorities.</p>	\$7,500	\$7,500	<p>2023: November 15, 2022</p> <p>2024: projected fall 2023</p>
Crop Protection and Pest Management Program (CPPM)	7 U.S.C. 7626	The purpose of the CPPM program is to address high priority issues related to pests including insects, nematodes, pathogens, weeds, and other pests and their management using integrated pest management (IPM) approaches at the state,	\$21,000	\$21,000	2023: November 17, 2022 – February 13, 2023

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
		<p>regional and national levels. The CPPM program provides support for this activity through three linked program areas: the Applied Research and Development Program (ARDP) area; the Extension Implementation Program (EIP) area, and the Regional Coordination Program (RCP) area that emphasizes research and development for discovery of IPM knowledge; extension activities for IPM adoption and implementation; and enhanced coordination, collaboration, and communications among related CPPM programs and awardees. The 2023 RFA will support competitive ARDP and EIP, and continuation RCP projects.</p> <p>The increased funding will partly help cover reductions in budget for EIP awardees that had to be made due to lack of sufficient funding. A portion of these funds will also be used in efforts to increase involvement of underserved populations in this program. The 2024 RFAs will focus on competitive ARDP and RCP, and continuation EIP projects. A review of the priorities for this program is being planned and may result in some modifications.</p>			2024: November 15, 2022 – January 15, 2024
Specialty Crop Research Initiative (SCRI)	7 U.S.C. 7632	The 2023 and 2024 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 is also required that applications address one of the five legislatively mandated focus areas.	\$75,440	\$75,440	2023: February 15, 2023  2024: Projected fall 2023 call for pre-applications AND spring 2024 full applications RFA
Emergency Citrus Disease Research and Extension (ECDRE) Trust Fund	7 U.S.C. 7632(j)	7 U.S.C. 7632(j) authorizes the ECDRE Trust Fund to provide \$25,000,000 per year in mandatory funding for the program. The ECDRE program solicits proposals to develop effective tactics and strategies to control Huanglongbing (HLB) and its disease complex for financially sustainable citrus growth	\$23,575	\$0	2023: January 16, 2023 / April 15, 2023

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
		<p>in the United States. All projects funded by the ECDRE program will incorporate collaborative approaches that utilize available knowledge to develop new solutions that can be deployed by growers to manage and prevent HLB infection in the near term. The 2023 and 2024 RFAs will support standard and coordinated agricultural projects designed to provide citrus growers with effective management strategies for citrus greening; applicants will decide which project type is best suited to the research and extension efforts they propose to undertake from the nine priorities set by Citrus Disease Subcommittee of the NAREEE Board. Standard projects will support research and extension efforts focused on specific aspects of the pathogen organism or its insect vector. Coordinated agricultural projects will provide support to consortia or groups of qualified applicants with the expectation that they project will make significant contributions to the sustainability of the system or system component.</p>			
Beginning Farmer and Rancher Development Program (BFRDP) Mandatory Funds	7 U.S.C. 2279	<p>The 2023 and 2024 BFRDP RFAs will continue to focus on education and training through standard grants and educational enhancement grants with the reauthorized and new topics. At least five percent of funds will focus on training for Veteran Beginning Farmers and Ranchers (BFRs), and at least five percent of funds will focus on training for limited resource BFRs, socially disadvantaged BFRs, and farmworkers desiring to become BFRs. Criteria for consideration of waiving matching fund requirements will be included in the RFAs.</p> <p>The 2024 RFA will address the same goals as described above for the BFRDP.</p>	\$23,575	\$23,575	<p>2023: Estimate April 3, 2023</p> <p>2024: Estimate April 1, 2024</p>
BFRDP (FOTO) Discretionary Funding			\$2,500	To Be Determined (TBD)	2023: Estimate April 3, 2023

<b>Program</b>	<b>Authority</b>	<b>Scope of RFA and Budget Justification</b>	<b>2023 Budget</b>	<b>2024 Estimated Budget</b>	<b>RFA Dates (Actual / Estimated)</b>
					2024: Estimate TBD
Organic Agriculture Research and Extension Initiative (OREI)	7 U.S.C. 5925(b)	The 2023 and 2024 RFAs will focus on solving critical organic agricultural issues, priorities, or problems through the integration of research, education and extension activities in order to enhance the ability of producers and processors who have already adopted organic standards to grow and market high quality organic agricultural products. Priority concerns include biological, physical, and social sciences, including economics. The focus will be on the eight legislatively-defined goals: (1) Facilitating the development and improvement 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, marketing, food safety, socioeconomic conditions, and farm business management; (7) Examining optimal conservation, soil health, and environmental outcomes relating to organically produced agricultural product; and (8) Developing new and improved seed varieties that are particularly suited for organic agriculture.	\$47,150	\$47,150	2023: November 15, 2023  2024: Projected fall 2023
Scholarships for Students at 1890 Institutions	7 U.S.C 3222(a)	The 2018 Farm Bill provided \$40 million to support the program, with up to \$10 million per year to be used for scholarships.	\$10,000	\$10,000	2023: March 15, 2023

<b>Program</b>	<b>Authority</b>	<b>Scope of RFA and Budget Justification</b>	<b>2023 Budget</b>	<b>2024 Estimated Budget</b>	<b>RFA Dates (Actual / Estimated)</b>
(Mandatory Funds)		Through the 2019 RFA, the program provides scholarships to outstanding students at 1890 institutions to pursue and complete baccalaureate degrees in the food and agriculture sciences and related fields that would lead to a highly skilled food and agricultural systems workforce.			
Scholarships for Students at 1890 Institutions  Discretionary Funds	7 U.S.C. 3222(a)	Through the 2019 RFA, the program provides scholarships to outstanding students at 1890 institutions to pursue and complete baccalaureate degrees in the food and agricultural sciences and related fields that would lead to a highly skilled food and agricultural systems workforce.	\$10,000	\$10,000	2023 – Estimate January 30, 2023
Gus Schumacher Nutrition Incentive Program (GusNIP)	7 U.S.C. 7517	<p>GusNIP brings together stakeholders from various parts of the food and healthcare systems to foster understanding of how they might improve the health and nutrition status of participating households. Funding for 2023 and 2024 will be used to: 1) support and evaluate projects intended to increase the purchase of fruits and vegetables by low-income consumers participating in the Supplemental Nutrition Assistance Program (SNAP) by providing incentives at the point of purchase; 2) demonstrate and evaluate the improvement of dietary health through increased consumption of fruits and vegetables, reduced individual and household food insecurity, and 3) provide training and technical assistance to applicants and grantees, facilitate growth in states with low participation as well as collect and aggregate core data from eligible entities through a central system to capture program success and identify best practices and areas to improve future efforts, on a broad scale.</p> <p>The 2023 and 2024 RFAs will include language that selection for funding will be weighed in favor of proposals aligning with and advancing the GusNIP priorities, such as providing services to underserved communities. NIFA will focus promotion and outreach</p>	\$52,808	\$52,808	2023: Estimate January 2023  2024: Estimate January 2024

Program	Authority	Scope of RFA and Budget Justification	2023 Budget	2024 Estimated Budget	RFA Dates (Actual / Estimated)
		<p>for GusNIP to states, tribal nations, SNAP recipients, vendors, and/or retailers that have not previously participated in GusNIP.</p> <p>The GusNIP grant program Nutrition Incentive Program Training, Technical Assistance, Evaluation, and Information Centers (NTAE) cooperative agreement applicants will be invited again in 2023, when the current cooperative agreement ends.</p>			
Extension Risk Management Education (ERME) Program	7 U.S.C. 1524(a)	<p>The 2023 RFA is a continuation award from 2021 and 2022. It will fund four regional centers and one digital center. The centers will emphasize risk management education programs that support pre- and post-farmgate activities including production, processing, storage and logistics. Proposals for projects are submitted by public and private sector agricultural professionals and directly by farmers and ranchers. Grants awarded by the four regional administrative councils will support applied projects that promotes risk management education that targets risk associated with production, price/marketing human, legal and finance.</p> <p>The 2024 RFA is intended to identify four host institutions and a digital center. The proposal submissions will cover risk management education from 2024 to 2028.</p>	\$9,430	\$9,430	<p>2023: February 15, 2023</p> <p>2024: Estimate June 15, 2024</p>



**SUMMARY OF PERFORMANCE****INTRODUCTION**

The National Institute of Food and Agriculture (NIFA) provides leadership and funding for programs that advance agriculture-related sciences. NIFA invests in and supports initiatives that ensure the long-term viability of agriculture. NIFA applies an integrated approach to ensure that groundbreaking discoveries in agriculture-related sciences and technologies reach the people who can put them into practice.

The purpose of the Summary of Performance section is to provide an update on Performance and Evidence and Evaluation efforts, facilitating compliance with the Government Performance Results Modernization Act (GPRMA) and the Evidence Act of 2018, as well as departmental Key Performance Indicators (KPI). The Office of Budget and Program Analysis (OBPA) leads the Department in performance, evaluation, evidence, and risk management and chairs the Performance, Evaluation, Evidence Committee (PEEC) and the Enterprise Risk Management (ERM) committee. Each USDA Mission Area is represented on these committees.

The Research, Education, and Economics (REE) mission area and the Office of the Chief Scientist are jointly represented through the OCS' Strategic Planning, Program Evaluation, and Enterprise Risk Officer, whose team functions as the coordinating members on USDA's PEEC and ERM committees.

The Research, Education, and Economics (REE) mission area of the U. S. Department of Agriculture has Federal leadership responsibility for advancing scientific knowledge related to agriculture through research, extension, and education. The mission area office is led by the Under Secretary for the Research, Education, and Economics (REE) and Chief Scientist for USDA, whose responsibilities include oversight of the four agencies that comprise OCS/REE, the Agricultural Research Service (ARS), National Institute for Food and Agriculture (NIFA), Economic Research Service (ERS), and National Agricultural Statistics Service (NASS.) The National Agriculture Library, National Arboretum, and the Office of the Chief Scientist also fall under this mission area.

The mission of the Office of the Chief Scientist (OCS) is to provide strategic coordination of the science that informs the Department's and the Federal government's decisions, policies, and regulations that impact all aspects of U.S. food and agriculture, related landscapes, and communities.

Therefore, REE performance, evaluation, evidence and risk management efforts are coordinated and led by the Office of the Chief Scientist on behalf of the Mission Area. The OCS Strategic Planning, Program Evaluation, and Enterprise Risk Officer leads the Mission Area by chairing two committees: the OCS/REE Performance, Evaluation and Evidence Committee (OCS/REE-PEEC) and the OCS/REE Enterprise Risk Management (ERM) Committee. The two Mission Area committees are comprised of REE agency leaders in performance, evaluation, evidence, and risk management, as well as the Mission Area's functional and operational leads as necessary.

**ALIGNMENT TO USDA 2022 – 2026 STRATEGIC PLAN**

NIFA contributes to Goal 6 of the Department's Strategic Goals in the current 2022 – 2026 USDA Strategic Plan. Departmental KPIs are performance indicators that are aligned to the Strategic Objectives laid out in the USDA's Strategic Plan.

- Strategic Goal 6: Attract, Inspire, and Retain an Engaged and Motivated Workforce that's Proud to Represent USDA
  - Objective 6.2: Establish a Customer-Centric, Inclusive, High-Performing Workforce that is Representative of America and the Communities We Serve

**SUMMARY OF PERFORMANCE**

A more detailed report of the performance plan can be found at <https://www.usda.gov/our-agency/aboutusda/performance>. The following table summarizes the results for the Departmental Key Performance Indicators (KPIs) for which the NIFA is responsible.

*Table NIFA-33 NIFA KPI - AFRI (thousands)*

<b>Strategic Objective 6.2</b>	<b>2023</b>	<b>2024</b>
<b>Initiative-Supported Students</b>	<b>Results</b>	-
Number of Agriculture and Food Research Initiative-Supported	<b>Target</b>	<b>5,659</b>
		<b>5,951</b>

Undergraduate, Graduate, and Post-Doctoral Students

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**Expected Performance Progress Towards the Achievement of Strategic Objectives:**

USDA Strategic Objective 6.2: Establish a Customer-Centric, Inclusive, High-Performing Workforce that is Representative of America and the Communities We Serve.

**Initiative-Supported Students:** NIFA is expanding the range of analytical tools available to our staff to facilitate comprehensive portfolio and data analyses. These investments will allow NIFA to improve data collection standards and promote data-driven decision making. Additionally, NIFA is working to strengthen our agency's analytical capabilities which will enable NIFA to evaluate the performance of our grant programs, ensure equitable practices, and effectively communicate the full impact of NIFA funding to our stakeholders.

NIFA will continue to analyze the data provided by grantees in final reports to determine the best source to obtain and collate actual data for students supported on an annual basis. If we identify that this data is not consistently provided and/or easily accessible, we will implement new methods to collect this data to ensure accuracy and reproducibility.