



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

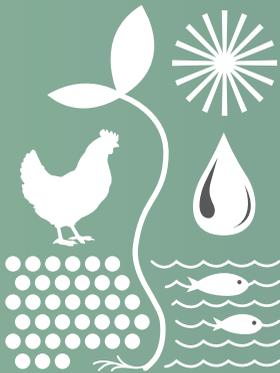


INCREASING | DIVERSIFYING | PROTECTING | DEVELOPING | DEPLOYING | PREPARING

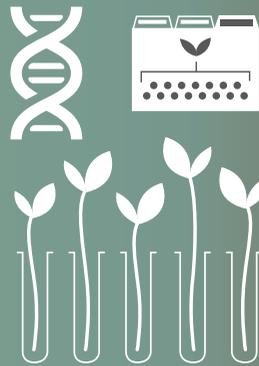
FY 2022

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE
FY 2022 PRESIDENT'S BUDGET PROPOSAL

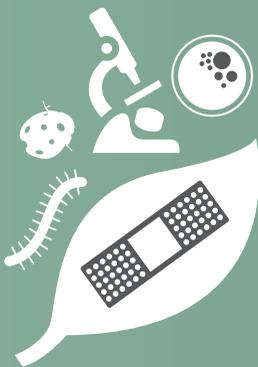
NIFA SUPPORTS RESEARCH, EDUCATION, AND EXTENSION TO **SUSTAINABLY FEED THE WORLD** BY:



INCREASING photosynthetic, water use, and nutrient use efficiency in crops and animals



DIVERSIFYING the product stream through novel crops, organisms, and processing technologies



PROTECTING these products against predators, parasites, diseases, and pathogens to ensure food safety



DEVELOPING & DEPLOYING the industrial, physical, and digital technologies to revolutionize planting, cultivation, harvest, storage, and transportation

PREPARING the next generation of agriculture professionals through education, training, leadership development, and **SUPPORTING** human nutrition and health.

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE FY 2022 PRESIDENT'S BUDGET PROPOSAL

THE NATIONAL INSTITUTE OF FOOD AND AGRICULTURE'S (NIFA) vision is to catalyze transformative research, education, and extension to address our Nation's most pressing societal challenges.

The investments that Congress authorizes for research, education, and extension are making significant headway to address a multitude of challenges facing food, agriculture, forestry, and the human sciences.

NIFA's strong partnership with U.S. Land-grant Universities and other institutions, farmers, livestock producers, and public and private entities is bolstering exemplary research, education, and extension to find real-world solutions to real-world problems in food security and safety, nutrition and public health, natural resource stewardship, jobs, and economic health.

NIFA supports agriculture and the Nation's well-being through its future-focused investments in critical science, education, and engagement areas:

- Food Production and Sustainability
- Food Safety and Nutrition Security
- Bioenergy, Climate and Environment
- Equity and Diversity in Agriculture
- Positive Youth Development/4-H and Community Vitality

In FY 2022, NIFA seeks funding to support research that underpins transformative discoveries needed to solve challenges to our Nation's food supply and nutrition security, while addressing diminishing land and water resources, changing climate, and improving environmental stewardship. NIFA brings together the best scientists and extension experts to find solutions to local and global problems. By working with 1862, 1890, and 1994 Land-grant Universities and colleges, Hispanic-serving institutions, non-land-grant universities and colleges, and other academic institutions and organizations, NIFA investments benefit businesses, people and

communities across America. NIFA supports research that will significantly boost agricultural production, while minimizing agriculture's ecological footprint. These initiatives will transform the way we produce, process, consume, and dispose of food for a better future.

NIFA's FY 2022 budget initiatives include:

- Investment in the Agriculture and Food Research Initiative (AFRI) that supports systems approaches to comprehensively identify solutions to complex agricultural challenges;
- Support for farmers and ranchers to develop innovative sustainable practices through Sustainable Agriculture Research and Education (SARE);
- Increased funding to address Minor Crop Pest Management (IR-4), ensuring new and more effective crop protection products are developed and made available to minor/specialty crop producers;
- Increased investments in capacity programs which enable land-grant universities and other partners to conduct research and extension activities;
- Support for advances in agriculture, natural resources, and related sciences at minority serving institutions;
- Increased funding for NIFA's Agriculture in the Classroom (AITC) program to support students in gaining a greater awareness of the role of agriculture in the economy and society so they will become citizens who support wise agricultural policies.

FY2022 BUDGET PROPOSAL HIGHLIGHTS

AGRICULTURE AND FOOD RESEARCH INITIATIVE (AFRI)

NIFA proposes a \$700 million investment for America’s flagship agricultural science competitive grants program, AFRI, including \$5 million for education and extension activities in partnership with the USDA climate hubs. Through AFRI grants, NIFA will support the FY 2022 Administration priorities of addressing climate change, developing and using clean energy, rebuilding the economy, and promoting prosperity in America’s disadvantaged, marginalized and underserved communities.

Funding will support:

- Increased investment in the Foundational and Applied Science Program, including continuation of the increased support for new investigators and increased award size commensurate with the scope of foundational work required, and for promoting equity and inclusion in agricultural sciences, such as increased investments in challenges faced by disadvantaged and underserved communities;
- Increased investment in the Sustainable

Agricultural Systems Program, to support innovative, transformative, integrated, and transdisciplinary systems-level approaches to promote development of climate-smart and carbon-neutral agriculture for improved production systems;

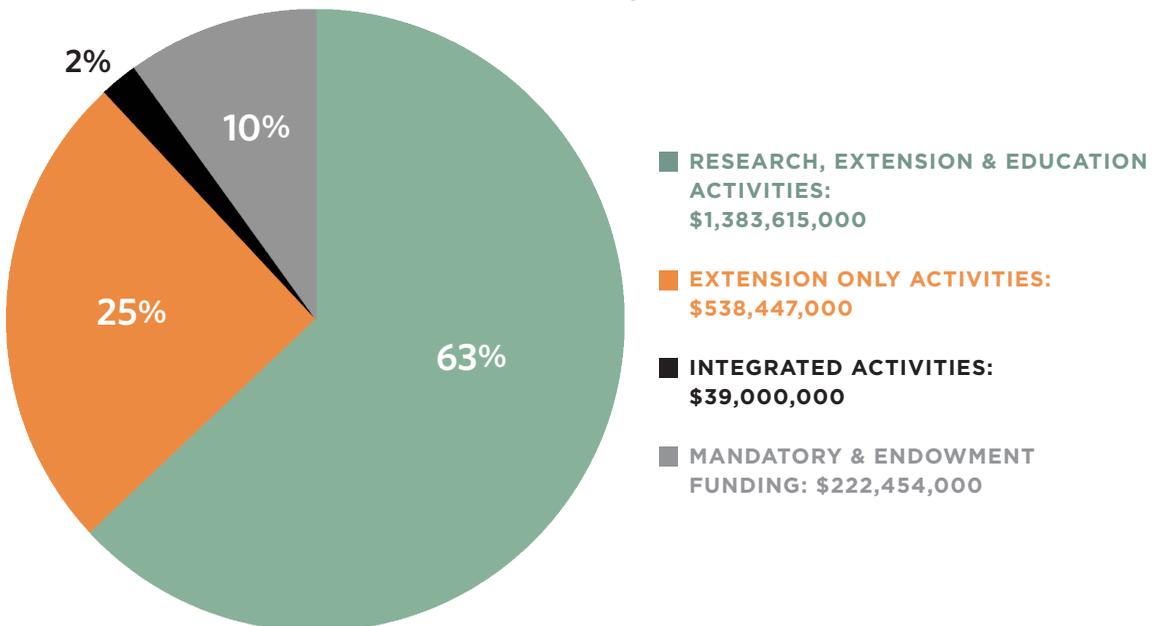
- Increased investments in the Education and Workforce Development program for training and retraining of agricultural workers and the next generation of agricultural scientists.

FOUNDATIONAL AND APPLIED SCIENCE

NIFA will invest \$455 million (65%) of appropriated AFRI funds to support new grants in the Foundational and Applied Science Program, as well as interagency programs. 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.

- Improve mitigation, adaptation and resiliency of agricultural systems to climate change in all program areas and cross-cutting programs;
- Enhance capacity of diverse educational

FY 2022 FUNDING BY ACTIVITIES, TOTALING \$2.2 BILLION



institutions, promote equity and inclusion, and serve disadvantaged and underserved communities through increased proportion of Food and Agricultural Science Enhancement (FASE) awards;

- Increase support for the next generation of scientists and educators by funding more New Investigator Seed Grants and New Investigator Standard Grants;
- Enhance focus on new technologies to support agricultural science such as gene editing, robotics, unmanned aerial systems, cyberphysical systems, machine learning, application of big data and production of new agricultural-based products, including clean energy;
- Foster research on agricultural biosecurity, precision livestock farming; microbiome of foods, human gut, food animals, plants, and soils; and on strategies to mitigate antimicrobial resistance;

- Increase award size commensurate with the scope of foundational work required.

SUSTAINABLE AGRICULTURAL SYSTEMS

In FY 2022, NIFA will invest \$175 million (25%) of appropriated funds in the AFRI Sustainable Agricultural Systems Program, which will build on advances in research, education, and extension outcomes from AFRI investments. Through technology, data, and innovation investments, NIFA will help transform U.S. agricultural systems and contribute to:

- Climate-smart agriculture: Improve mitigation, adaptation and resiliency of agricultural systems to climate change including development of climate-smart carbon-neutral agriculture and utilization of clean energy to achieve net-zero emissions of greenhouse gases by 2050;
- Economic Prosperity for Rural and

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FY 2022 ALLOCATIONS OF AFRI FUNDS OF \$700 MILLION BY PROGRAM AREA (\$000)



NATIONAL INSTITUTE OF FOOD AND AGRICULTURE (\$000)

PROGRAMS

FY 2021
ENACTED FY 2022
PRESIDENT'S
BUDGET

DISCRETIONARY FUNDING

Agriculture and Food Research Initiative	\$435,000	\$700,000
CAPACITY PROGRAMS:		
Hatch Act	259,000	329,380
McIntire-Stennis Cooperative Forestry	36,000	45,783
Evans-Allen Program	73,000	92,837
Animal Health and Disease, Section 1433	4,000	4,000
SPECIAL RESEARCH GRANTS:		
Global Change, UV-B Monitoring	1,405	1,405
Potato Research	2,750	0
Aquaculture Research	2,000	0
OTHER RESEARCH:		
Minor Crop Pest Management (IR-4)	11,913	20,000
Aquaculture Centers	5,000	5,000
Sustainable Agriculture Research and Education Program	40,000	60,000
Supplemental and Alternative Crops	1,000	663
1994 Research Grants	4,000	4,000
Federal Administration (Direct Appropriation)	19,480	20,254
Farm Business Management and Benchmarking Program	2,000	2,000
Sun Grant Program	3,000	3,000
Research Equipment Grants	5,000	5,000
Capacity Building for Non-Land-Grant Colleges of Agriculture	5,000	5,000
Alfalfa Seed and Alfalfa Forage Research	3,000	0
HIGHER EDUCATION:		
Institution Challenge, Multicultural Scholars and Graduate Fellowship Grants	9,500	9,500
1890 Institution Capacity Building Grants	26,000	26,000
Scholarships at 1890 Institutions	10,000	10,000
Hispanic-Serving Institutions Education Grants Program	12,500	12,500
Tribal Colleges Education Equity Grants Program	4,500	4,500
Interest Earned on Tribal Colleges Endowment Fund (estimated)	5,199	5,199
Secondary Education/2-Year Post Secondary	900	900
Alaska Native-Serving and Native Hawaiian-Serving Institutions	3,194	3,194
Veterinary Medical Services Act	8,500	8,500
Veterinary Services Grant Program	3,000	3,000
Grants for Insular Areas	2,000	2,000
GENERAL PROVISIONS:		
HBCU Business Innovation Centers	2,000	0
Open Data Standards Repository	500	0
Blue Ribbon Panel	300	0
Farm of the Future	4,000	0
1890 Centers of Excellence	10,000	0
New Beginnings for Tribal Students	5,000	0
Agricultural Genome to Phenome Initiative	1,000	0
Subtotal	1,020,641	1,383,615
CAPACITY PROGRAMS:		
Smith-Lever Formula 3(b) & (c)	\$315,000	\$315,000
Extension Services at 1890 Institutions	62,000	62,000
Renewable Resources Extension Act	4,060	4,060
Smith-Lever 3(d) Expanded Food and Nutrition Education Program	70,000	70,000
SMITH-LEVER 3(d) PROGRAMS:		
New Technologies for Agricultural Extension	3,550	3,002
Children, Youth, and Families at Risk	8,395	8,395

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE (\$000)

PROGRAMS	FY 2021 ENACTED	FY 2022 PRESIDENT'S BUDGET
Farm Safety and Youth Farm Safety Education	5,000	5,000
Federally Recognized Tribes Extension Program	3,200	3,200
OTHER EXTENSION PROGRAMS:		
Extension Services at 1994 Institutions	8,500	8,500
Facility Improvements at 1890 Institutions	21,500	21,500
Rural Health and Safety Education	4,000	4,000
Food Animal Residue Avoid. Database	2,500	2,000
Women and Minorities in STEM Fields	400	1,000
Food Safety Outreach	10,000	10,000
Food & Ag Service Learning	2,000	2,000
Farmer Stress Assistance Network	10,000	10,000
Federal Administration (Direct Appropriation)	8,342	8,790
General Administration	7,790	7,790
Ag in the Classroom	552	1,000
GENERAL PROVISIONS:		
Enhancing Opportunities for Military Veterans (Ag Vets)	5,000	0
Beginning Farmers and Ranchers Development Program (under FOTO)	2,500	0
Subtotal	545,947	538,447
SECTION 406 LEGISLATIVE AUTHORITY:		
Methyl Bromide Transition Program	2,000	2,000
Organic Transition Program	7,000	7,000
Crop Protection/Pest Management	20,000	20,000
OTHER LEGISLATIVE AUTHORITIES:		
Regional Rural Development Centers	2,000	2,000
Food and Agriculture Defense Initiative	8,000	8,000
Subtotal	39,000	39,000
TOTAL, DISCRETIONARY FUNDING a/	1,605,588	1,961,062
SUPPLEMENTAL FUNDING - CORONAVIRUS		
Gus Schumacher Nutrition Incentive Program (GusNIP)	\$75,000	\$0
Farm Stress	28,000	0
Beginning Farmers and Rancher Development Program (FOTO)	37,500	0
TOTAL, SUPPLEMENTAL FUNDING - CORONAVIRUS	140,500	
FARM BILL MANDATORY AND ENDOWMENT FUNDING c/		
Tribal Colleges Endowment Fund	\$11,880	11,880
Extension Risk Management Education Program (ERME)	9,430	9,430
Gus Schumacher Nutrition Incentive Program (GusNIP)	45,264	49,979
Beginning Farmers and Ranchers Development Program	16,503	18,860
Organic Agriculture Research and Extension Initiative (OREI)	23,575	28,290
Specialty Crop Research Initiative (SCRI)	75,440	75,440
Emergency Citrus Research and Extension Program (ECDRE) (Trust Fund)	23,575	23,575
Community Food Projects Program b/	5,000	5,000
TOTAL, FARM BILL MANDATORY AND ENDOWMENT FUNDING	210,667	222,454
TOTAL, DISCRETIONARY, FARM BILL MANDATORY, AND ENDOWMENT FUNDING a/	1,956,755	2,183,516

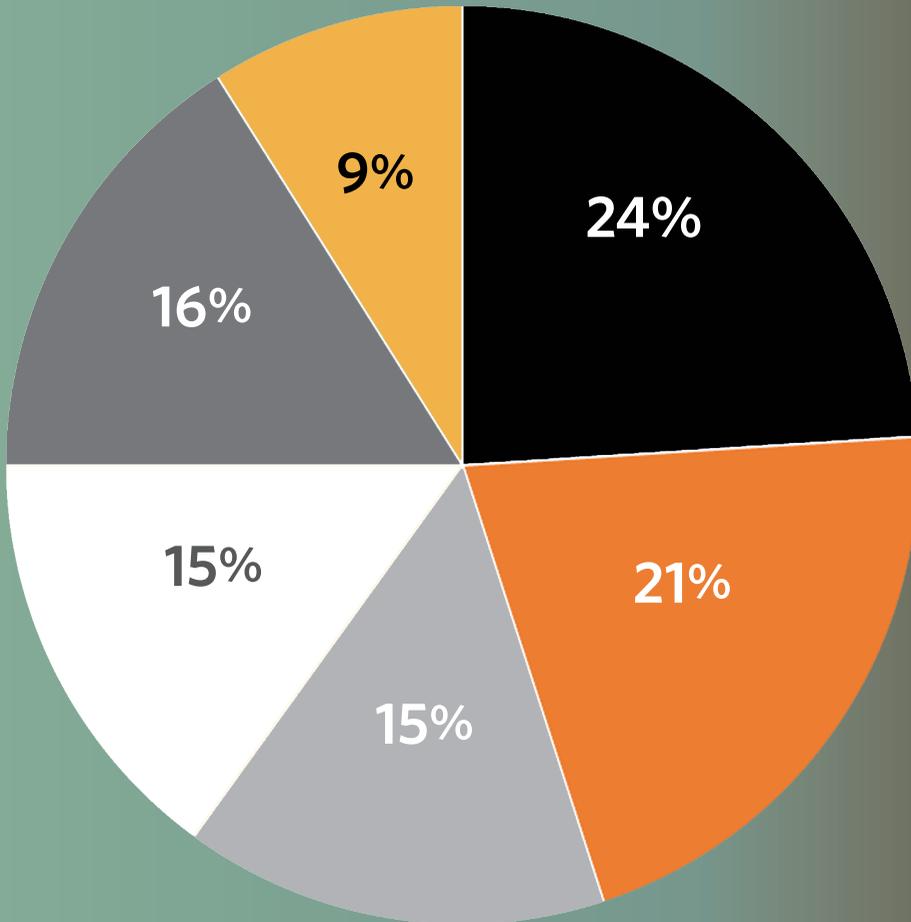
NOTES:

a/Estimated interest on Tribal College Endowment Fund is included in the total.

b/Mandatory program delegated to another USDA agency but administered by NIFA.

c/Farm Bill funding amounts are based on H.R. 2, the Agricultural Act of 2018 and include impact of sequestration of mandatory funds in FY 2021 and FY 2022.

FY 2022 AFRI INVESTMENTS BY FARM BILL PRIORITIES



 Plant Health and Production and Plant Products

 Animal Health and Production and Animal Products

 Food Safety, Nutrition, and Health

 Bioenergy, Natural Resources, and Environment

 Ag Systems and Technology

 Ag Economics and Rural Communities

SUSTAINABLE AGRICULTURAL SYSTEMS CONTINUED

Underserved Communities: Develop sources of clean energy and other high-value biobased products from agricultural feedstocks to foster economic development and prosperity, especially in socially disadvantaged and under-served communities;

- Nutrition Security: Enhance contributions 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, 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;
- Offer opportunities for mid-size integrated projects of up to \$5 million each that include research, education and extension.

EDUCATION AND WORKFORCE DEVELOPMENT

NIFA will invest \$70 million (10%) of appropriated AFRI funding in Education and Workforce Development.

- Support workforce development at diverse educational institutions, promote equity and inclusion, and serve disadvantaged and underserved communities;
- Enhance agricultural literacy through institutional grants to provide K-14 teachers and administrators with increased knowledge of food and agricultural sciences, and help them develop improved curricula to train agricultural workforce for the future;
- Develop pathways by providing undergraduates in agriculture and allied disciplines with the applied technical and leadership skills required for careers in agricultural sectors and farming enterprises or in graduate programs;

- Advance science to support graduate and post-graduate education in agriculture and related disciplines through pre- and post-doctoral fellowships, to address projected shortfalls of qualified agricultural workers available within the United States;
- Increase support for STEM education.

FOOD PRODUCTION AND SUSTAINABILITY

SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION (SARE)

The SARE program continues to focus on high-priority solutions for farmers and ranchers across all U.S. regions through grants provided to farmers and ranchers to develop innovative sustainable practices. The proposed increase in funding will enable development of climate-smart research and delivery of climate-smart education programs to help farmers and ranchers adapt to a changing climate and mitigate effects of climate change in their food production systems. Base funding will be used to increase knowledge of sustainable agricultural practices that are profitable, environmentally sound, and beneficial for quality of life and to help farmers adopt these practices. Grants awarded by the four regional administrative councils support projects that address crop and livestock production and marketing, stewardship of soil and other natural resources, economics, and quality of life in rural communities.

MINOR CROP PEST MANAGEMENT (IR-4)

The IR-4 program is the principal public program supporting registration of pesticides and biological control agents for use on specialty crops. The proposed funding increase will affect the number of funded pesticide data projects per year, as well as additional biopesticide and organic projects. 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. Funding will improve the IR-4 program's harmonization activities with America's key trading allies.

RESEARCH AND EXTENSION CAPACITY PROGRAMS

HATCH ACT

- Address local, regional, and national challenges in agriculture by supporting continuing agricultural research at 1862 Land-grant Universities (LGUs) and State Agricultural Experiment Stations (SAES);
- Enhanced support of data-driven, long-term research on local and regional agricultural systems that are carbon neutral, while maintaining profitability and productivity.

MCINTIRE-STENNIS

- Support development of new knowledge and innovations to sustain healthy, productive forests, agroforests, rangelands, and grasslands, assist states in climate change adaptation and mitigation efforts, and address the challenges facing forest owners and the forest products industry;
- Support programs in 1890 and 1862 LGUs and non-land-grant colleges of forestry, as well as provide for the pipeline of new foresters, researchers, and range managers in the forestry workforce.

PAYMENTS TO 1890 COLLEGES (EVANS-ALLEN)

- Support agricultural research activities at 1890 LGUs;
- Support a training of a diverse talent pool for the next generation workforce and address various issues in limited-resourced communities such as food security, nutrition, climate change and workforce development.

SMITH-LEVER 3 (B)& (C)

- Partner with land-grant universities to support the Cooperative Extension Service through development of practical applications of existing or improved practices or technologies in agriculture;
- Serve farmers, ranchers, foresters, consumers and youth in every county in the country, through highly successful programs such as 4-H.

1890S EXTENSION

- Support continuing agricultural and forestry extension activities at 1890 LGUs;
- Support development of science-based educational programs to help youth, families, and communities address various issues such as workforce training, obesity, food security, and financial literacy.

EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM (EFNEP)

- Continued support to employ and train more than 1,900 peer educators annually;
- Develop strategic local partnerships that integrate programs into communities and teach participants in real-life contexts, as well as address nutrition insecurity and poor health for low-income families and youth.

MINORITY-SERVING INSTITUTIONS

Funding for Minority Serving Institution (MSI) programs increased by \$20.4 million from FY 2021 to FY 2022, for a total of \$250 million. In addition, NIFA encourages applications from MSIs to all NIFA programs. NIFA's 1890 Land-grant Institutions programs aim to strengthen research, extension and teaching in the food and agricultural sciences by building the institutional capacities of the 1890 Institutions. The new 1890 Scholarship awards support recruitment, retention, and training of the best and brightest for careers in food and agriculture. Another new program, Centers of Excellence at 1890 Institutions, helps build the capacity of these 19 institutions to serve small farmers, educate and train students, advance global food security and defense, and promote nutrition, health, wellness, and quality of life.

The Hispanic Education Partnership Grants program promotes and strengthens Hispanic-Serving Institutions through competitive funding of food and agricultural science curriculum design and materials development, faculty development, and more, to attract outstanding students and produce graduates capable of enhancing the Nation's food and

agricultural scientific and professional workforce.

NIFA programs promote learning, economic opportunity, and health in Indian Country through grants for the 1994 Land-grant Colleges, and through funding for 1890 and 1862 Land-grant Universities for informal, community-based learning on reservations and support for scholarships for Tribal students.

NIFA, working with other Federal agencies, supports programs to help young people recognize their strengths and define their goals. 4-H serves as a model inclusive program for positive youth development by creating positive learning experiences; positive relationships for and between youth and adults; positive, safe environments; and opportunities for positive risk taking.

Women and Minorities in Science, Technology, Engineering and Mathematics Fields Grant Program (WAMS) works to develop and implement robust collaborations to increase representation, participation, and entrepreneurial skills and abilities of rural women and underrepresented minorities from rural areas in STEM careers, thereby contributing to economic prosperity in rural areas across the nation. Increased funding will continue to support this goal and lead to the development of a robust and diverse food and agricultural STEM workforce that is highly competent in STEM knowledge and skills, with increased participation of women and minorities from rural areas across a broad spectrum of rural, local, state or national communities.

FARM BILL MANDATORY FUNDING

In FY 2022, funding for mandatory programs is included as authorized in the Agricultural Act of 2018 (2018 Farm Bill).

USEFUL LINKS

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NIFA

Transformative Research, Education, and Extension for
America's Food and Agricultural Future

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NIFA invests in and advances agricultural research, education, and extension and promotes transformative discoveries that solve societal challenges. Learn more by visiting www.nifa.usda.gov or following [@USDA_NIFA](https://twitter.com/USDA_NIFA) on Twitter, [#NIFAIMPACTS](https://twitter.com/USDA_NIFA). To learn more about NIFA results in science, visit www.nifa.usda.gov/impacts | USDA is an equal opportunity provider, employer, and lender.