



United States
Department of
Agriculture

National Institute
of Food
and Agriculture

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The logo for the National Institute of Food and Agriculture (NIFA), featuring the letters "NIFA" in a white serif font against a dark background that includes a stylized silhouette of a plow or similar agricultural tool.

NIFA

REQUEST FOR APPLICATIONS

Agriculture and Food Research Initiative

Sustainable Agricultural Systems

FUNDING YEAR: Fiscal Year 2022

APPLICATION DEADLINE: July 28, 2022

ANTICIPATED FUNDING: \$80,000,000

AVERAGE AWARD RANGE: Up to \$10,000,000

FUNDING OPPORTUNITY NUMBER: USDA-NIFA-AFRI-009002

ASSISTANCE LISTING NUMBER: 10.310

LETTER OF INTENT DEADLINE: April 27, 2022

INITIAL ANNOUNCEMENT
National Institute of Food and Agriculture
United States Department of Agriculture

Assistance Listing: Agriculture and Food and Research Initiative Sustainable Agricultural Systems RFA is listed in the Assistance Listings under number 10.310.

Table 1: Key Dates and Deadlines

Task Description	Deadline
Application:	5:00 P.M. Eastern, July 28, 2022
Letter of Intent:	5:00 P.M. Eastern, April 27, 2022
Applicants Comments:	Within six months from the issuance of this notice (<i>NIFA may not consider comments received after the sixth month</i>)

Stakeholder Input. The National Institute of Food and Agriculture (NIFA) seeks comments on all request for applications (RFAs) so it can deliver programs efficiently, effectively, with integrity, and with a focus on customer service. NIFA considers comments, to the extent possible when developing RFAs and use comments to help meet the requirements of [Section 103\(c\)\(2\) of the Agricultural Research, Extension, and Education Reform Act of 1998 \(7 U.S.C. 7613\(c\)\(2\)\)](#). Applicants may submit written comments to Policy@usda.gov (email is for comments only). Please use the following subject line: Response to the AFRI Sustainable Agricultural Systems RFA.

Centers of Excellence. Applicants are encouraged to visit the NIFA’s [Centers of Excellence \(COE\)](#) webpage for information on the COE designation process, including COE criteria, and a list of programs offering COE opportunities. [Recordings](#) of COE outreach and COE implementation webinars are also available.

EXECUTIVE SUMMARY

The Agriculture and Food Research Initiative (AFRI) is USDA's flagship competitive grant program that provides funding for fundamental and applied research, education, and extension projects in the food and agricultural sciences. Within AFRI, the long-term purpose of the Sustainable Agricultural Systems (SAS) Request for Applications (RFA) is to help transform the U.S. food and agricultural system to increase agricultural production while also reducing its environmental footprint. Achieving these goals will require transdisciplinary approaches to address current and future agricultural challenges within the context of the economic, societal, and environmental attributes of sustainability.

There is an increasing need to foster holistic and systems approaches to mitigate the climate crisis; improve agricultural productivity; ensure a safe, affordable, and nutritious supply of food; invigorate and realize the promise of the bioeconomy; and promote the development of a skilled agricultural workforce. Solving agricultural challenges will require a convergence of science, technology, workforce availability, and policy. Advances in sciences, technology, data sciences and artificial intelligence, knowledge of infrastructure, and collaborative approaches offer unprecedented opportunities for meeting the challenges of the growing population. Transformation of our nation's agricultural systems can ensure continued productivity while conserving natural resources and minimizing the environmental and carbon footprint of agriculture. Transforming agricultural systems requires an investment in human capital to catalyze a resilient, profitable, and sustainable local and regional food and agricultural systems that ensure equitable access to producers and consumers

For FY 2022, applications in response to the AFRI SAS RFA must focus on systems approaches that significantly improve the local and regional supply of climate-smart, sustainable, safe, nutritious, and accessible food and other agricultural products while fostering economic revitalization in America. These creative and visionary approaches must address current needs of resilient and robust food systems and anticipate future social, cultural, behavioral, economic, health, and environmental impacts. Additionally, the outcomes of the proposed work should result in societal benefits, including improved rural prosperity and enhanced quality of life for those involved in food and agricultural value chains from production to use and consumption. The specific goals addressed in this RFA include: Climate-Smart Agriculture and Forestry (CSAF), Strengthening the Bioeconomy, and Nutrition Security.

The amount available for new grants in this FY 2022 AFRI SAS RFA is approximately \$80 million, for awards of up to \$10 million each.

The AFRI SAS RFA covers one grant review cycle in FY 2022 using funding from the FY 2022 budget. This RFA is being released prior to the passage of an FY 2022 appropriations act; enactment of additional continuing resolutions or a full appropriations act may affect the availability or level of funding for this program.

The AFRI SAS RFA solicits proposals for Coordinated Agricultural Project and Strengthening Coordinated Agricultural Project (Food and Agricultural Science Enhancement/FASE) Grants. See [Part I § C](#) for grant and project types solicited and [Part II § C](#) for a detailed description of each individual grant type and project type.

This notice identifies the objectives for AFRI SAS projects, deadlines, funding information, eligibility criteria for projects and applicants, and application forms and associated instructions.

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PART I. FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority

Section 2(b) of the Competitive, Special, and Facilities Research Grant Act (hereafter referred to as the Act) ([7 U.S.C. 3157](#)), as amended, authorizes the Agriculture and Food Research Initiative (AFRI), a competitive grant program to provide funding for fundamental and applied research, education, and extension to address food and agricultural sciences in the following six 2018 Farm Bill priority areas:

1. Plant health and production and plant products;
2. Animal health and production and animal products;
3. Food safety, nutrition, and health;
4. Bioenergy, natural resources, and environment;
5. Agriculture systems and technology; and
6. Agriculture economics and rural communities.

To the maximum extent practicable, NIFA, in coordination with the Under Secretary for Research, Education, and Economics (REE), will make grants 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 (NAREEEAB) pursuant to the Competitive, Special, and Facilities Research Grant Act ([7 U.S.C. 3157](#)). The Secretary delegates the authority to the Under Secretary in [7 CFR 2.21](#), and the Under Secretary delegates that authority to NIFA.

B. Purpose and Priorities

The purpose of AFRI is to invest in research, education, and extension work by awarding grants to solve key problems of local, regional, national, and global importance in sustaining conventional, organic, and urban agricultural systems. The project supported by AFRI address topics such as farm/ranch production efficiency, profitability and sustainability; bioenergy and bio-based products; forestry; aquaculture; rural communities and entrepreneurship; human nutrition; biotic and abiotic constraints on food production; food safety; reducing food waste and food loss; physical and social sciences; family and consumer sciences and rural human ecology; development of circular economies, and genetic improvement of plants and animals. Through this support, AFRI advances knowledge in both fundamental and applied sciences important to agriculture and forestry. Additionally, AFRI supports work in education and extension activities that deliver science-based knowledge to end users, allowing them to make informed, practical decisions. The AFRI Sustainable Agricultural Systems (SAS) RFA provides funding for integrated research, education, and extension projects.

Food and agricultural systems are under the constraints of a growing population, natural resource availability, climate change, and complex demands of ensuring nutritional security and food safety in a global economy. Addressing these constraints requires integration of research, education, and extension programs using agroecological approaches that increase agricultural and natural resource sustainability. The term "sustainable agriculture" ([7 U.S.C. 3103](#)) means a combined system of plant and animal production practices having a site-specific application that will, over the long-term, achieve the following goals: 1) satisfy human food and fiber needs; 2) enhance environmental quality and the natural resource base upon which the agricultural

economy depends; 3) make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; 4) sustain the economic viability of farm operations; and 5) enhance the quality of life for farmers and society. AFRI encourages projects addressing enhancement of sustainability of agricultural systems.

Stakeholder Input

The [AFRI Stakeholder Feedback](#) page has information on AFRI-related stakeholder input.

Background

AFRI is NIFA's flagship competitive grants program for food and agricultural sciences. The AFRI initiative is implemented through funding offered through the AFRI Foundational and Applied Science, Sustainable Agricultural Systems, and Education and Workforce Development Requests for Applications for addressing critical societal issues.

This AFRI RFA will support projects that significantly advance foundational and applied sciences for the following [USDA priorities](#):

1. Addressing climate change via climate smart agriculture and forestry;
2. Advancing racial justice, equity, and opportunity;
3. Creating more and better market opportunities; and
4. Tackling food and nutrition insecurity.

The AFRI SAS RFA is aligned with the following [USDA Strategic Plan](#) Goals:

1. Strategic Goal 2: Maximize the ability of American agricultural producers to prosper by feeding and clothing the world;
2. Strategic Goal 3: Promote American agricultural products and exports;
3. Strategic Goal 4: Facilitate rural prosperity and economic development;
4. Strategic Goal 5: Strengthen the stewardship of private lands through technology and research;
5. Strategic Goal 6: Ensure productive and sustainable use of our National Forest System Lands; and
6. Strategic Goal 7: Provide all Americans access to a safe, nutritious, and secure food supply.

Advancing Diversity, Equity, Inclusion, and Accessibility. NIFA recognizes research, education, and extension efforts will have the greatest impacts when equity is grounded in the programs. NIFA is committed to enhancing diversity, equity, inclusion, and accessibility of programs and encourages individuals from underserved communities to apply to funding opportunities as lead, co-lead, or subaward recipient(s), and to engage as leaders in the peer panel review process to support the development of strong networks and collaborations. NIFA encourages applications that engage diverse communities and have broad impacts through research, education, extension, and integrated activities to address current and future challenges.

Extension Foundation (formerly eXtension). AFRI Sustainable Agricultural Systems encourages (but does not require) projects that develop content suitable for delivery through [Extension Foundation](#).

Global Engagement. NIFA supports global engagement that advances U.S. agricultural goals. NIFA recognizes that collaboration with international partners may be necessary to attain the

agency's goals for U.S. agriculture, promote global competence of our nation's future agricultural workforce, and promote safe and nutritious food security in a growing world. Therefore, although application to this RFA is limited to eligible U.S. institutions, applicants may collaborate with international partners, to include subcontracts to international partners or other institutions. Applications must clearly demonstrate benefits to the United States (AFRI programs see [International Partnerships](#)).

Indigenous traditional ecological knowledge is considered an acceptable topic of research, education, and extension for projects funded by this RFA, in pursuit of the aforementioned priorities, goals, and objectives.

Table 2: Program Key Information

Title	Description
Program Code:	A9201
Program Code Name:	Sustainable Agricultural Systems
CFDA Number	10.310
Project Type:	Integrated Projects <u>only</u> (must include Research, Education, and Extension components within project)
Grant Type:	Coordinated Agricultural Project and FASE (Strengthening Coordinated Agricultural Project) Grants <u>only</u>
Letter of Intent Deadline	Thursday, April 27, 2022
Application Deadline	Thursday, July 28, 2022
Grant Duration:	Up to 60 Months
Anticipated # of Awards:	8
Maximum Award Amount:	\$10,000,000

C. Program Area Description

The purpose of the AFRI SAS program area is to promote the sustainable supply of abundant, affordable, safe, nutritious, and accessible food and other agricultural products, while enhancing employment and economic opportunities and improving the long-term health and well-being of Americans.

This AFRI RFA will support projects that significantly advance foundational and applied sciences for the following USDA priority outcomes:

1. **Climate-Smart Agriculture and Forestry (CSAF):** Improve mitigation, adaptation, and resiliency of agricultural and forestry production systems to climate change.
2. **Strengthening the Bioeconomy:** Develop sources of clean energy and other high-value biobased products from agricultural feedstocks to foster economic development and prosperity, especially in underserved communities.
3. **Nutrition Security:** Enhance the contribution of food and agriculture to improve health of the nation through resilient local and regional food systems, adoption, and application of new or existing technologies, tools, education, and other resources to ensure access to adequate, safe, nutritious, and affordable food.

The AFRI SAS RFA is soliciting creative and visionary projects developed by transdisciplinary teams that integrate research, education, and extension activities and effectively use a systems

approach to promote convergence of science and technology to solve challenges to current and future food and agricultural production systems. Projects that use genomics, prescriptive interventions, artificial intelligence, data systems management, and/or automation for providing solutions in the topic areas of focus are encouraged. In addition, the economic sustainability of food systems, including the training or retraining of a skilled workforce to sustain them, is an overarching priority for the projects funded in response to this RFA. Projects focusing on plant or animal species or commodities that are important to underserved communities, farmers, or ranchers, small- or medium-sized farms or ranches and can derive measurable benefits to these communities are encouraged.

Agricultural systems are inclusive of supply chains from production to consumption of food and other agricultural products, and from traditional open-field farms, ranches, and managed forests to controlled production in built environments across the rural-urban continuum. Consideration must be given to how new strategies or other technical interventions may alter existing systems and the future implications of unintended effects. Applicants must demonstrate that the changes resulting from the proposed efforts will enhance the viability of the food and agricultural value chain. This could include improving agroecosystem services, food safety and nutritional quality, profitability, and the health and well-being of people and communities. The systems may include approaches that reduce the environmental footprint of agriculture including, but not limited to, water and nutrient use, greenhouse gas emissions, and energy use. These systems must also include workforce training programs that respond to local and regional employment needs and opportunities as well as allow participants to train, retrain, or transition to current and emerging job opportunities in their communities.

Projects must use a systems approach that recognizes and uses the convergence of rapidly advancing science and technology (e.g., biotechnology, omics, data science, artificial intelligence, nanotechnology, information science, cognitive science, and public engagement) to address these complex and intertwined problems, to ensure the economic, environmental, and social well-being goals of sustainable agriculture. SAS projects must enhance the availability of a skilled workforce through development and deployment of formal and non-formal education, immersive-learning activities, and training of the current and next generation of the agricultural workforce. This includes training or retraining current and future farmers, workers, and scientists who must be equipped to use new skills, technologies, and experiences to find and implement solutions to global food and agricultural challenges. Educational activities should include broad types of learning and engagement (e.g., hands-on learning, experiential, and other newer methods of teaching and disseminating information), emphasize leadership and development of interpersonal and team skills, and include virtual options, as appropriate.

Extension and other engagement should produce significant behavioral changes leading to impacts such as sustainable production and consumption practices and improving public health and well-being. Targeted communities should be engaged in the design, approach, and feedback loops of project activities directly affecting them.

Projects must plan to employ meaningful performance metrics that measure progress during the grant period toward the long-term goals described below. These metrics can include how the proposed system and its components contribute to productivity and profitability, reduced

environmental footprint, enhanced natural resources, food safety and quality, nutritional security, human health and well-being, a skilled workforce, more sustainable jobs in the agricultural sector, or discernable benefits to underserved communities.

Applications must address one or more of the following long-term goals:

1. **Climate-Smart Agriculture and Forestry (CSAF):** *Improve mitigation, adaptation, and resiliency of agricultural and forestry production systems to climate change.* Agricultural, rangeland, aquaculture, and forestry systems are increasingly threatened by climate change and extreme weather events while being relied upon to mitigate greenhouse gas emissions and sequester carbon. Climate-smart agriculture and forestry systems must be developed to tackle these challenges. Socially, economically, and environmentally sustainable CSAF must overcome diminishing natural resources, reduce inequities experienced by underserved communities, reduce loss of natural habitats and biodiversity, support sustainable agricultural intensification, and meet accelerating demands for food and other agricultural products. Effective CSAF approaches will consider agroecological principles, improvements to climate models and measurements, technological advancements, availability of a skilled workforce, and socioeconomic opportunities and barriers to CSAF systems. Innovations should consider profitability, production, and the sustainable use of the natural resource base. Projects supporting this goal must also develop, implement, or enhance understanding of one or more of the following and are encouraged to coordinate with [USDA Climate Hubs](#):
 - a) **Greenhouse Gas Mitigation:** Reduce greenhouse gas emissions to 50% of current rates by 2030 and achieve net-zero emissions from agriculture and forestry by 2050. Reducing greenhouse gases that have short atmospheric residence times (such as methane), increasing carbon sequestration, and reducing forest fires are important targets for investigation.
 - b) **Markets & Socioeconomics:** Improve market opportunities for CSAF. Opportunities exist to create CSAF supply chains and products, develop carbon and other ecosystem service markets, and reduce food loss and waste. Improving greenhouse gas measurements and climate modeling will underpin efficient markets.
 - c) **Regionally Appropriate Climate Adaptation and Resilience:** Develop resilient agricultural, rangeland, aquaculture, and/or forestry systems that can adapt to climate change while considering incremental climate changes and extreme weather events. Better predicting climate-related stressors; advancing appropriate management, tools, and technologies; and translating climate knowledge for stakeholders are essential for CSAF systems.
2. **Strengthening the Bioeconomy:** *Foster economic development and prosperity in rural America by developing and advancing production of clean, renewable, and sustainable energy and biobased products from forests and agriculture.* The development of a sustainable and resilient circular bioeconomy has been hampered by the scarcity of well-paid employment opportunities in rural communities, especially among underserved communities, as well as infrastructure susceptibility to climate shocks, increasing costs for

transportation, and access to economically-viable technologies. New or improved production systems need to be developed to create cost-competitive and sustainable biobased products and supply chains that strengthen the American rural economy using circular principles. Circular economy implementation generates economic gains while alleviating pressure on the environment through recycling materials and capturing value (e.g., zero-waste, carbon neutral) along the supply chain. Biobased products should be manufactured from agricultural byproducts and coproducts, waste streams, emerging crops or livestock, forest, or fishery feedstocks and have a reduced or mitigative capacity in environmental impact based on life cycle and other environmental analyses. Projects should focus on engaging local communities to develop new or improved production and distribution systems inclusive of promoting economic equity, lowering environmental impacts, and the development of more effective formal and non-formal education/training methods and programs to strengthen the workforce pipeline for the bioeconomy. Projects supporting this goal must address all of the following:

- a) **Sustainable Bioenergy and Biobased Products:** Develop new and/or improved approaches for the production and manufacturing of clean energy (particularly sustainable aviation fuels) and sustainable biobased products that improve food, feed, fiber, industrial, or value-added products.
 - b) **Resilience and Robustness of Food and Agricultural System:** Develop innovative approaches that increase the adaptability of the bioeconomy to disruptions (including abiotic and biotic stressors). Innovations in community-based local and regional collaborations are appropriate to this topic.
 - c) **Potential Sustainability Impacts:** Use new or improved modeling or assessment techniques (including artificial intelligence) to determine short- and long-term sustainability benchmarks, impacts, and outcomes of new or improved production systems compared to existing production systems. Models and analytic tools should be capable of capturing the value and impact of products and byproducts at each point, from manufacture to disposal, in the local and regional context. Assessments of the system circularity should examine feedstock production, storage, transportation, manufacturing processes, economic viability, labor supply and training, environmental impacts, and effects on communities, particularly underserved communities.
3. **Food and Nutrition Security:** *Enhance the importance of food and agriculture to health of the nation through resilient local and regional food systems, adoption, and application of new or existing technologies, tools, education, and other resources to ensure access to adequate, safe, nutritious, and affordable food.* This goal emphasizes local and regional food systems including applications with strategies to develop shorter food supply chains for nutritious foods that are equitable, culturally appropriate, and compatible with community needs. Underserved communities such as racial and ethnic minority populations, lower-income populations, and rural and remote populations suffer the greatest disparities in food insecurity. Food insecurity often coexists with diet-related chronic diseases including heart disease, diabetes, and cancers. Inequitable impacts of

climate change also coexist with food and nutrition insecurity. Addressing food and nutrition insecurity is interrelated with challenges and opportunities with food production systems. Applications addressing this goal should be designed to challenge social determinants of health through integrated research, education, and extension/outreach activities including 4-H or other forms of positive youth development programs and to address food and nutrition security among the nation’s most vulnerable populations. Projects addressing this goal must develop, implement, or enhance understanding of at least one of the following:

- a) **Local and Regional Food Systems:** Build resilient local and regional food systems that foster and support agricultural innovation that ensures America’s agricultural system is equitable, nutritious, and prosperous. Design culturally and contextually appropriate approaches to reduce food supply chain disruption with an emphasis on mitigating the effects of climate and other disasters on food systems and fostering resilient food systems in disaster-prone areas.
- b) **Nutrition-Sensitive Climate-Smart Agriculture:** Promote productive, profitable, and nutrition-sensitive climate-smart production practices that increase returns on investment for farmers/producers and mitigate economic cost and food waste, particularly among underserved farmers. Promote nutritious crops while ensuring more sustainable production in terms of soil health, nutrient density, and crop resiliency to climate variabilities.
- c) **Nutrition Security & Diet-Related Health Disparities:** Develop innovative approaches to address upstream social determinants of health with an emphasis on fostering connections with sustainable agricultural systems that integrate robust partnerships and efforts led by or with strong representation from underserved populations.

Descriptions and examples of the three goals given above are meant to be guidance for project development, rather than being prescriptive. The project teams are expected to define the scope of their systems, system components, and detailed metrics that are directed at achieving one or more of the three goals in this RFA. SAS projects addressing any of these goals are expected to develop new formal and non-formal education/training activities for youth and adults resulting in high quality employment skills and opportunities, particularly for underserved communities and youth.

1. **Program Area Additional Information:** Letter of Intent (LOI) submission is required and must be submitted by an integrated project eligible institution (see [Part III § A](#)). LOI format is defined in [Part IV § A](#). LOIs must include:
 - a) the specific program goal(s) (i.e., Climate-Smart Agriculture and Forestry, Bioeconomy, and/or Nutrition Security) being addressed by the project within the “specific objectives” section of the LOI;
 - b) description of the objectives and deliverables addressed by the project, including short, medium, and long-term objectives within the “specific objectives” section of the LOI;
 - c) description of the scope of systems and justification of components under investigation within the “approach” section of the LOI;

- d) description of how the project will be integrated (i.e., integrate research, education and extension) within the “approach” section of the LOI;
 - e) clear descriptions and justification of the methods for the transdisciplinary approach to be used to achieve the desired goal(s) also within the “approach” section of the LOI; and
 - f) description of the short, medium, and long-term benefits to the food, forest, or agricultural system within the “potential impact and expected outcomes” of the LOI.
2. Competitive proposals will present a clear explanation of the system(s) chosen that will be selected and the associated problems that will be addressed through research, extension, or education. Proposals will explain the scope of the systems as well as the full extent of expected impacts. Applicants may choose to address at least one or, typically, more than one of the emphasis areas described in this Program Area Priority. A range of appropriate outcomes and impacts is expected for these projects.
 3. Improved assessment tools for monitoring conditions and evaluating the effects of adaptive management practices on increased resilience at different scales are also needed to support effective decision-making. Potential adaptive management practices may have multiple economic, ecological, or social effects on both urban and rural populations and may require new approaches to developing interdisciplinary educational curricula or extension programs to achieve optimum workforce development and adoption by stakeholders.
 4. Projects should enhance access and interest in food and agricultural education for communities, especially those underrepresented in science, technology, engineering, and math (STEM). Funded projects are expected to develop tools, techniques, and/or formal and non-formal education practices that can be adopted and implemented by education professionals in the classroom, at home or by extension specialists, or other non-formal education professionals. Funded projects should enhance economic prosperity by training or retraining the agricultural workforce to meet local and regional employment needs and opportunities.
 5. Projects must provide a clear description of how transdisciplinary approaches will be deployed to achieve the goals of the project as defined in [Appendix III](#). Proposals must demonstrate transdisciplinary linkages necessary to address the complex challenges in developing sustainable agricultural systems.
 6. All applications must adhere to the requirements beginning in [Part IV](#).
 - a) A Management Plan (*Part IV § C.3.f* “Field 12. Other Attachments” for additional information) **must** include project governance, a stakeholder advisory board, involvement of an external evaluator, and progress reporting. The plan must clearly articulate with an organizational chart how the project will be governed. A well thought-out strategy must be put in place to enhance coordination, collaboration, communication, data sharing and reporting among members of the project team and stakeholder groups. The management plan must include an advisory group of principal stakeholders, partners, and professionals to assess and evaluate the quality, expected measurable outcomes, and potential impacts for the proposed research, education and extension. An external evaluator must be employed, with a specified amount of funding set aside for evaluation support. Success in meeting objectives

- must be demonstrated through proposed project metrics. Reporting requirements must include a description of key achievements including the publicly available and compatible technologies, information, and data products.
- b) A Data Management Plan (see *Part IV § C.3.f.* “Field 12. Other Attachments” for additional information) must include making data publicly available with persistent identifiers or compatible with other open databases and sources. Machine readable data management plans produced using tools such as the [DMPTool](#) are strongly encouraged. A reasonable budget allocation for data management is allowed as a direct cost. Each Project Director (PD) must attend an inaugural PD meeting to share and coordinate their data management strategies with PDs from other funded projects to increase the value of the collective data through compatibility and sharing with regard to [FAIR data standards](#), privacy, security and ethics.
 - c) A Logic Model (see *Part IV, C. 3. f.* “Field 12. Other Attachments” for additional information) must include elements detailing the activities, outputs, and outcomes of the proposed project. The logic model planning process is a tool that should be used to develop a project before writing the application. This information may be provided as a narrative or formatted into a logic model chart. For more information and resources, see [Integrated Programs’ Logic Model Planning Process](#) located on the NIFA website.
7. Applications from and collaborations with small to mid-sized institutions, minority-serving institutions, and/or institutions within the Established Program to Stimulate Competitive Research (EPSCoR) states are encouraged.
 8. For this program area, successful projects will integrate all three functions of the agricultural knowledge systems (i.e., Research, Education, and Extension) within a project focused on a problem or challenge. Each application should be planned, developed, and written in a manner that reflects the input and expertise of the entire integrated project team. Each integrated activity should be represented by one or more objectives within the application, with no more than two-thirds of a project’s budget being allocated to any single function.
 9. Educational activities should develop human capital skilled for the sustainable agricultural systems of the future and must meet the definition described in [Appendix III](#) of this RFA as well as the guidelines for education described for integrated project types (see “AFRI Project Types” in the attachments list on the [AFRI RFA Resources page](#)). In addition, educational components should make use of innovative approaches such as stackable credential frameworks, novel experiential learning opportunities, on-the-job training, development of leadership skills (e.g., critical thinking, problem solving, communication), use of transdisciplinary and multi-institutional teams, online educational resources, citizen science, apps, or educational games. Investigators are strongly encouraged to engage a diverse population of education professionals and students in these activities, including underserved and nontraditional students. Applications strengthening community college level education are encouraged.
 10. Extension activities must meet the definition described in [Appendix III](#) of this RFA and the guidelines for extension described for integrated project types (see “AFRI Project Types” in the attachments list on the [AFRI RFA Resources page](#)). In addition, extension components must include:

- a) A high degree of engagement among researchers, extension or other engagement personnel, and relevant stakeholders, from inception through implementation of the project;
 - b) Approaches that consider the factors that impact decision making (e.g., assess individual, stakeholder group, or community needs; develop strategies that incentivize changes in practices to manage lands, crops and/or systems; promote adoption of new technologies and other interventions based on knowledge of user preferences); and
 - c) Innovative approaches to disseminate project results and/or best management practices.
 - d) Extension activities may include positive youth development programs such as 4-H.
11. Applications must:
- a) Clearly identify the systems addressed in the project and provide justification for why that system, its scope, and components, were selected. Where possible, each application must describe the prioritization process used to determine which systems and components to investigate in terms of the food and agricultural production practices, supply chain components, consumption end uses, and impacts on people.
 - b) Describe a meaningful approach for blending research, education, and extension expertise and other extension and implementation approaches throughout the project to address principal objectives.
 - c) Provide evidence that the project is aligned with AFRI priorities established by the Farm Bill, as listed in [Part I § A](#) of this RFA.
 - d) Describe expected solutions or improvements and how these will be assessed and measured in their project.
 - e) Address the potential costs of proposed solutions identified in the proposal and describe how solutions can be scaled to be used in the short- and long-term based on technical, economic, and social feasibility.
 - f) Explain how the project will strengthen agricultural and food production systems and how results will be adopted or applied at a local, regional, or national level.
12. During the proposal review process, the diversity of agricultural systems and long-term goals included may be taken into consideration when making final awards.
13. NIFA supports global engagement that advances U.S. agricultural goals. To attain the agency's goals for U.S. agriculture, global competence of our nation's agricultural workforce, and safe and nutritious food security in a growing world, NIFA recognizes that collaboration with international partners through AFRI can contribute to advances in U.S. agriculture. Thus, applications in response to this RFA may include collaborations with international partners but may only be submitted by eligible U.S. institutions. Such applications may include subcontracts to international partners or other institutions and must clearly demonstrate benefits to the United States. Additional guidance on including international activities is provided on the [AFRI International Partnerships website](#).
14. Applicants are encouraged to consult the definitions and examples of the food and agricultural systems in the National Academy of Sciences report on "[A Framework for Assessing Effects of the Food System](#)."

PART II. AWARD INFORMATION

A. Available Funding

The anticipated amount available for the Agriculture and Food Research Initiative (AFRI) Sustainable Agricultural Systems (SAS) RFA in FY 2022 is approximately \$80,000,000 for integrated projects. This RFA is released prior to the passage of an appropriations act for FY 2022. Enactment of additional continuing resolutions or an appropriations act may affect the availability or level of funding for this program

USDA is not committed to fund any application or to make a specific number of awards. The [Automated Standard Application for Payments](#), operated by the Department of Treasury, Bureau of Fiscal Service, is the designated payment system for awards resulting from this RFA.

B. Application Restrictions

NIFA will evaluate applications using the criteria described in [Part V](#) of this RFA. Application for FY 2022 is limited to the following applications types:

1. *New application*: New applications will be evaluated using the criteria described in [Part V](#) of this RFA and are subject to the due dates herein (see [Appendix III](#) for definition).
2. *Resubmitted application*: Resubmitted applications must include the respond to the previous review panel summary and are subject to the same criteria and due dates herein. Resubmitted applicants must enter the NIFA-assigned proposal number of the previously submitted application in the Federal Field (Field 4) on the application form (see Appendix III for definition).

C. Project and Grant Types

The following describes the types of *projects* or *grants* that are eligible for funding:

1. *Project Types*. Applicants must propose one of the AFRI project types specified within the relevant program area descriptions in [Part I § C](#) of this RFA. Only project types specifically solicited under each program area or program area priority described in [Part I § C](#) of this RFA will be considered for review. A detailed description of the project types available across AFRI is located on the [AFRI RFA Resources page](#) (“AFRI Project Types” in the attachments list).
2. *Grant Types*. Applicants must select the appropriate AFRI grant type specified within the relevant Program Area Descriptions in Part I § C of this RFA. Only grant types specifically solicited under each program area or program area priority described in Part I § C of this RFA will be considered for review. A detailed description of the grant types (Standard Grants, Coordinated Agricultural Projects, Conference Grants, Collaborative Grants, and FASE Grants) available across AFRI is located on the AFRI RFA Resources page (“AFRI Grant Types” in the attachments list).

D. Ethical Conduct of Funded Projects

In accordance with sections [2, 3, and 8 of 2 CFR Part 422](#), institutions that conduct USDA-funded extramural research must foster an atmosphere conducive to research integrity, bear primary responsibility for prevention and detection of research misconduct, and maintain and effectively communicate and train their staff regarding policies and procedures. In the event an application to NIFA results in an award, the Authorized Representative (AR) assures, through acceptance of the award that the institution will comply with the above requirements. Award

recipients must, upon request, make available to NIFA the policies, procedures, and documentation to support the conduct of the training. See [Responsible and Ethical Conduct of Research](#) for further information.

PART III. ELIGIBILITY INFORMATION

A. Eligibility Requirements

Applicants for the Agriculture and Food Research Initiative (AFRI) Sustainable Agricultural Systems (SAS) RFA must meet all the requirements discussed in this RFA. Failure to meet the eligibility criteria by the application deadline may result in exclusion from consideration or, preclude NIFA from making an award. For those new to Federal financial assistance, NIFA's [Grants Overview](#) provides highly recommended information about grants and other resources to help understand the Federal awards process.

1. Integrated Projects

Eligible applicants for Integrated Projects include:

- a) colleges and universities;
- b) 1994 Land-Grant Institutions; and
- c) Hispanic-serving agricultural colleges and universities (see [NIFA's Hispanic-Serving Agricultural Colleges and Universities page](#)).

For item a) under Integrated Projects, the terms "college" and "university" mean an educational institution in any state which

- i) admits as regular students only persons having a certificate of graduation from a school providing secondary education, or the recognized equivalent of such a certificate;
- ii) is legally authorized within such state to provide a program of education beyond secondary education;
- iii) provides an educational program for which a bachelor's degree or any other higher degree is awarded;
- iv) is a public or other nonprofit institution; and
- v) is accredited by a nationally recognized accrediting agency or association.

A research foundation maintained by a college or university is eligible to receive an award under this program.

2. Food and Agricultural Science Enhancement Grants

[Part II § C.2](#) of this RFA contains the eligibility details for Food and Agricultural Science Enhancement (FASE) Grants. Note that under FASE program, Strengthening Coordinated Agricultural Project and Strengthening Standard Grants are solicited in this RFA.

Applicants must respond to the program area priorities and deadlines found in [Part I § C](#) of this RFA. Grant recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project. Failure to meet an eligibility criterion by the application deadline may result in the application being excluded from consideration or, even though an application may be reviewed, will preclude NIFA from making an award (see [Part III § B](#)).

Duplicate or Multiple Submissions – duplicate or multiple submissions is not allowed. NIFA will disqualify both applications if an applicant submits duplicate or multiple submissions. For those new to Federal financial assistance, NIFA's [Grants Overview](#) provides highly

recommended information about grants and other resources to help understand the Federal awards process.

B. Request for Determination of Status

1. Minority–Serving Institution

If an institution is applying for a Strengthening Grant (see [Part II § C. 2](#)) and wants the Secretary to consider a group, beyond one included in the minority definition (See [Appendix III](#)), then documentation (see below) must be submitted as part of the requestor’s Letter of Intent (if required) and the full application package (Part IV, C) by the applicable program area or program area priority deadline. The Secretary of Agriculture (or designated individual) will use the information in the documentation to determine whether the group or groups identified are qualified as a minority group for the purpose of receiving a Strengthening Grant under the FASE program (for Strengthening Grants information, refer to the [AFRI RFA Resources page](#), “AFRI Grant Types” in the attachments list).

Documentation for the request for determination as a minority-serving institution must include the following and be provided in the order specified below:

- a) A description of each minority group being submitted for determination;
- b) Data or studies supporting this group’s designation as a minority group; and
- c) Data indicating that enrollment of the minority group(s) exceeds 50 percent of the total enrollment at the academic institution, including graduate and undergraduate and full-and part-time students.

2. Multi-Campus Institution

All institutions grouped under one main campus as listed in “Table 1 Most Successful Institutions” in the attachments list in the [AFRI RFA Resources page](#), unless located in an Established Program to Stimulate Competitive Research (EPSCoR) state (See “AFRI Grant Types” in the attachments list in the [AFRI RFA Resources page](#)), are excluded from eligibility for all strengthening funds. However, if any campus within a multi-campus listing can provide information demonstrating that it is administratively independent or has an independent accreditation, then the institution may petition for an exemption to this rule and request eligibility for strengthening funds. The Letter of Intent (if required) and the application must include a letter indicating how the institution is independent of the main campus, either through accreditation or administration, how the institution is eligible as a small and mid-sized or minority-serving institution due to enrollment, and total federal funds received for science and engineering research and development. The letter must be signed by the Authorized Representative (AR).

C. Cost Sharing or Matching

Match Required – Applicants **MUST** provide matching contributions on a dollar-for-dollar basis for all Federal funds awarded under the AFRI Sustainable Agricultural Systems RFA. Matching funds requirements for AFRI programs included in this RFA may be found at 7 U.S.C. 3157 (b)(9)(C). If an **applied Research** (see [Appendix III](#)) or **Integrated Project with an applied research component**, is commodity-specific and not of national scope, the grant recipient is required to match the USDA funds awarded on a dollar-for-dollar basis from non-federal sources

with cash and/or in-kind contributions. NIFA may waive the matching funds requirement for a grant if one of the following applies:

1. The results of the project, while of particular benefit to a specific agricultural commodity, are likely to be applicable to agricultural commodities generally; or
2. The project involves a minor commodity, the project deals with scientifically important research, and the grant recipient is unable to satisfy the matching funds requirement.

D. Centers of Excellence

Pursuant to [Section 7214 of the Agricultural Act of 2014 \(Pub. L. 113-79\)](#) , NIFA will recognize and prioritize COE applicants that carry out research, extension, and education activities that relate to the food and agricultural sciences. A COE is composed of one or more of the following entities that provide financial or in-kind support to the COE:

1. State agricultural experiment stations.
2. Colleges and universities.
3. University research foundations.
4. Other research institutions and organizations.
5. Federal agencies.
6. National laboratories.
7. Private organizations, foundations, or corporations.
8. Individuals; or
9. Any group consisting of two or more of the entities described in (1) through (8).

PART IV. APPLICATION AND SUBMISSION

A. Letter of Intent

If a program area or program area priority within this RFA requires a LOI, then a LOI is a prerequisite for submission of an application. Refer to the Program Area Description beginning in [Part I § C](#) of this RFA for LOI deadlines for a specific program area or program area priority. For detailed guidance on LOI submission, see the [AFRI RFA Resources page](#) (“AFRI Letter of Intent Instructions” in the attachments list).

B. Method of Application

Applicants must apply to this RFA electronically; no other method or response is accepted. The electronic application for this RFA and additional resources are available on [Grants.gov](#) and [Grants 101](#). **Table 3** provides instructions on how to obtain an electronic application. [Part III](#) of the NIFA Grants Application Guide contains detailed information regarding the [Grants.gov](#) registration process. The NIFA Grants Application Guide is contained in the specific funding opportunity package or a sample of the guide can be found [here](#). When applying for a NIFA award, it is important to reference the version of the guide that is included in the specific funding opportunity application package.

Table 3. Steps to Obtain Application Materials

Steps	Action
Step One: Register	<i>New Users</i> to Grants.gov must register early with Grants.gov prior to submitting an application (Register Here).
Step Two: Download Adobe	Download and Install Adobe Reader (see Adobe Software Compatibility for basic system requirements).
Step Three: Find Application	Using this funding opportunity number USDA-NIFA-AFRI-009002 , search for application here: Opportunity Package .
Step Four: Assess Readiness	Contact an AR prior to starting an application to assess the organization’s readiness to submit an electronic application.

Table 4: Help and Resources

Grants.gov Support	NIFA Support
Grants.gov Online Support Telephone support: 800-518-4726 Toll-Free or 606-545-5035 Email support: support@grants.gov Self-service customer-based support: Grants.gov iPortal grantapplicationquestions@usda.gov Key Information: Customer service business Hours 24/7, except federal holidays .	Email: grantapplicationquestions@usda.gov Key Information: Business hours: Monday thru Friday, 7a.m. – 5p.m. ET, except federal holidays

C. Content and Form of the Application

The application guide is part of the corresponding application package for this RFA. The RFA overrides the application guide if there is a discrepancy between the two documents. NIFA will accept subsequent submissions to an application until the application deadline. However, applicants that do not meet the application requirements, to include partial applications, risk being excluded from NIFA’s review. NIFA will assign a proposal number to all applications that meet the requirements of this RFA. Applicants must refer to the proposal number when corresponding with NIFA. **Table 5** outlines other key instructions for applicants.

Table 5: Key Application Instructions

Instruction	References (All references are to the Application Guide)
Attachments must be in a portable document format (PDF) format.	Part IV
Check the manifest of submitted files to verify attachments are in the correct format.	Part IV
Conduct an administrative review of the application before submission.	Part IV
Follow the submission instructions.	Part V
Provide an accurate email address, where designated, on the SF-424 R&R.	Part V
Contact the Grants.gov helpdesk for technical support and keep a record of the correspondence.	N/A
Contact NIFA if applicant does not received correspondence from NIFA regarding an application within 30 days of the application deadline.	N/A

AFRI Specific Application Instructions. Application and submission information including page limits and narrative font sizes for AFRI Sustainable Agricultural Systems RFA applications are available in the “2022 Sustainable Agricultural Systems RFA Additional Information for *Part IV § C*” PDF in the attachments list on the [AFRI RFA Resources page](#).

We recommend that you conduct an administrative review of the application prior to submitting the package via Grants.gov to ensure that it complies with all preparation instructions. An application checklist is included in [Part VII](#) of the NIFA Grants.gov Application Guide to assist with this review.

You should check the application for completeness. The application should be checked for the following required items, which must include:

1. Project Summary/Abstract
2. Project Narrative
3. Bibliography & References Cited
4. Logic Model
5. Management Plan
6. Data Management Plan
7. Facilities & Other Resources
8. Curriculum Vitae
9. Conflict of Interest Lists
10. Current and pending support
11. Budget
12. Budget Justification

This is not an exhaustive list of required items; it only serves to highlight items that may be overlooked. Failure to include any of the three critical required documents of Project Summary/Abstract, Project Narrative, or Bibliography & References Cited sections as PDF attachment will result in the application not being reviewed or considered for funding by NIFA.

We send email correspondence to the AR regarding the status of submitted applications. We strongly encourage you to provide accurate email addresses, where designated, on the SF-424 R&R Application for Federal Assistance.

If the AR has not received correspondence from NIFA regarding a submitted application within 30 days of the established deadline, contact the Agency Contact identified in Appendix I of the RFA and request the proposal number assigned to the application. Failure to do so may result in the application not being considered for funding by the peer review panel. Once the application has been assigned a proposal number, you should cite this number on all future correspondence.

D. Funding Restrictions

Indirect Cost (IDC) not to exceed 30 percent of Total Federal Funds Awarded (TFFA) of the recipient. Section 1462(a) and (c) of the [National Agricultural Research, Extension, and Teaching Policy Act of 1977 \(NARETPA\)](#) limits IDC for the overall award to 30 percent of Total Federal Funds Awarded (TFFA) under a research, education, or extension grant. The

maximum IDC rate allowed under the award is determined by calculating the amount of IDC using:

1. the sum of an institution's negotiated indirect cost rate and the indirect cost rate charged by sub-awardees, if any; or
2. 30 percent of TFFA.

The maximum allowable IDC rate under the award, including the IDC charged by the sub-awardee(s), if any, is the lesser of the two rates.

If the result of number one is the lesser of the two rates, the grant recipient is allowed to charge the negotiated IDC rate on the prime award and the sub-award(s), if any. Any sub-awards would be subject to the sub-awardee's negotiated IDC rate. The sub-awardee may charge its negotiated IDC rate on its portion of the award, provided the sum of the IDC rate charged under the award by the prime awardee and the sub-awardee(s) does not exceed 30 percent of the TFFA.

If the result of number two is the lesser of the two rates, then the maximum IDC rate allowed for the overall award, including any sub-award(s), is limited to 30 percent of the TFFA. That is, the IDC of the prime awardee plus the sum of the IDC charged by the sub-awardee(s), if any, may not exceed 30 percent of the TFFA.

In the event of an award, the prime awardee is responsible for ensuring the maximum indirect cost allowed for the award is not exceeded when combining IDC for the Federal portion (i.e., prime and sub-awardee(s)) and any applicable cost-sharing. Amounts exceeding the maximum allowable IDC are considered unallowable. See sections [408](#) and [410](#) of [2 CFR 200](#).

Successful applicants must not use grant funds awarded under the authority of this RFA to renovate or refurbish research, education, or extension space; purchase or install fixed equipment in such space; or to plan, repair, rehabilitate, acquire, or construct buildings or facilities.

PART V. APPLICATION REVIEW REQUIREMENTS

A. NIFA's Evaluation Process

NIFA evaluates each application in a two-part process. First, we screen each application to ensure that it meets the administrative requirements set forth in this RFA. All administrative requirements must be met in order for the application to proceed to the next level of review. Second, a scientific peer-review process will be used to technically evaluate applications that have met the administrative requirements using a review panel (see [NIFA Peer Review Process](#)).

Scientific Peer Review Process:

NIFA selects reviewers for the review panel based upon their training and experience in relevant scientific, extension, or education fields, taking into account the following factors:

1. the level of relevant formal scientific, technical education, or extension experience of the individual, as well as the extent to which an individual is engaged in relevant research, education, or extension activities.
2. the need to include experts from various areas of specialization within relevant scientific, education, or extension fields.
3. the need to include other experts (e.g., producers, range or forest managers/operators, and consumers) who can assess relevance of the applications to targeted audiences and to program needs.
4. the need to include experts from a variety of organizational types (e.g., colleges, universities, industry, state and Federal agencies, and private profit and non-profit organizations) and geographic locations.
5. the need to maintain a balanced composition with regard to minority and female representation and an equitable age distribution; and
6. the need to include reviewers who can judge the effective usefulness of each application to producers and the general public.

After each peer review panel has completed its deliberations, the responsible program staff of NIFA will recommend that your project is either approved for support from currently available funds or declined due to insufficient funds or unfavorable review.

NIFA reserves the right to negotiate with the PD/PI and/or the submitting organization or institution regarding project revisions (e.g., reductions in the scope of work, funding level, period, or method of support) prior to recommending any project for funding.

After the review process has been completed, NIFA sends copies of reviews, *not* including the identity of reviewers, and a summary (if applicable) of the review panel comments to the PD.

Conflicts of interest. NIFA takes extreme care to prevent any actual or perceived conflicts of interest that may influence the review or evaluation (see [NIFA Peer Review Process for Competitive Grant Applications](#)).

B. Evaluation Criteria

NIFA will use the following criteria to evaluate this RFA:

A reviewer's written evaluation entails two levels of assessment. First, the reviewer summarizes how well the application addressed each evaluation criterion. After the application has been assessed for strengths and weaknesses of each criterion, the reviewer then evaluates the overall likelihood that the project will have significant outcome and impact. The written reviews are used to begin panel discussions with other reviewers serving on the peer review panel. Through these discussions, peer review panelists come to consensus on the final ranking of the applications. A complete description of NIFA's peer review process can be found at the [NIFA Peer Review Process for Competitive Grant Applications page](#).

Detailed evaluation criteria for each project type, grant type, and centers of excellence are found in the "AFRI Review Criteria" PDF in the attachments list on the [AFRI RFA Resources page](#). We will use the appropriate evaluation criteria to review applications submitted in response to this RFA.

C. Centers of Excellence

In addition to evaluating applicants using the criterion listed in [Part V § B](#) of this RFA, NIFA will use the COE standards described in this RFA to evaluate applicants that rank highly meritorious and requested to be considered as a COE. In instances where applicants are found to be equally meritorious with the application of a non-COE applicant, NIFA will prioritize the COE applicant meeting the COE criteria. NIFA will effectively use the COE prioritization as a "tie breaker." Applicants that rank highly meritorious but who did not request consideration as a COE or who are not deemed to have met the COE standards may still receive funding.

Applicants that meet the COE requirements will have the COE designation in their notice of award. Entities recognized as COE will maintain that distinction for the duration of their period of performance or as identified in the terms and conditions of that award.

D. Organizational Management Information

Applicants must submit specific management information relating to an applicant prior to an award and update the information as needed. Applicants may only have to update their information if they had previously provided the information under this or another NIFA program. NIFA provides the requisite forms during the pre-award process. Although an applicant may be eligible for award under this program, there are factors that may exclude an applicant from receiving federal financial and nonfinancial assistance and benefits under this program (e.g., debarment or suspension of an individual, or a determination that an applicant is not responsible).

E. Application Disposition

Applicants may withdraw at any time before NIFA makes a final funding decision. NIFA will retain all applications, including withdrawn applications and unfunded applications.

PART VI. AWARD ADMINISTRATION

A. General

Within the limit of funds authorized, the NIFA awarding official will make grants to responsible and eligible applicants whose applications are judged most meritorious under the procedures set forth in this RFA. The date specified by the NIFA awarding official as the effective date of the grant must be no later than September 30 of the federal fiscal year in which the project is approved for support and funds are appropriated for such purpose, unless otherwise permitted by law. The project need not be initiated on the grant effective date, but as soon thereafter as practical so that project goals may be attained within the funded project period. All funds granted by NIFA under this RFA may be used only for the purpose for which they are granted in accordance with the approved application and budget, regulations, terms and conditions of the award, applicable federal cost principles, USDA assistance regulations, and [NIFA General Awards Administration Provisions, 7 CFR Part 3430, subparts A through E](#).

Award Notice. The award document will provide pertinent instructions and information as described in [2 CFR 200.211](#) (see [NIFA's Terms and Conditions](#)).

B. Administrative and National Policy Requirements

Several federal statutes and regulations apply to grant applications and the projects outlined in this RFA (some are listed here: [Federal Regulations](#)). Unless specifically noted by statute or award-specific requirements, NIFA Policy Guide applies to all NIFA awards.

PART VII. OTHER INFORMATION

A. Use of Funds and Changes in Budget

Delegation of fiscal responsibility. Unless the terms and conditions of the award state otherwise, awardees may not in whole or in part delegate or transfer to another person, institution, or organization the responsibility for use or expenditure of award funds.

Changes in Budget or Project Plans. In accordance with [2 CFR 200.308](#), awardees must request prior approval from NIFA for the following program or budget-related reasons (the awardee is subject to the terms and conditions identified in the award):

1. Change in the scope or the objective of the project or program without prior written approval (even if there is no associated budget revision requiring).
2. Change in a key person specified in the application or the federal award.
3. Disengagement from the project for more than three months, or a 25 percent reduction in time devoted to the project.
4. Inclusion of costs that require prior approval in accordance with [2 CFR 200 Subpart E \(Cost Principles\)](#), or [45 CFR Part 75 Appendix IX, \(Principles for Determining Costs Applicable to Research and Development under Awards and Contracts with Hospitals\)](#), or [48 CFR](#), unless waived by the federal awarding agency,
5. [48 CFR Part 31, Contract Cost Principles and Procedures](#);
6. Transfer of funds budgeted for participant support costs to other categories of expense ([2 CFR 200.456 Participant support costs](#));
7. Sub-awarding, transferring or contracting out of any work under a federal award, including fixed amount sub-awards (see [2 CFR 200.333, Fixed Amount Sub-awards](#)), unless described in the application and funded in the approved federal awards. This provision does not apply to the acquisition of supplies, material, equipment, or general support services.
8. Changes in the approved cost-sharing or matching provided by the non-federal entity; and
9. The need for additional federal funds to complete the project.

B. Confidential Aspects of Applications and Awards

When an application results in an award, it becomes a part of NIFA transaction records, which are available to the public. Information that the Secretary of Agriculture determines to be confidential, privileged, or proprietary in nature will be held in confidence to the extent permitted by law. Therefore, applicants should clearly mark any information within the application they wish to have considered as confidential, privileged, or proprietary. NIFA will retain a copy of an application that does not result in an award for three years. Such an application will be released only with the consent of the applicant or to the extent required by law. An applicant may withdraw at any time prior to the final action thereon.

C. Regulatory Information

This program is not subject to the provisions of Executive Order 12372, which requires intergovernmental consultation with state and local officials. Under the provisions of the Paperwork Reduction Act of 1995 ([44 U.S.C. Chapter 35](#)), the collection of information requirements contained in this notice have been approved under [OMB Document No. 0524-0039](#).

APPENDIX I: AGENCY CONTACT

AFRI Program Office:

Dr. Parag Chitnis, Associate Director, National Institute of Food and Agriculture
Dr. Debora Hamernik, Deputy Director, Institute of Food Production and Sustainability
Dr. Suzanne Stluka, Deputy Director, Institute of Food Safety and Nutrition
Dr. Venugopal Kalavacharla, Deputy Director, Institute of Youth, Family, and Community
Dr. Kevin Kephart, Deputy Director, Institute of Bioenergy, Climate, and Environment

Telephone: (816) 926-1604

E-mail: AFRI@usda.gov

Specific questions pertaining to technical matters may be directed to the Program Contacts:

Program Contacts

Name	Email
Dr. Amy Ganguli	AFRI-SAS@usda.gov
Dr. Steve Smith	AFRI-SAS@usda.gov

For administrative questions related to

1. Grants.gov, see [Part IV](#) of this RFA
2. Other RFA or application questions, please email grantapplicationquestions@usda.gov
3. Awards under this RFA, please email awards@usda.gov

U.S. Postal Mailing Address:

National Institute of Food and Agriculture
U.S. Department of Agriculture
P.O. Box 419205, MS 10000
Kansas City, MO 64141-6205

Courier/Package Delivery Address:

National Institute of Food and Agriculture
United States Department of Agriculture
2312 East Bannister Road, MS 10000
Kansas City, MO 64141-3061

APPENDIX II: GLOSSARY OF TERMS

Name	Acronyms
Agriculture and Food Research Initiative	AFRI
Authorized Representative	AR
Agricultural Research, Extension, and Education Reform Act of 1998	AREERA
Coordinated Agricultural Project	CAP
Catalog of Federal Domestic Assistance	CFDA
Centers of Excellence	COE
Climate Smart Agriculture and Forestry	CSAF
Data Management Plan	DMP
Established Program to Stimulate Competitive Research	EPSCoR
Food and Agricultural Science Enhancement	FASE
Indirect costs	IDC
National Agricultural Research, Extension, Teaching and Policy Act of 1977	NARETPA
National Institute of Food and Agriculture	NIFA
Project Director	PD
Request for Application	RFA
Research, Education, and Economics	REE
Sustainable Agricultural Systems	SAS
Total Federal Funds Awarded	TFFA
United States Department of Agriculture	USDA

APPENDIX III: DEFINITIONS

Refer to [7 CFR 3430 Competitive and Noncompetitive Non-formula Federal Assistance Programs – General Award Administrative Provisions](#) for additional definitions.

Terms	Definitions
Applied Research	Research that includes expansion of the findings of fundamental research to uncover practical ways in which new knowledge can be advanced to benefit individuals and society.
Bioeconomy	The bioeconomy presents an opportunity to expand and enable new agriculture and forest markets while also improving the sustainability of the broader modern economy and environment. New biobased technologies and products promise to create new possibilities for renewable product supply-chains, jobs, and economic opportunities.
FASE Grants	Food and Agricultural Science Enhancement (FASE) Grants mean funding awarded to eligible applicants to strengthen science capabilities of Project Directors, to help institutions develop competitive scientific programs, and to attract new scientists into careers in high-priority areas of National need in agriculture, food, and environmental sciences. FASE awards may apply to any of the three agricultural knowledge components (i.e., research, education, and extension). FASE awards include Pre- and Postdoctoral Fellowships, New Investigator grants, and Strengthening grants.
Circular Economy	A circular economy offers a conceptual framework for using and conserving renewable natural resources to transform and sustainably manage our land, food, health and industrial systems.
Education Component	The proposed Education (teaching and teaching-related) component of an Integrated Project should develop human capital relevant to overall program goals for U.S. agriculture. An education or teaching activity is formal classroom instruction, laboratory instruction, and practicum experience in the food and agricultural sciences and other related matters such as faculty development, student recruitment and services, curriculum development, instructional materials and equipment, and innovative teaching methodologies. Educational activities may include any of the following: conducting classroom and laboratory instruction and practicum experience; faculty research internships for curricula development; cutting-edge agricultural science and technology curriculum development; innovative teaching methodologies; instructional materials development; education delivery systems; student experiential learning (student led-research; internships; externships; clinics); student learning styles and student-centered instruction; student recruitment and retention efforts; career planning materials and counseling; pedagogy; faculty development programs; development of modules for on-the-job training; providing knowledge and skills for professionals creating policy or transferring to the agriculture workforce; faculty and student exchanges; and student study abroad and international research opportunities relevant to overall program goals for U.S. agriculture. Educational activities must show direct alignment with increasing technical competency in AFRI priority area(s) to

Terms	Definitions
	<p>ensure that U.S. agriculture remains globally competitive in the knowledge age. Educational components must address one or two of the following key strategic actions:</p> <ul style="list-style-type: none"> a) Train students for Associate, Baccalaureate, Master’s, or Doctoral degrees; and/or b) Prepare K-12 teachers and higher education faculty to understand and present food and agricultural sciences. <p>Education activities should synthesize and incorporate a wide range of the latest relevant research results. Note that routine use of graduate students and postdoctoral personnel to conduct research is not considered education for the purposes of the AFRI program.</p> <p>More information is available in the “AFRI Project Types” PDF in the attachments list on the AFRI RFA Resources page.</p>
Extension component	<p>The proposed Extension component of an Integrated Project should conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make practical decisions. Program delivery may range from community-based to national audiences and use communication methods from face-to-face to electronic or combinations thereof. Extension Projects may also include related matters such as certification programs, in-service training, client recruitment and services, curriculum development, instructional materials and equipment, and innovative instructional methodologies appropriate to informal educational programs.</p> <p>Extension activities may address, but are not limited to, the following key strategic actions:</p> <ul style="list-style-type: none"> a) Support informal education to increase food, agricultural, and health literacy of youth and adults; b) Promote science-based agricultural literacy by increasing understanding and use of food and agricultural science data, information, and programs; c) Build science-based capability in people to engage audiences and d) enable informed decision making; e) Develop new applications of instructional tools and curriculum structures that increase technical competency and ensure global competitiveness; f) Offer non-formal learning programs that increase accessibility to new audiences at the rate at which new ideas and technologies are tested and/or developed at the community-scale; and g) Develop programs that increase public knowledge and citizen engagement leading to actions that protect or enhance the nation’s food supply, agricultural productivity, environmental quality, community vitality, food security and/or public health and well-being.

Terms	Definitions
	<p>Extension activities should synthesize and incorporate a wide range of the latest relevant research results. Note that research-related activities such as publication of papers or speaking at scientific meetings are not considered extension for this purpose</p> <p>More information is available under “AFRI Project Types” in the attachments list in the AFRI RFA Resources page.</p>
Limited Institutional Success	<p>Limited institutional success means institutions that are not among the most successful universities and colleges for receiving Federal funds for science and engineering research. A list of successful institutions is provided in the “Table 2 Least Successful Institutions” PDF in the attachments list on the AFRI RFA Resources page.</p>
Food Security	<p>Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes at a minimum 1) the ready availability of nutritionally adequate and safe foods; and 2) assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).</p>
Food Systems	<p>A range of sectors or subsystems and activities involved in the production, aggregation, processing, distribution, consumption, and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal, and natural environments in which they are embedded. A sustainable food system is one that delivers food and nutrition security equitably in such a way that the economic, social, and environmental bases to generate food and nutrition security for future generations are not compromised.</p>
Integrated Research, Education, and Extension Projects	<p>An Integrated Project includes at least two of the three functions of the agricultural knowledge system (i.e., research, education, and extension) within a project. Note: AFRI SAS requires that Integrated Project applications include all three components of the agricultural knowledge system. More information is available under “AFRI Project Types” in the attachments list in the AFRI RFA Resources page.</p>
Social Determinants of Health	<p>Social Determinants of Health are the conditions in the places where people live, learn, work, and play that can affect health risks and outcomes.</p>
Matching	<p>The process through which a grant recipient match awarded USDA funds with cash and in-kind contributions on a dollar-for-dollar basis. The matching funds must derive from non-Federal sources.</p>
Minority-serving institution	<p>Minority-serving institution means an accredited academic institution whose enrollment of a single minority or a combination of minorities exceeds fifty percent of the total enrollment, including graduate and undergraduate and full- and part-time students. An institution in this instance is an organization that is independently accredited as determined by reference to the current version of the Higher Education Directory,</p>

Terms	Definitions
	published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300).
Minority	Minority means Alaskan Native, American Indian, Asian-American, African-American, Hispanic American, Native Hawaiian, or Pacific Islander. The Secretary will determine on a case-by-case basis whether additional groups qualify under this definition, either at the Secretary’s initiative, or in response to a written request with supporting explanation.
Multidisciplinary project	Multidisciplinary project means a project on which investigators from two or more disciplines collaborate to address a common problem. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.
Nutrition Security	Nutrition security means having consistent access, availability, and affordability of foods and beverages that promote well-being and prevent (and if needed, treat) disease, particularly among racial/ethnic minority populations, populations living under the Federal poverty line, and rural and remote populations. Nutrition security builds on and complements food security by recognizing not all Americans are all maintaining an active, health life, and emphasizing and using an equity lens for ensuring access, availability, and affordability to foods and beverages.
New Application	An application not previously submitted to a program.
Research component	The proposed Research component of an integrated project should address knowledge gaps that are critical to the development of practices and programs to address the stated problem. More information is available under “AFRI Project Types” in the attachments list in the AFRI RFA Resources page .
Resubmitted Application	A project application that was previously submitted to a program, but the application was not funded.
Small and mid-sized institutions	Small and mid-sized institutions are academic institutions with a current total enrollment of 17,500 or less including graduate and undergraduate and full- and part-time students. An institution, in this instance, is an organization that possesses a significant degree of autonomy. Significant degree of autonomy is defined by being independently accredited as determined by reference to the current version of the Higher Education Directory, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300).
Strengthening Grants	Strengthening Grants mean funds awarded to institutions eligible for FASE Grants to enhance institutional capacity, with the goal of leading to future funding in the project area, as well as strengthening the competitiveness of the investigator’s research, education, and/or extension activities. Strengthening grants consist of Standard, Coordinated Agricultural Project and Conference Grant types as well as Seed Grants, Equipment Grants, and Sabbatical Grants.
Transdisciplinary Team	A Transdisciplinary Team is composed of investigators from multiple disciplines that cross boundaries using holistic approaches to address

Terms	Definitions
	complex challenges that cannot be solved using single-disciplinary approaches.
USDA EPSCoR States	USDA Established Program to Stimulate Competitive Research EPSCoR States mean States which have been less successful in receiving funding from AFRI, having a funding level no higher than the 38th percentile of all States based on a 3-year average of AFRI funding levels, excluding FASE Strengthening funds granted to state agricultural experiment stations and degree-granting institutions in EPSCoR States and small, mid-sized, and minority-serving degree-granting institutions. The most recent list of USDA EPSCoR States is provided under “AFRI Grant Types” in the attachments list in the AFRI RFA Resources page .

APPENDIX IV: OTHER AFRI RESOURCES

AFRI program information is available on the [NIFA AFRI website](#). The following are among the materials available:

1. [Stakeholder Input](#)
2. [Requests for Applications](#)
3. [AFRI Abstracts of Funded Projects Listed by State](#)
4. [AFRI Annual Review](#)
5. [Frequently Asked Questions](#)
6. [Interagency Programs](#)
7. [AFRI RFA Resources](#)
 - a. ***Most Successful Universities and Colleges.*** Any institution listed on this list, *Most Successful Universities and Colleges Receiving Federal Funds*, is not eligible for Strengthening Grants from the FASE program unless they are located in an EPSCoR state. See “Table 1 Most Successful Institutions” in the attachments list in the [AFRI RFA Resources page](#).
 - b. ***Lowest One Third of Universities and Colleges Receiving Federal Funds.*** The lowest one third of universities and colleges receiving Federal funds is used to determine eligibility for possible waiver of matching funds requirement for Equipment Grants (see “Table 2 Least Successful Institutions” in the attachments list).
 - c. ***Flow Chart for Strengthening Grant Eligibility.*** The Flow Chart for Strengthening Grant Eligibility will help to determine your eligibility to apply for strengthening grants (see “FASE Strengthening Grant Eligibility Flow Chart” in the attachments list).
8. [AFRI Deadlines](#)