Agriculture and Food Research Initiative Competitive Grants Program

Agriculture and Natural Resources Science for Climate Variability and Change

FY 2013 Request for Applications

USDA

United States Department of Agriculture

National Institute of Food and Agriculture

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE
U.S. DEPARTMENT OF AGRICULTURE

AGRICULTURE AND FOOD RESEARCH INITIATIVE
COMPETITIVE GRANTS PROGRAM
AGRICULTURE AND NATURAL RESOURCES SCIENCE FOR CLIMATE VARIABILITY AND
CHANGE CHALLENGE AREA

INITIAL ANNOUNCEMENT

CATALOG OF FEDERAL DOMESTIC ASSISTANCE: This program is listed in the Catalog of Federal Domestic Assistance (CFDA) under 10.310.

DATES: A Letter of Intent (LOI) must be submitted (applications for conference grants are excluded) by 5:00 p.m. Eastern Time (ET) on December 31, 2012 (see Part IV D.1). A LOI is a prerequisite to submission of an application (conference grants is the exception). Applications must be submitted via Grants.gov by 5:00 p.m. ET on April 15, 2013. LOIs or applications received after the deadline will normally not be considered for review. Comments regarding this request for applications (RFA) are requested within six months from the issuance of this notice. Comments received after this date will be considered to the extent practicable.

STAKEHOLDER INPUT: The National Institute of Food and Agriculture (NIFA) is requesting comments regarding this RFA from any interested party. These comments will be considered in the development of the next RFA for the program, if applicable, and will be used to 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)). This section requires the Secretary to solicit and consider input on a current RFA from persons who conduct or use agricultural research, education, and extension for use in formulating future RFAs for competitive programs. Written stakeholder comments directed toward this RFA should be submitted in accordance with the deadline set forth in the DATES portion of this notice.

Written stakeholder comments should be submitted by mail to: Policy and Oversight Division; Office of Grants and Financial Management; National Institute of Food and Agriculture; USDA; STOP 2299; 1400 Independence Avenue, SW; Washington, DC 20250-2299; or via e-mail to: Policy@nifa.usda.gov. (This e-mail address is intended only for receiving comments regarding this RFA and not for requesting information or forms.) In your comments, please state that you are responding to the Agriculture and Food Research Initiative Agriculture and Natural Resources Science for Climate Variability and Change RFA. Stakeholder comments received in response to the fiscal year (FY) 2012 RFAs are discussed in Part I, B. of this RFA.

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

NOTE: This RFA is being released prior to the passage of an Appropriations Act for fiscal year (FY) 2013. Enactment of Continuing Resolutions or an Appropriations Act may affect the overall level of funding for the AFRI program. Therefore, NIFA reserves the right to amend, delete, or alter any programs outlined in this RFA.

In FY 2013, it is anticipated that approximately $264 million will be available to support the AFRI program. Of this amount, no less than 30 percent will be made available to fund integrated research, education, and extension programs.

For FY 2013, it is anticipated that approximately $5 million will be made available to support new awards within the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area within AFRI. In the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area, specific program areas are designed to advance the understanding of the impacts of climate variability and change on agriculture, forestry, natural resources, and the environment.

Project types supported by AFRI within this Challenge Area will propose single-function Projects and multi-function Integrated Research, Education, and/or Extension Projects, and Food and Agricultural Science Enhancement (FASE) Grants. This RFA identifies research, education, extension and integrated program objectives, eligibility criteria, and matching requirements for each project type.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority and Background

Section 7406 of the Food, Conservation, and Energy Act of 2008 (FCEA) (Pub. L. 110-246) amends section 2(b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) to authorize the Secretary of Agriculture to establish 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. Grants shall be awarded to address priorities in United States agriculture in the following areas:

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

To the maximum extent practicable, the National Institute of Food and Agriculture (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 section 2(b)(10) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)(10)), as amended. The authority to carry out this program has been delegated to NIFA through the Under Secretary for REE.

B. Purpose and Priorities

The purpose of AFRI is to support research, education, and extension work by awarding grants that address key problems of national, regional, and multi-state importance in sustaining all components of agriculture, including farm efficiency and profitability, ranching, renewable energy, forestry (both urban and agroforestry), aquaculture, rural communities and entrepreneurship, human nutrition, food safety, biotechnology, and conventional breeding. Through this support, AFRI advances knowledge in both fundamental and applied sciences important to agriculture. It also allows AFRI to support education and extension activities that deliver science-based knowledge to people, allowing them to make informed practical decisions. This AFRI RFA is announcing anticipated funding opportunities for Extension, and Integrated Research, Education, and Extension Projects.

Supporting the many components of agriculture under the constraints of a growing population, pressure on natural resources, and the challenges of climate variability and change, requires research, education, extension, and integrated programs that increase agricultural and natural resource sustainability. The term "sustainable agriculture" (NARETPA, 7 U.S.C. 3103) means an integrated 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 agriculture 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 as a whole.

The National Research Council Committee on Twenty-First Century Systems Agriculture recently updated and simplified this definition as a four-part goal: satisfy human food, feed, and fiber needs and contribute to biofuel needs; enhance environmental quality and the resource base; sustain the economic viability of agriculture; and enhance the quality of life for farmers, farm workers, and society as a whole. The Committee states that progress toward these goals will require robust systems which adapt to and

continue to function in the face of stresses, are productive, use resources efficiently, and balance all four goals across all scales of farms and enterprises. They further state that if the U.S. is to maintain adequate resources to meet food, feed, fiber, and biofuel needs, progress toward meeting the four goals must be accelerated. This acceleration must be based on research that determines ways to reduce tradeoffs and enhance synergies among the four goals while managing risks associated with their pursuit. The Committee's 2010 report, *Toward Sustainable Agricultural Systems in the 21st Century*, provides a review of the contributions of farming practices and systems and fields of science that elaborates on these general goals with respect to many of the specific priorities within AFRI programs.

AFRI is intended to promote advances in U.S. agriculture and forestry. Agriculture, however, is increasingly worldwide in scope and reach. To attain AFRI's goals for U.S. agriculture, applicants to Foundational or Challenge Area RFAs may include international partnerships or engagement in proposals as appropriate. Applicants are asked to keep in mind that while international activities supported by AFRI may contribute to global food security as described in the U.S. Government's Feed the Future global food security initiative (www.feedthefuture.gov), any international activity proposed under AFRI such as partnerships, exchanges, training, trips, etc., must first and foremost support AFRI's domestic program goals. Applicants must clearly describe and demonstrate how international activities proposed in applications submitted to AFRI will contribute to and support advances in American agriculture.

If international activities (*e.g.,* partnerships, exchanges, travel) are proposed, then applicants shall describe indicators that will be used to assess those activities.

AFRI Stakeholder Input
The programs described herein were developed within the context of the authorized purposes of USDA research, extension, and education projects and activities. In addition, AFRI obtains input from Congress, the NAREEEAB, as well as many university, scientific, and agricultural committees and organizations. NIFA developed a stakeholder's Web page (www.nifa.usda.gov/business/reporting/stakeholder.html) to document stakeholder input that is considered when developing and updating Program Area Descriptions and Priorities each year.

The AFRI program was significantly restructured and refocused in FY 2010 to more effectively address societal challenges while continuing to support foundational agricultural science. A public meeting was held on June 2, 2010, to seek stakeholder comment on the FY 2010 AFRI RFAs prior to revising them for FY 2011. NIFA has once again solicited stakeholder input via a public meeting and 12 program-specific webinars. The public meeting was held on February 22, 2012 and the webinars were held during the months of March and April 2012. NIFA received more than 145 comments from stakeholders, including a wide range of scientific societies, producer associations, universities and other research organizations, policy and advocacy groups, non-profit organizations, and leading scientists in the field of agriculture and food sciences. Collectively, the non-governmental organizations represent over 300,000 stakeholders of interest. A comprehensive analysis was conducted of the written and oral stakeholder input comments received. Categorically, these comments can be clustered into the following: Production Agriculture; Food Safety; Energy, Environment, Natural Resources, and Rural Communities; Bioengineering, Biochemistry, and Plant Health; Health and Obesity; Grantmaking; and Animal Agriculture and Aquaculture.

In general, the broad range of AFRI stakeholders provided overwhelming support for NIFA and the AFRI program. During the in-person stakeholder listening session, 100 percent of the speakers expressed their appreciation for the event and the opportunity to participate. It should be noted that hundreds of e-mails were received from stakeholders indicating their regrets of not being able to attend due to other commitments, the short notification, and lack of financial resources. Overall, stakeholders applauded NIFA for expending the time, effort, and resources to facilitate sessions designed to obtain their feedback, comments, and being responsive to stakeholder input. In addition, almost ten percent of the stakeholders specifically expressed their gratitude for the Administration, USDA, and NIFA's request for an increase in funding for the AFRI program in the FY 2013 budget. Moreover, many supported full funding of the AFRI program to the level indicated in the 2008 Farm Bill. Stakeholders with current and past AFRI projects expressed their appreciation of the goals and mission of the AFRI program. The stakeholders applauded

NIFA for its courage and leadership in taking on the diverse, global agricultural and food science issues. In addition, a significant amount of the stakeholders, 40 percent, expressed in great detail the level of their gratitude of AFRI as a funding source, the competitive grants process, efforts to ensure that AFRI Challenge Area RFAs include basic research and relevant scientific disciplines. Lastly, stakeholders articulated their support for NIFA's partnership initiatives including inter-agency and public-private.

Stakeholders expressed concern regarding NIFA's compliance with AFRI authorizing language, the scientifically confining aspects of the RFAs, the funding amount and allocations between the foundational and challenge areas, the benefit and efficacy of Coordinated Agricultural Project (CAP) grants, and the overall AFRI program/project types that are under/not funded. Stakeholders expressed specific trepidation regarding the eligibility criteria for integrated projects that excludes entities beyond colleges and universities as primary recipients. Also, Stakeholders felt that the funding level of the Foundational Program was inadequate and indicated support of an allocation level of up to 50 percent of the AFRI appropriation for that part of the program. Other stakeholders provided input regarding specific AFRI set-aside amounts for program/projects, e.g., organic, classical breeding, water, and bio-technology. Overall, 30 percent of stakeholders expressed concern that CAP grants are too large. While many of the stakeholders expressed an understanding of the concept and benefit of CAP grants to long-term, interdisciplinary, scientific research, stakeholders encouraged NIFA to reconsider and balance the portfolio and funds attributed to these types of projects. Additionally, stakeholders expressed concerns regarding the overall AFRI program as it pertains to decisions that eliminate and/or suppress investigator, hypothesis-driven scientific discovery, junior faculty award success rates, qualified and diverse panel reviewers, and a disconnect between industry and higher education scientific research.

Stakeholders provided an abundance of recommendations that are proactive and designed to have immediate, beneficial outcomes. The recommendations included the need for NIFA to define its agricultural identity among the federal agencies, improvements to the AFRI Program, current and future investments, and the development of RFAs. Some stakeholders indicated that NIFA was duplicative and/or undistinguishable in its research efforts associated with other federal agencies. However, they were supportive of the need and benefit of leveraging limited resources through inter-agency partnerships. Stakeholders expressed the need for more, smaller innovative awards in the amount of $1 million dollars and restricting the range of CAP awards to $10-20 million. Lastly, the recommendations regarding RFAs included expanding and/or clarifying the restrictive language, allowing adequate time to prepare a responsive, comprehensive proposal, systematic and consistent publishing, and associating the request for information to match the size of the award.

In response to the comments received, NIFA will take several actions. The AFRI program will undergo a rigorous external evaluation during the next 24 months to examine a number of issues around NIFA's administration of the program and to assess the quality of the work being supported. Based on the recommendations of the evaluation, as well as comments from stakeholders, NIFA will make changes to program offerings, make adjustments to award sizes, and reconsider the distribution of funds between Challenge Areas and the Foundational Program. The rate at which these changes will occur will depend, in part, on available funding.

NIFA understands that some stakeholders are concerned about priority limitations identified in the AFRI RFAs. NIFA has focused on making critical but essential decisions regarding the scientific reach and impact for each RFA that is published. These decisions included the identification of five Challenge Areas that are relevant and consistent with the priority areas identified in the AFRI legislation. Moreover, these decisions are guided by the National Agricultural Research, Extension, Education, and Economics Advisory Board, USDA Action Plan, Research, Education, and Economics Action Plan, NIFA Strategic Plan, pertinent industry-related scientific reports, and stakeholder input. In the end, the RFAs reflect a comprehensive, consultative document to address the collective needs of specific scientific issues that notably impact America's agricultural and food system.

Within the stakeholder community, there is a fair amount of concern regarding NIFA's agricultural identity among the federal agencies, specifically as it applies to addressing childhood obesity prevention. NIFA emphasizes the role of foods and whole diets in the prevention of chronic degenerative diseases, while

the National Institute of Health, in general, addresses therapeutic aspects. Successful applications to AFRI must align with USDA and NIFA mission, action plans, and goals. Moreover, the existing Action Plan encourages the formal and informal collaboration with other USDA and Federal agencies, as well as public and private partners. The focus of these partnerships is on a national and international level to ensure our research, education, and extension activities that are representative of current priorities and take advantage of existing knowledge.

NIFA acknowledges the level of concern that exists within a portion of the stakeholder community regarding entities eligible to submit applications for integrated projects. Eligibility for all NIFA programs is established in authorizing legislation. Eligibility to apply to the AFRI program was established in the 2008 Farm Bill and NIFA has adhered to that requirement. Applicants not eligible to directly apply are encouraged to partner with eligible institutions. In addition, NIFA remains committed to engaging small, mid-sized and minority-serving institutions and young scientists in all of its programs. To ensure their participation in AFRI we offer Food and Agriculture Science Enhancement (FASE) grants within all program areas. FASE gives special funding consideration to applications from qualifying schools for even the largest grants, and sets aside 10 percent of AFRI funding for this purpose. FASE-eligible schools are those with enrollments of fewer than 17,500 students, minority-serving institutions, and those in USDA Experimental Program for Stimulating Competitive Research (EPSCoR) states (see Part II, D, 3, b, 2). In addition, AFRI gives special consideration to new faculty with fewer than five years of experience, and offers pre- and post-doctoral fellowships to encourage young scientists to engage in agricultural science.

Lastly, over the past year, NIFA has established several internal task force committees, of special importance to AFRI. They are the Competitive Programs Task Force and the Infrastructure and Capacity Task Force. The mission and anticipated outcomes of the committees include ensuring the quality of the competitive peer review process, coordinating AFRI program implementation across NIFA's four Institutes including RFA development; identify opportunities to improve the efficiency and effectiveness of the procedures and management of the competitive grants portfolio.

Challenge Area-Specific Stakeholder Input
The Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area used a webinar on April 18, 2011 along with written comments to seek stakeholder input on the FY 2010 and 2012 Climate Variability and Change Challenge Area RFAs prior to developing the FY 2013 RFA.

In general, stakeholders congratulated NIFA for its focus on societal challenges, including the Climate Variability and Change Challenge Area, which is expected to increase the visibility and effectiveness of agricultural science for the nation. They appreciated the larger grants offered through the challenge areas RFAs, which are critical for achieving measurable outcomes in these important problem areas. Stakeholders agreed that large, inter-disciplinary teams are necessary to successfully carry out the research, education, and extension work needed to address the challenge areas. However, they also made it clear that it was difficult to build these teams given the relatively short application deadlines established in FY 2010 and continued in 2012. In response, assuming a timely release, the 2013 will provide a minimum of three months after the acceptance of a letter of intent before the program deadline. Moreover, given the awards expected for 2013 are a fraction of the size of larger awards given in 2010 and 2012, the Program expects the teams will be smaller and more facile in organizing themselves.

Stakeholders also expressed concern that newer faculty and smaller institutions in particular, would find it difficult to compete successfully for these larger grants. In addition, stakeholders observed that the challenge area RFAs provided few, if any, opportunities for investigator-initiated projects by small teams or single investigators. Similarly, stakeholders felt that the challenge areas RFAs were too prescriptive, allowing little flexibility by applicants to address these problems and find solutions in the ways they thought best. In response to the 2010 and 2012 RFA comments, the 2013 RFA has been "opened up" to focus on fairly general priorities in research, education and extension and, in 2013, projects can be single function, single investigator, single function projects or duel function, more complex projects, thus providing a range of opportunities for both new and more seasoned investigators. The breadth of the

program has also increased to include the effects of climate change on food safety (e.g., mycotoxins) and the "social" dimensions by which producers change practices as conditions change.

A number of stakeholders noted that the program might put a stronger focus on increasing the ability of production agriculture to cope with climatic vagaries, especially in the area of animal production, rather than focus on mitigation and cropping systems. The title of the FY2013 program for this challenge area, *"Crop, Livestock, Forest and Range Adaptation to Climate Variability and Change"* illustrates a programmatic interest in adapting animal systems to climate variability and change.

The majority of efforts supported by the 2013 RFA advances adaptation of agricultural and forest production systems to climate variability and change. This emphasis on adaptation would fill a current gap in the Climate Variability and Change Challenge Area portfolio of projects funded under the 2010 and 2012 RFAs where many of the projects focused on climate change mitigation. Extension and education efforts continue to play a significant role in attaining this goal. The Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA has become broader, less prescriptive, yet more flexible in how basic climatic variables such as water supply, temperature, and weather extremes significantly impact agriculture and forestry. One focus continues to be on a systems-level approach (where appropriate) to managing production systems. The FY 2013 Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA is intended to focus upon challenges which have historically been fundamental to sustainable agricultural production systems and the management of healthy forests. The miscellaneous stakeholder comments that would prefer more of a focus of climate change research, education and extension on organic systems, soil, water, forestry, and land use all fit within in this framework and move the field towards more sustainable global food security under variable climates.

More detailed comments relevant to each Challenge Area RFA and the Foundational Program RFA will be published in those RFAs, along with NIFA's responses to those comments.

Background

AFRI is one of NIFA's major programs through which to address critical societal issues such as those laid out in the *New Biology for the 21st Century: Ensuring the United States Leads the Coming Biology Revolution* report. USDA leadership has integrated the six AFRI priority areas (outlined in Part I, A) with a focus on grand societal challenges broadly identified by the scientific community in reports such as the "New Biology for the 21st Century" report. Leadership in the scientific community has been calling on multidisciplinary efforts which integrate biological and social science work which helps solve grand societal challenges. NIFA work brings the unique capacity to integrate research, education, and extension in order to enhance the impact of scientific work. USDA science will support the following challenges:

1. Keep American agriculture competitive while ending world hunger;
2. Improve nutrition and end child obesity;
3. Improve food safety for all Americans;
4. Secure America's energy future; and
5. Mitigate and adapt to climate variability and change.

In FY 2010, NIFA released several AFRI RFAs to address these challenges at a meaningful scale and to achieve outcomes of relevance to the societal challenges. These RFAs addressed each of the five challenges, enabled transition and refocusing of grants made previously under AFRI, and provided pre- and postdoctoral fellowship opportunities. These RFAs solicited applications for larger awards for longer periods of time to enable greater collaboration among institutions and organizations and integration of basic and applied research with deliberate education and extension programs.

In FY 2013, AFRI will solicit projects addressing the above challenges through five separate challenge area RFAs, each addressing one of the challenges. AFRI will also support Research and Integrated Project grants in the six AFRI priority areas to continue building a foundation of knowledge in fundamental and applied food and agricultural sciences critical for solving current and future societal challenges.

These six foundational Program Areas are being announced in a single, separate RFA. In addition, funding opportunities for pre- and postdoctoral fellowship grants will be offered in a single, separate RFA.

Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area:
The Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA focuses on the societal challenge to adapt agroecosystems and natural resource systems to climate variability and change and implement mitigation strategies in those systems. In the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA, specific program areas are designed to achieve the long-term outcome of reducing the use of energy, nitrogen, reducing GHG emissions from practices, and water in the production of food, feed, fiber, and fuel; reduce GHG emissions from these agroecosystems; and increase carbon sequestration. Project types supported by AFRI within this RFA include multi-function integrated research, education, and/or extension projects and Food and Agricultural Science Enhancement (FASE) Grants.

Other sources of NIFA funding for work relevant to the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area are as follows:

- *Dual Purpose with Dual Benefit: Research in Biomedicine and Agriculture Using Agriculturally Important Domestic Species* (joint with the National Institute of Health (NIH)).
  Total Program Funds: Approximately $5 million from AFRI. Information is available at
  http://nifa.usda.gov/fo/researchinbiomedicineandagricultureafri.cfm

- *National Robotics Initiative* (joint with National Science Foundation (NSF), NIH, National Aeronautics and Space Administration (NASA), and Department of Defense (DoD)).
  Total Program Funds: Approximately $5 million from AFRI. Information is available at
  http://nsf.gov/funding/pgm_summ.jsp?pims_id=503641

- *Plant Feedstock Genomics for Bioenergy* (joint with Department of Energy (DOE)).
  Total Program Funds: Approximately $2 million from AFRI. Information is available at
  www.nifa.usda.gov/fo/plantfeedstock.cfm

- *Ecology and Evolution of Infectious Diseases* (joint with NIH, NSF, and the U.K. Biotechnology and Biological Sciences Research Council (BBSRC).
  Total Program Funds: Approximately $2.5 million from AFRI. Information is available at
  http://nifa.usda.gov/fo/ecologyandevolutionofinfectiousdiseases.cfm

- *Water Sustainability and Climate* (joint with NSF)
  Total Program Funds: Approximately $5 million from AFRI. Information is available at
  http://www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=503452&ods_key=nsf11551

- *Decadal and Regional Climate Prediction using Earth System Models (EaSM)* (joint with NSF)
  Total Program Funds: Approximately $5 million from AFRI. Information is available at
  http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503399

C. Program Area Description

Background
To meet these identified needs, the long-term outcomes for this program are new varieties of plants and animals, and new strategies for agriculture and forest production systems for adaptation to climate variability and change; sustainable use of natural resources and support for sustainable rural economies under variable and changing climates; reduction in the use of energy, nitrogen fertilizer, and water by ten percent (based on 2010 usage); and increase carbon sequestration by fifteen percent through resilient agriculture and forest production systems by 2030. Overall the Challenge Area focuses on the four sustainability goals described under the National Research Council Report "Toward Sustainable

Agricultural Systems in the 21st Century" and contributes to achieving the following Challenge Area goals:

1. *Adaptation* – Maximize resiliency and reduce the impact of climate variability and change on the sustainability and productivity of agricultural and forest ecosystems under changing climates by providing producers and decision makers with new and sustainable management methods, and technologies.

2. *Mitigation* – Reduce atmospheric greenhouse gas emissions in agriculture and forestry production systems and optimize carbon sequestration potential in agriculture and forest working lands by providing producers and decision makers with new and sustainable management methods and technologies which can also contribute to the emerging economic opportunities of a carbon-based market system.

3. *Climate Science Education and Extension* – Increase the number of agriculture scientists, educators and extension professionals in the workforce with skills and knowledge to address climate variability and change impacts and improve the understanding by the general public of climate variability and change, its impacts, and options for sustainable environmental stewardship. Use of eXtension is an appropriate mechanism for outreach (http://create.extension.org/node/2057).

To meet these objectives, projects must be aligned with the goals of this Challenge Area. Activities should lead to tangible short and long-term outcomes with net positive social, environmental, and economic impacts, especially in rural areas, that can be sustained and integrated with existing and future agriculture and forestry systems.

In order to achieve the focus, scale, and impact sought by all NIFA-funded projects in the Challenge Areas, in 2013 the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area will address the science for underlined adaptation across a broad range of U.S. agricultural production systems including crop, livestock, forest and range systems. The Program seeks projects that are complimentary-to but are not duplicative to areas/systems/projects funded in the FY 2010 and 2012 AFRI Climate Change Challenge Area funding cycles (for previously funded projects see http://cris.nifa.usda.gov/cgi-bin/starfinder/0?path=fastlink1.txt&id=anon&pass=&search=CG=(*-67003-*;*-67004-*;*-68002-*;*-69002-*)&format=WEBTITLESG).

Areas/systems could include, but are not limited to the following: food and fiber production systems, farmed aquaculture systems, forest systems, forage and range systems, and animal production systems, including ruminant, swine, and poultry production. The program encourages projects that are integrative across systems, i.e., mixed systems and that are of major importance to the U.S. economy, the U.S. environment, or global food security. Applicants are asked to describe as applicable the potential of the project outcomes for international application or the project's relevance, contribution, scientific applications, or collaborations with international initiatives

For FY 2013, the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area encourages proposals that address fundamental scientific issues relevant to the adaptation of production systems to climate variability and change, including the development of new technologies, and sociological studies that examine the human adoption of new and existing technologies and best management practices in adaptive management needed to deal with short- and long-term climatic extremes. Examples may include, but are not limited to nanotechnology approaches for the development of sensors to monitor environmental conditions for adaptive management, improve precision farming, and developing and encouraging adoption of decision support tools that help producers switch from one production system to another that is more resilient to climate variability and change.

The Program Area for 2013 primarily addresses the 2008 Farm Bill AFRI Priority Area on Renewable Energy, Natural Resources and Environment, primarily the Sub-Priority on Global Climate Effects on Agriculture, but also the Sub-Priorities on fundamental structures and functions of ecosystems, forestry, and on minimizing soil and water losses and sustaining surface and ground water quality. In addition, specific programmatic priorities in this Program Area also addresses the Priority on Plant Health Production and Plant Products, Sub-Priority on crop plant responses to environmental stresses; the

Priority on Animal Health and Production and Animal Products, Sub-Priority on the development of new and improved animal husbandry and production systems that take into account production efficiency, animal well-being, and animal systems applicable to aquaculture; the Priority on Food Safety, Nutrition, and Health, Sub-Priority on postharvest physiology and practices; the Priority on Agriculture Systems and Technology, Sub-Priority on water quality and management; and the Priority on Agriculture Economics and Rural Communities, Sub-Priority on new decision tools for farm and market systems.

The Program Area also addresses the USDA Strategic Plan for 2010-2015 under Strategic Goal 2, Objective 2.2: Lead Efforts to Mitigate and Adapt to Climate Change, in particular the strategy to" Develop models, national observing and monitoring systems, decision support tools, and new technology and adaptation strategies for communities, agriculture producers, and natural resource managers"; and "Encourage the adoption of reasonable, transparent, and science-based programs to adapt to, or mitigate the effects of, climate change on agriculture and forestry".

The Program Area for 2013 supports the USDA Research, Education, and Economics Action Plan (http://www.ree.usda.gov/ree/news/USDAREEActionPlan02-2102Final.pdf) Goal 2: Responding to Climate and Energy Needs, Sub-goal 2A: Responding to Climate Variability, with direct reference to the Actionable item to "Create adaptation strategies (including "transformative" systems as described by the 2010 National Research Council [NRC] publication "Toward Sustainable Agricultural Systems in the 21st Century", e.g., crop-livestock, organic, agro-forestry, etc.), to sustain and increase the resiliency of crop, livestock, and forest tree production systems, biodiversity, and ecosystem services, including practices and technologies that increase the resilience of subsistence food systems to climate variability, weather extremes, and changes in the composition of the atmosphere".

For Fiscal Years 2014 and 2015, **pending availability of funds**, the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area anticipates advancing research, education and extension efforts in the topical areas listed below. These topical areas will be developed in conjunction with the core program areas that contribute to achieving the challenge area goals in adaptation, mitigation, and climate science education and extension.

1) New and/or improved crop and livestock varieties, lines, populations, and breeds adapted to climate driven abiotic and biotic stresses and/or for enhanced climate mitigation.
2) New and/or improved strategies or technologies that protect food from climate driven environmental changes and contamination to ensure food safety.
3) Impacts of climate variability and change on farm income support programs, such as farm loans and subsidies, and disaster payments and loans.
4) Impacts of climate variability and change on farm risk management financing, such as crop insurance, matching grants and low-interest loans.
5) Impacts of climate variability and change on transboundary movement of plant and animal diseases leading to morbidity and economic loss.
6) Impacts of climate variability and change on ecosystem services and ecological markets.

Program Code Name: Climate Change: Climate Change Mitigation and Adaptation in Agriculture
Program Code – A3141

Letter of Intent Deadline – December 31, 2012 (5:00 p.m., ET); see Part IV, A for instructions.
Required for all applications except those for conference grants.
Application Deadline – April 15, 2013 (5:00 p.m., ET)
Proposed Budget Requests –
• Single Function and Integrated Grants must not exceed $1,000,000 including indirect costs, for project periods of up to 5 years. Program anticipates making up to 5 awards in FY 2013.
• Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 2 and 3.
• Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Single Function and Integrated Projects
Requested Grant Type – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Michael A. Bowers; (202) 401-4510 or mbowers@nifa.usda.gov

Program Area Priority – In FY 2013 only projects that focus on adaptation of production systems to climate variability and change will be considered. Throughout history, farmers have adjusted their production practices in accordance with changes in the environment. But as global temperatures, carbon dioxide concentrations, climate variability and frequency of extreme weather events continue to rise, the pace of environmental change will likely be unprecedented. Anticipated changes such as these are all expected to increasingly impact livestock, crop productivity and quality, and the soil and water quality needed for agricultural production, raising issues of sustainability, food safety and food security, and challenging our ability to feed a growing population expecting to reach 9 to 10 billion people worldwide by 2050.

Beyond its direct effects on weather and climate variability, change will increase both abiotic stresses, such as drought and temperature, and biotic stresses, such as weed, pest and disease pressures, on forest, range, and agricultural systems. Of greatest concern and largely unknown, are the influences that interactions among different types of stresses will have on forests, crops and livestock, and how these might impact food security, food safety, human health and ecosystems. New cropping systems, and agricultural management strategies (including soil and water management), are needed to provide options to producers to counterweight these changes. Concomitant with long-term changes in climate are a predicted increase in the frequency of extreme weather events. Interannual variability is the year-to-year reality that farmers, foresters and ranchers face each year. There is a need for producers to employ adaptive management strategies by customizing management practices based on the current and future weather. This would involve an iterative process of robust decision making in the face of uncertainty.

In FY 2013 the program will consider projects that involve one or more of the three functions, research, education and extension, that focus on adaptive management to weather and climate. Priority issues to be addressed by research, extension and/or education activities include:

1. *Understanding the Biophysical Basis for Adaptation.* Understand the physiological, basis of adaptation to abiotic and biotic stresses likely resulting from climate change, especially the effects of stressors created by extremes in temperature and precipitation, diseases/pests, carbon dioxide and ozone.

2. *Develop and Evaluate Tools and Management Practices to Aid Adaptation.* Develop and evaluate innovative tools and management practices that will minimize the effects of abiotic (e.g.*,* precipitation or temperature extremes) and biotic (e.g., insects, weeds, and pathogens) stresses on crop, forest or livestock productivity; crop, forest, livestock or human health; and/or food safety (e.g., mycotoxins). This could involve defining the appropriate temporal and spatial scales of managing agroecosystem processes and building robust and statistically-based models that can be used in management.

3. *Social, Behavioral and Economics Aspects of Adaptive Management.* Social, behavioral, and economics sciences that link agricultural and forest science, policy, and end-users are requested to understand and develop strategies to deal with the following questions: Why people do or do not adopt practices to adapt to climate change? What are the perceptions about climate change and how do people adjust their behaviors, perception of risk and production management practices? What is the role of science-based information and social or cultural barriers in influencing behaviors? What kind of economic or policy incentives or other mechanisms might be designed to encourage the adoption of adaptive management strategies and /or technologies by individuals, institutions or public agencies?

Research (research projects or research components of integrated projects must focus on at least one of three FY 2013 priorities listed above):

- Demonstrate a well developed plan for an increase in resiliency and sustainability of agricultural production and natural resources under variable climates (adaptation), through new tools and/or management strategies or by the linking to social and behavioral sciences, and economics.

The concepts listed below are examples, not requirements, of possible activity emphasis areas:

- A trans-disciplinary, systems approach to scientific studies that develop best management practices for adaptation of cropping and livestock production systems to climate change;
- Projects designed to understand the impacts of climate change on microbial food safety issues, including pre and post harvest contamination;
- Projects that address issues within highly vulnerable communities, ecosystems, and populations including those in geographically isolated areas;
- Projects that investigate the social, economic and behavioral aspects of climate change adaptation.

Education: (education projects or education components of Integrated Projects must focus on at least one of the three FY 2013 priorities listed above):

- Develop a regional, multi-institution initiative that provides incentives and resources for students to pursue studies and degrees in undergraduate and graduate level courses that highly impact the emerging field of climate adaption.

The concepts listed below are examples, not requirements, of possible activity emphasis areas:

- A trans-disciplinary, systems approach to scientific studies that identify and address elements of social, economic, and ecological aspects of the field of climate adaptation;
- Projects can be designed to introduce or deepen student capacity with relevant research or extension methodologies around topics that will advance their scientific careers. This includes internships that might lead to workforce opportunities;
- Projects that address issues within highly vulnerable communities, ecosystems, and populations including those in geographically isolated areas;
- Projects that have a high degree of involvement with underserved students and institutions (1890 and 1994 land–grant colleges and universities, institutions of higher learning in Insular Areas as well as Hispanic-Serving institutions);
- Projects that raise the science competency of teachers at the K-12 levels with concepts of climate adaptation and mitigation. This includes teaching modules, case studies and experiential learning situations with actual climate change projects;
- Projects that generate interest in or help to develop the skills and competencies needed for students to pursue Baccalaureate or Masters' programs in climate change-relevant fields. This includes formal classroom, distance and other networking formats that allow students to collaborate, network and access resources across state, regional and international boundaries. It also includes programs that promote the integration of traditional plant, animal, forestry and related disciplines with courses or program focus areas that include the statistics of biological systems, environmental sociology, climate and energy related issues, hydrogeology, environmental resource policy, geographic information systems and meteorology or other areas of academic emphasis particularly relevant to the issues of climate change adaptation and mitigation.

Extension (extension projects or extension components of integrated projects must focus on at least one of the three FY 2013 priorities listed above):

- Develop a regional, multi-institution initiative that provides incentives and resources for extension professionals to assist agricultural production and consumer communities, leaders and planners, and policy makers and businesses address the emerging field of climate adaption.

The concepts listed below are examples, not requirements, of possible activity emphasis areas:

- Promote partnerships of managers and decision makers with researchers for enhanced communication of needs, capabilities, and options for adapting to climate variability and change and associated environmental change;
- Develop adaptive management education and extension strategies for interannual climate variability and change that employs experiential learning, behavior modification, and organizational learning through shared experiences;
- Transfer knowledge effectively and make technologies and innovations widely available to increase crop production and stability; and
- Develop educational materials and outreach programs (in collaboration with eXtension, other extension programs, 4-H, Future Farmers of America, or similar youth development programs) that focus on increasing environmental and climate literacy, and the need to understand the need for (and uses of) adaptive management strategies.

Program Area Considerations:
- All applications must adhere to the requirements beginning in Part IV.
- Applications from and collaborations with 1890 and other Minority Serving Institutions are strongly encouraged.
- Evaluation of research, educational and/or extension activities or interventions must be budgeted for and carried out to determine their effectiveness, and evaluation results must show how the activities contribute to achieving project objectives. Use of institutional resources, educational capabilities, and collaborative expertise must be documented.
- Develop content suitable for delivery through the relevant existing or future eXtension Communities of Practice. A letter of acknowledgement from eXtension is required, and a letter of support may be required from the Community of Practice. For detailed guidance on how to "enhance an existing community of practice", go to http://create.extension.org/node/2057 and http://pbgworks.org/node/1066. Applicants must plan ahead and allow additional time to develop this partnership.
- As appropriate, linking with existing climate variability and change projects to promote synergies is highly encouraged.
- Livestock studies that involve thermal stress must include measurement of clinical signs (e.g., core body temperature, heart rate, respiration, panting, thirst, salivation) that characterize the degree of stress experienced by the animal.
- As appropriate, we encourage the formation of multidisciplinary teams which may include food scientists and food professionals with production scientists to examine climate impacts across the whole food production lifecycle.

PART II – Award Information

A. Available Funding

There is no commitment by USDA to fund any particular application or to make a specific number of awards. In FY 2013, subject to availability of funds, it is anticipated that approximately $264 million will be available for support of the AFRI Program. Of this amount, no less than 30 percent will be made available to fund integrated research, education, and extension programs. Of the AFRI funds allocated to research activities, section 7406 of the FCEA directs 60 percent toward grants for fundamental (or basic) research and 40 percent toward grants for applied research. Of the AFRI funds allocated to fundamental research, not less than 30 percent will be directed toward research by multidisciplinary teams. It is anticipated that no less than 10 percent of the FY 2013 funds will be made available for Food and Agricultural Science Enhancement (FASE) Grants, and no more than two percent of the funds available for fundamental research will be made available for Equipment Grants.

NOTE: This RFA is being released prior to the passage of an Appropriations Act for FY 2013. Enactment of a Continuing Resolution or an Appropriations Act may affect the overall level of funding for the AFRI program. Therefore, NIFA reserves the right to amend, delete, or alter any programs outlined in this RFA.

In FY 2013, subject to availability of funds, it is anticipated that approximately $5 million will be made available to support new awards within the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area within AFRI.

Awards issued as a result of this RFA will have designated the Automated Standard Applications for Payment System (ASAP), operated by the Department of Treasury's Financial Management Service, as the payment system for funds. For more information see http://www.nifa.usda.gov/business/method_of_payment.html.

B. Types of Applications

1. **New Application**
    A new application is an application that has not been previously submitted to AFRI. New applications will be reviewed competitively using the evaluation criteria specified in Part V, B.

2. **Resubmitted Application**
    A resubmitted application is an application that has previously been submitted to AFRI, but was not funded. Project Directors (PD) must respond to the previous panel review summary; see Response to Previous Review, Part IV, C. 4. c. Resubmitted applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate area to which they are assigned, and will be reviewed according to the same evaluation criteria (Part V, B) as New Applications. Applications which appear to be resubmissions (regardless of the designation) are regarded as such by the program and the panel and compete on the same basis with all other applications submitted to the Program Area at the same time.

C. Project Types

Applications must propose one of the project types specified with the Program Area and select the appropriate grant type (see subpart D. of this section) for the application within the constraints of the grant types solicited. The project and grant types solicited in the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area are indicated in the table below and described in the Program Area Descriptions beginning in Part I, C.

Project and Grant Types Solicited by Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area											
		Grant Type									
						Food and Agricultural Science Enhancement (FASE) Grants[1]					
						New Investigator	Strengthening Grants				
		Standard	CAP	Planning/ Coordination	Conference		Sabbatical	Equipment	Seed	Standard	CAP
Project Type	Research	✓			✓	✓	✓	✓	✓	✓	
	Education	✓			✓	✓	✓	✓	✓	✓	
	Extension	✓			✓	✓	✓	✓	✓	✓	
	Integrated	✓			✓	✓	✓	✓	✓	✓	

[1] FASE Grants have special eligibility requirements. Refer to Part II, D. 3 f for eligibility and additional information.

1. Research Projects

Single-function Research Projects support fundamental or applied research conducted by individual investigators, co-investigators within the same discipline, or multidisciplinary teams.

> **Fundamental research** *means research that (i) increases knowledge or understanding of the fundamental aspects of phenomena and has the potential for broad application and (ii) has an effect on agriculture, food, nutrition, or the environment.*

> **Applied research** *means 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.*

> **Multidisciplinary projects** *are those in which investigators from two or more disciplines collaborate closely to address a common problem. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.*

2. Education Projects

Single-function Education Projects develop human capital relevant to overall program goals for U.S. agriculture. An education activity 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.

The applications for Education Projects may include any of the following activities: 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. The activities for Education Projects must show direct alignment with increasing technical competency in AFRI priority area(s) to ensure that the U.S. remains globally competitive in the knowledge age.

Education Projects address one or two of the following key strategic actions:
1) Train students for Associate, Baccalaureate, Master's or Doctoral degrees; and/or
2) Prepare K-12 teachers and higher education faculty to understand and present food and agricultural sciences.

These projects should lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group. These projects should synthesize and incorporate a wide range of the latest relevant research results.

3. **Extension Projects**
    Single-function Extension Projects 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 and 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.

    Extension Projects address one or more of the following key strategic actions:
    1) Support informal education to increase food and agricultural literacy of youth and adults;
    2) Promote science-based agricultural literacy by increasing understanding and use of food and agricultural science data, information, and programs;
    3) Build science-based capability in people to engage audiences and enable informed decision making;
    4) Develop new applications of instructional tools and curriculum structures that increase technical competency and ensure global competitiveness;
    5) 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
    6) Develop programs that increase public knowledge and citizen engagement leading to actions that protect or enhance the nations' food supply, agricultural productivity, environmental quality, community vitality, and/or public health and well-being.

    These projects should lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group. These projects should synthesize and incorporate a wide range of the latest relevant research results.

    AFRI encourages "community-based" Extension Projects. Community-based programming ranges from a single town to a county, collection of counties, state, or region. Applications with leadership from campus-based faculty specialists that incorporate programming/work of local agents are highly desirable.

    AFRI encourages Extension Projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan, and other requirements presented at http://about.extension.org/university-researcher. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

4. **Integrated Research, Education, and/or Extension Projects**
    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, focused around a problem or issue. The functions addressed in the project should be interwoven throughout the life of the project and act to complement and reinforce one another. The functions should be interdependent and necessary for the success of the project and no more than two-thirds of the project's budget may be focused on a single component.

    1) 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.

    2) The proposed **education** (teaching and teaching-related) component of an Integrated Project should follow the same scope and principles as Education Projects. Note that routine use of

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graduate students and postdoctoral personnel to conduct research is not considered education for the purposes of this program.

3) The proposed **extension** component of an Integrated Project should follow the same scope and principles as Extension Projects. Please note that research-related activities such as publication of papers or speaking at scientific meetings are not considered extension for the purposes of this program.

Integrated Projects aim to resolve today's problems through the application of science-based knowledge and address needs identified by stakeholders. Integrated Projects clearly identify anticipated outcomes and have a plan for evaluating and documenting the success of the project.

Integrated Project applicants are encouraged to review www.nifa.usda.gov/funding/integrated/integrated.html for additional information on integrated programs, including tips for writing Integrated Project applications and an example of an integrated application.

Projects must budget sufficient resources to carry out the proposed set of research, extension, and/or education activities that will lead to the desired outcomes. No more than two-thirds of a project's budget may be focused on a single function.

Integrated Projects must include individuals on the project team with significant expertise in each component of the project (research, education, and/or extension).

AFRI encourages Integrated Projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must follow the eXtension Guiding Principles and guidelines for including eXtension in a proposal presented at http://about.extension.org/wiki/NIFA_RFA_Information. Funds may be used to 1) enhance an existing Community of Practice or 2) to establish a new Community of Practice, as appropriate.

AFRI encourages Integrated Projects that are suitable for 4-H audiences and stakeholder groups while meeting identified program priorities. The 4-H Youth Development is the programmatic outreach of the Land Grant Universities and Institutions to our youngest citizens in their communities and provides opportunities for youth to develop skills, practical knowledge, and wisdom with an emphasis on practical application of knowledge or "learning by doing." By engaging 4-H in AFRI projects, applicants engage young people as citizen scientists; increase their awareness of the role of agriculture; and prepare young people for higher education and the 21st century work environment. Opportunities for engaging 4-H in AFRI proposals should align with the 4-H Mission Mandates of Science, Engineering and Technology; Healthy Living; and Citizenship. See guiding principles at www.national4-hheadquarters.gov or contact your university Cooperative Extension headquarters and/or State 4-H Program Office.

D. Grant Types

Applications must propose one of the project types specified within the Program Areas and select the appropriate grant type for the application within the constraints of the grant types solicited.

1. **Standard Grants**
   Standard Grants support targeted, original scientific Research, Education, Extension, or Integrated Projects**.**

2. **Conference Grants**
   Conference Grants to support scientific meetings that bring together scientists to identify research, education, and/or extension needs. Support for a limited number of meetings covering subject matter

encompassed by this solicitation will be considered for partial or, if modest, total support. Individual conference grants are not expected to exceed $50,000 for one year and are not renewable.

3. **Food and Agricultural Science Enhancement Grants**

Food and Agricultural Science Enhancement (FASE) Grants strengthen science capabilities in research, education, and/or extension programs. FASE Grants are designed to help institutions develop competitive projects, and to attract new scientists and educators into careers in high-priority areas of National need in agriculture, food, and environmental sciences. The FASE Grants provide support for Pre- and Postdoctoral Fellowships which will be solicited in a separate NIFA Fellowships Grant Program, New Investigators, and Strengthening Grants. Specific eligibility requirements for these grants are described below.

a. **New Investigator Grants**

An individual who is beginning his/her career, does not have an extensive scientific publication record, and has less than five years postgraduate, career-track experience is encouraged to submit an application for a New Investigator Grant for research, education, and/or extension activities. The new investigator may not have received competitively awarded Federal research funds with the exception of pre- or postdoctoral grants or USDA National Research Initiative (NRI) or AFRI Seed Grants. The application must contain documentation that lists all prior Federal support.

b. **Strengthening Grants**

These funds are expected to enhance institutional capacity with the goal of leading to future funding in the project area, as well as strengthen the competitiveness of the investigator's research, education, and/or extension activities. Strengthening Grants consist of Standard Grant types (both single-function and multi-function projects) as well as Seed Grants, Equipment Grants, and Sabbatical Grants. All applications submitted for Strengthening Grants must fulfill the eligibility requirements described below.

1) Strengthening Grant Eligibility

Strengthening grants are limited to 1) small and mid-sized or minority-serving degree-granting institutions that previously had limited institutional success for receiving Federal funds or 2) State Agricultural Experiment Stations or degree-granting institutions eligible for USDA Experimental Program for Stimulating Competitive Research (EPSCoR) funding and are eligible for reserved strengthening funds for Research, Education, Extension, and Integrated Project grants. See Figure 1 following Part VIII to assist with determining eligibility for Strengthening Grants as well as the information below.

a) **EPSCoR States.** See Part VIII H. for EPSCoR definition. Every year, NIFA determines the states that are eligible for USDA EPSCoR funding. Since this is the third year for the AFRI program and complete award data is not available for FY 2012, the eligibility determinations are based on the data obtained from grants made through the AFRI program from 2009 through 2011. For FY 2013, the following States meet the requirements for this category:

FY 2013 USDA EPSCoR States		
Alabama	Montana	South Carolina
Alaska	Nevada	Utah
Connecticut	New Hampshire	Vermont
Idaho	New Mexico	West Virginia
Kentucky	North Dakota	Wyoming
Maine	Oklahoma	
Mississippi	Rhode Island	

Other entities eligible for USDA EPSCoR funds in FY 2013 include the following United States commonwealths, territories, possessions and their successors, and the District of Columbia:

Other Entities eligible for USDA EPSCoR Funds	
American Samoa	Northern Mariana Islands
District of Columbia	Puerto Rico
Guam	Virgin Islands of the U.S.
Micronesia	

b) **Small and mid-sized institutions.** See Part VIII H. for a definition.

c) **Minority-serving institutions.** See Part VIII H. for a definition.

Applicants applying under this category should indicate the current percentage of applicable minority students enrolled at the institution as an "Other Attachment" (see Part IV, B. 3. g. 7)). A list of post-secondary minority-serving institutions can be found at http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html.

d) **Limited institutional success.** See Part VIII H. for a definition. See Table 1 following Part VIII for an alphabetical list of the most successful institutions.

All institutions grouped under one main campus as listed in Table 1 following Part VIII, unless located in an EPSCoR state, are excluded from eligibility for all strengthening funds. The institution may petition for an exemption to this rule as described in Part III, B.

2) Strengthening Grant Types
An applicant applying as an individual may submit only one of the following types of strengthening applications (Sabbatical Grants, Equipment Grants, and Seed Grants) as PD this fiscal year.

a) **Sabbatical Grants**
Sabbatical Grants are to provide an opportunity for faculty to enhance their research, education, and/or extension capabilities by funding sabbatical leaves. Collaborative arrangements are encouraged. Grants will be limited to one year of salary and funds for travel and supplies, where justified, and are not renewable.

NIFA also encourages and will support the concept of "mini-sabbaticals" for faculty and researchers desiring short-term training to learn new techniques that will improve their competitiveness. These short-term training opportunities generally follow all of the sabbatical requirements described beginning in Part IV, C, but for a shorter duration. These grants may be used to participate in short courses offered at various research institutions.

b) **Equipment Grants**
Equipment Grants are designed to strengthen the research, education, and/or extension capacity of institutions by funding the purchase of one major piece of equipment. These grants are not intended to replace requests for equipment in individual project applications. Rather, they are intended to help fund items of equipment that will upgrade infrastructure. Requests for computer equipment are allowed only if the equipment is to be used in an activity integral to the proposed project. Requests for computer equipment will not be permitted if the equipment will primarily serve as a word processor or perform administrative functions.

Each request shall be limited to one major piece of equipment within the cost range of $10,000-$250,000 and are not renewable. The amount of Federal funding requested shall not exceed 50 percent of the cost or $50,000, whichever is less. Unless a waiver is granted by NIFA using the criteria listed in Part III, C, it is the responsibility of the PD to secure required matching funds with non-Federal funds (see Part III, C for more

information). No installation, maintenance, warranty, or insurance expenses may be paid from these grants, nor may these costs be part of the matching funds. Indirect costs are not permitted on Equipment Grant awards.

c) **Seed Grants**
Seed Grants are to provide funds to enable investigators to collect preliminary data or perform other preliminary activities in preparation for applying for future grants from AFRI. The grants are not intended to fund stand-alone projects, but rather projects that will lead to further work applicable to one of the AFRI Program Areas. Seed Grant applications proposing an Integrated Project only need to include one of the three functions (research, education, extension) and justify how this Seed Grant will allow the applicant to become competitive for future Integrated Project funding.

Seed Grants are limited to a total of $150,000 (including indirect costs) for two year duration and are not renewable.

d) **Strengthening Standard Grants**
Standard Grant applications that meet the eligibility requirements for Strengthening Grants are eligible for reserved strengthening funds as a Strengthening Standard Grant. The eligibility requirements only apply to the lead PD and are not required for co-PD(s) associated with the project.

E. Responsible and Ethical Conduct of Research

The responsible and ethical conduct of research (RCR) is critical for excellence, as well as public trust, in science and engineering. Consequently, education in RCR is considered essential in the preparation of future scientists. In accordance with sections 2, 3, and 8 of 7 CFR Part 3022, institutions that conduct extramural research funded by USDA must foster an atmosphere conducive to research integrity, bear primary responsibility for prevention and detection of research misconduct and are to maintain and effectively communicate and train their staff regarding policies and procedures. In the event an application to NIFA results in an award, the AOR assures, through acceptance of the award that the institution will comply with the above requirements. Per award terms and conditions, grant recipients shall, upon request, make available to NIFA the policies and procedures as well as documentation to support the conduct of the training.

Note that the training referred to herein shall be either on-campus or the Collaborative Institutional Training Initiative (CITI) program for RCR (https://www.citiprogram.org/rcrpage.asp). The general content of the ethics training, at a minimum, will emphasize three key areas of research ethics: authorship and plagiarism, data and research integration and reporting misconduct. Each institution will be responsible for developing its own training system, as schools will need flexibility to develop training tailored to their specific student needs. Typically RCR education addresses the topics of: Data Acquisition and Management - collection, accuracy, security, access; Authorship and Publication; Peer Review; Mentor/Trainee Responsibilities; Collaboration; Conflict of Interest; Research Misconduct; Human Subject Research; and Use of Animals in Research.

PART III – ELIGIBILITY INFORMATION

A. Eligible Applicants

Eligible institutions for single-function Research, Education, or Extension Projects are described in paragraph #1 below. Eligible institutions for multi-functional Integrated Projects are described in paragraph #2 below.

1. **Research, Education, and Extension Projects**
   Eligible applicants for the program implemented under this subpart include: 1) State Agricultural Experiment Stations; 2) colleges and universities (including junior colleges offering associate degrees or higher); 3) university research foundations; 4) other research institutions and organizations; 5) Federal agencies, 6) national laboratories; 7) private organizations or corporations; 8) individuals who are U.S. citizens, nationals, or permanent residents; and 9) any group consisting of 2 or more entities identified in 1) through 8). Eligible institutions do not include foreign and international organizations.

2. **Integrated Projects**
   Eligible applicants for Integrated Projects include:

   a) Colleges and universities - the terms "college" and "university" mean an educational institution in any state which 1) 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; 2) is legally authorized within such state to provide a program of education beyond secondary education; 3) provides an educational program for which a bachelor's degree or any other higher degree is awarded; 4) is a public or other nonprofit institution; and 5) 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.

   b) 1994 Land-Grant Institutions - means one of those institutions as defined in section 532 of the Equity in Educational Land-Grant Status Act of 1994, as amended (7 U.S.C. 301 note). These institutions are commonly referred to as Tribal Colleges or Universities.

   c) Hispanic-serving Agricultural Colleges and Universities (HSACUs) - HSACUs are colleges and universities that qualify as Hispanic-serving Institutions (HSIs) and offer associate, bachelors, or other accredited degree programs in agriculture-related fields. HSACUs do not include 1862 land-grant institutions.

   Pursuant to section 406 of the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA) (7 U.S.C. 7626), which authorized the Integrated Research, Education, and Extension Competitive Grant Program, all four-year HSIs are eligible to apply for integrated projects as identified in the FY 2013 AFRI RFA. Two-year HSIs may also be eligible to apply but only if the institution has been certified as a HSACU for the fiscal year in which funding is being provided.

   By November 15, 2012, a list of the institutions certified and therefore eligible to apply as HSACUs for grants under FY 2013 RFAs, including this RFA, will be made available at http://www.nifa.usda.gov/nea/education/in_focus/hispanic_if_hispanic_HSACU.html. Institutions appearing on the FY 2013 list are granted HSACU certification by the Secretary for the period starting October 1, 2012, and ending September 30, 2013. Certifications are valid for FY 2013 only. Additional questions on HSACU eligibility can be addressed to Mr. Matthew Lockhart, Senior Policy Specialist, by email at mlockhart@nifa.usda.gov or phone at (202) 559-5088.

3. **Food and Agricultural Science Enhancement Grants**
   The Food and Agricultural Science Enhancement (FASE) Grants have additional eligibility requirements. See Part II, D. 3 for details.

B. Request for Determination

Minority-Serving Institution
If an applicant's institution can be considered a minority-serving institution and wishes to be considered for a Strengthening Grant (as described in Part II, D. 3. b), but does not serve one or more of the minority groups specified in the Definitions section of this RFA (see Part VIII, H), the applicant must submit to NIFA documentation supporting the request. This documentation (see below) must be submitted as part of the requestor's Letter of Intent (if required) and the full application package (see Part IV, B. 3. g. 7)), and must be received by NIFA by the applicable program deadline. The Secretary of Agriculture or designated individual will determine whether the group or groups identified are eligible under this program.

The Request for Determination as a minority-serving institution must include the following and be provided in the order specified below:

1. A description of each minority group that is being submitted for determination;
2. Data or studies supporting this group's designation as a minority group; and
3. 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.

Multi-Campus Institution
All institutions grouped under one main campus as listed in Table 1 following Part VIII, unless located in an EPSCoR state (listed in Part II, D. 3. b. 1) a)), 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) and included with the Letter of Intent (if required) and the full application (see Part IV, B. 3. g. 7)).

C. Cost Sharing or Matching

If a funded project 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.

☼ *For Equipment Grant Applications* - Grantees are required to match 100 percent of Federal funds awarded from non-Federal sources. The Secretary may waive all or part of the matching requirement if all three of the following criteria are met: 1) applicants must be a college, university, or research foundation maintained by a college or university that ranks in the lowest one third of such colleges, universities, and research foundations on the basis of Federal research funds received (see Table 2 following Part VIII) for eligibility); 2) if the equipment to be acquired using funds from the grant costs not more than $25,000; and 3) has multiple uses within a single research project or is usable in more than one research project. If the institution believes it is eligible for the waiver for matching funds, the budget justification must include a letter signed by the institution's AR stating this information.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. Letter of Intent Instructions

A Letter of Intent is required for <u>**all**</u> grant types except conference grant types (see Part II, D), and is a prerequisite to submission of an application.

1. The Letter of Intent **must** adhere to the following guidelines:

    a. Font size must be at least 12 point
    b. Margins must be at least one inch in all directions
    c. Line spacing must not exceed six lines of text per vertical inch
    d. The Letter of Intent is limited to **two pages** for all project and grant types
    e. On Page 1 provide <u>**only**</u> the following information:
        i. the name, professional title, department, institution and *e*-mail address of the lead project director (PD) and name, professional title, department, and institution of all collaborating investigators
        ii. the Program Area and the Priority area within that Program Area most closely addressed in the application
    f. On Page 2 include:
        i. a descriptive title
        ii. rationale
        iii. overall hypothesis or goal
        iv. specific objectives
        v. approach
        vi. potential impact and expected outcomes
    g. NIFA **REQUIRES** the Letter of Intent be in **portable document format (pdf)**.

2. Applicants must notify the appropriate Program Area Contact of any changes to project key personnel, title, or objectives from the Letter of Intent to the submission of a full application.

B. Electronic Application Package and Content and Form of Application Submission

Only electronic applications may be submitted via Grants.gov to NIFA in response to this RFA. Prior to preparing an application, it is suggested that the PD first contact an AR to determine if the organization is prepared to submit electronic applications through Grants.gov. If the organization is not prepared, the AR should see http://www.grants.gov/applicants/get_registered.jsp for steps for preparing to submit applications through Grants.gov.

The steps to access application materials are as follows:
1. In order to access, complete and submit applications, applicants must download and install a version of Adobe Reader compatible with Grants.gov. This software is essential to apply for NIFA Federal assistance awards. For basic system requirements and download instructions, please see http://www.grants.gov/help/download_software.jsp. To verify that you have a compatible version of Adobe Reader, Grants.gov established a test package that will assist you in making that determination. Grants.gov Adobe Versioning Test Package: http://www.grants.gov/applicants/AdobeVersioningTestOnly.jsp.
2. The application package must be obtained via Grants.gov. Go to http://www.grants.gov, click on "Apply for Grants" on the left navigation menu, click on "**Step 1:** Download a Grant Application Package and Instructions," enter the Funding Opportunity Number **USDA-NIFA-AFRI-003968** in the appropriate box, and click "Download Package." From the search results, click "Download" to access the application package.

Contained within the application package is the "NIFA Grants.gov Application Guide: A Guide for Preparation and Submission of NIFA Applications via Grants.gov." This Guide contains an introduction and general Grants.gov instructions, information about how to use a Grant Application Package in Grants.gov, and instructions on how to complete the application forms.

If assistance is needed to access the application package (e.g., downloading or navigating Adobe forms), refer to resources available on the Grants.gov Web site first. Grants.gov assistance is also available as follows:

Grants.gov customer support
Toll Free: 1-800-518-4726
Business Hours: 24 hours a day, 7 days a week; closed on Federal holidays.
Email: support@grants.gov

See http://www.nifa.usda.gov/funding/electronic.html for additional resources for applying electronically.

Content and Form of Application Submission

Electronic applications must be prepared following Parts V and VI of the document entitled "A Guide for Preparation and Submission of NIFA Applications via Grants.gov." This guide is part of the corresponding application package (see Section B. of this Part). The following is **additional information** needed in order to prepare an application in response to this RFA. If there is discrepancy between the two documents, **the information contained in this RFA is overriding**.

All application information provided herein is general for all Project and Grant Types. However, some types require different information. These differences are noted by a ☼ symbol. Proper preparation of an application will assist reviewers in evaluating the merits of each application in a systematic, consistent fashion.

Attachment Requirements

Note the attachment requirements (e.g., portable document format) in Part III section 3. of the Guide. ANY PROPOSALS THAT ARE NON-COMPLIANT WITH THE REQUIREMENTS (i.e., content format, pdf file format, file name restrictions, and no password protected files) WILL BE EXCLUDED FROM NIFA REVIEW. Partial applications will be excluded from NIFA review. With documented prior approval, subsequent submissions of an application will be accepted until close of business on the closing date in the RFA.
In addition to the formatting requirements noted in Part III section 3. of the Guide, submitted PDF documents must adhere to the following formatting guidelines:
- Line spacing must not exceed six lines of text per vertical inch
- Follow the page limitations for each attachment
- Title each attachment in the document header and save each file with the referenced name

If you do not own PDF-generating software, Grants.gov provides online tools to assist applicants. Users will find a link to "Convert Documents to PDF" on http://grants.gov/help/download_software.jsp#pdf_conversion_programs.

For any questions related to the preparation of an application please review the NIFA Grants.gov Application Guide and the applicable request for applications. If assistance is still needed for preparing application forms content, contact:
- Email: electronic@nifa.usda.gov
- Phone: 202-401-5048
- Business hours: Monday through Friday, 7:00 am – 5:00 pm Eastern Time, excluding Federal holidays.

1. SF 424 R&R Cover Sheet
Instructions related to this form are explained in detail in Part V, 2. of the NIFA Grants.gov Application Guide.

a. ***Field 12. Proposed Project*** – For the start date of the project, select a date at least six months after the submission deadline date for the program. Choose the end date to correspond to the correct duration of the project.

b. ***Field 20. Pre-application*** – Do not fill out this portion of the form.

2. ***SF 424 R&R Project/Performance Site Location(s)***
   Instructions related to this form are explained in detail in Part V, 3. of the NIFA Grants.gov Application Guide.

3. **R&R Other Project Information**
   Instructions related to this form are explained in detail in Part V, 4. of the NIFA Grants.gov Application Guide.

   a. ***Fields 1 and 2.* Are Human Subjects Involved? Or Are Vertebrate Animals Used?**

   ☼ *For Sabbatical Grant Applications* – Applicants whose research requires use of human subjects or vertebrate animals must have their project reviewed by the appropriate committee(s) at the institution where the research will be conducted.

   b. ***Field 7. Project Summary/Abstract*** **– PDF Attachment.** The following are instructions are in addition to those included in section 4.7 of Part V of the NIFA Grants.gov Application Guide. Title the attachment as 'Project Summary' in the document header and save file as 'ProjectSummary'.

   The Project Summary must **indicate which specific FY 2013 Program Area Priority(ies) the proposed project addresses**. Program Area Priorities are stated within each Program Area Description (see Part I, C). Applications that do not address at least one Program Area Priority will not be reviewed.

   ☼ *For Conference Grant Applications* – State the objectives of the conference, symposium, or workshop, as well as the proposed location and probable inclusive date(s) of the conference. Please state in the summary the specific Program Area Priority(ies) to which the project applies.

   ☼ *For Sabbatical Grant Applications* – Indicate overall project goals and supporting objectives.

   ☼ *For Equipment Grant Applications* – Indicate equipment sought and overall project goals for its use.

   c. ***Field 8. Project Narrative*** **– PDF Attachment.** Title the attachment as 'Project Narrative' in the document header and save file as 'ProjectNarrative'.

   Page Limits
   For **Standard Research, Education, Extension, Standard Integrated, New Investigator, and Strengthening Standard Grant applications**, the Project Narrative section **may not exceed a total of 18 pages**, including all figures and tables.

   For **Sabbatical, Equipment, and Seed Grant** applications, the Project Narrative section **may not exceed a total of 7 pages**, including all figures and tables.

   To ensure fair and equitable competition, applications exceeding the applicable page limitation will **not** be reviewed.

   The Project Narrative is expected to be complete; however, preprints (see section g.6) below) related to the Project Narrative are allowed if they are directly germane to the proposed project. Information

may not be appended to an application to circumvent page limitations prescribed for the Project Narrative. **Extraneous materials will not be used during the peer review process**.

Project Narrative must include all of the following:

1) Response to Previous Review (if applicable)
   This requirement *only* applies to Resubmitted Applications as described in Part II, B two components: 1) a one-page response to the previous review panel summary titled "Response to Previous Review" included as the first page of the Project Narrative attachment **and** 2) the Project Narrative

2) Introduction
   Include a clear statement of the long-term goal(s) and supporting objectives of the proposed project. Summarize the body of knowledge or past activities that substantiate the need for the proposed project. Describe ongoing or recently completed activities significant to the proposed project including the work of key project personnel. Include preliminary data/information pertinent to the proposed project. All works cited should be referenced (see Bibliography & References Cited in section d below.

3) Rationale and Significance
   a) Concisely present the rationale behind the proposed project;
   b) Describe the specific relationship of the project's objectives to one or more of the particular Program Area Priorities. Applications that do not address at least one Program Area Priority will not be reviewed; and
   c) The potential long-range improvement in and sustainability of U.S. agriculture and food systems should be shown clearly. These purposes are described under Purpose and Priorities in Part I, B. Any novel ideas or contributions that the proposed project offers should also be discussed in this section.

4) Approach (this section is not applicable to conference grants)
   The activities proposed or problems being addressed must be clearly stated and the approaches applied are to be clearly described. Specifically, this section must include:
   a) A description of the activities proposed and the sequence in which the activities are to be performed;
   b) Methods to be used in carrying out the proposed project, including the feasibility of the methods;
   c) Expected outcomes;
   d) Means by which results will be analyzed, assessed, or interpreted;
   e) How results or products will be used;
   f) Pitfalls that may be encountered;
   g) Limitations to proposed procedures;
   h) A full explanation of any materials, procedures, situations, or activities related to the project that may be hazardous to personnel, along with an outline or precautions to be exercised to avoid or mitigate the effects of such hazards; and
   i) A timeline for attainment of objectives and for production of deliverables that includes annual milestones with specific, measurable outcomes.

☼ *For Education Project Applications* – Project Narratives for these applications also should clearly articulate:
- The potential for advancing the quality of education by addressing a specific problem or opportunity;
- The target audience and the level of education addressed;
- The long-term benefits to the institution, including how the institution attributes a high priority to the project and how the project is linked to and supported by the institution's strategic plan;
- A plan for evaluating progress toward achieving project objectives. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and

serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators that you will measure to evaluate whether the research, education, and/or extension activities are successful in achieving project goals and in contributing to achievement of the stated program goals and outcomes; and

- A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.

☼ *For Extension Project Applications* – Project Narratives for these applications also should:
- Involve a series of connected learning activities that engage the public in practical problem solving. Programming should be more than a one-time event, a single publication, a one-dimensional activity, or a general public awareness campaign. Together, informal learning activities should be elements in a curriculum-based program that has learning goals and objectives.
- Be connected to both 1) scientific-research based information and 2) science-based teaching techniques and informal education principles.
- Give emphasis to scholarly principles of engagement and outreach that clearly articulate:
  o The importance of informal education to address a specific local problem or issue;
  o The theoretical basis of informal outreach methods used;
  o Development and/or implementation of a curriculum-based series of connected learning activities (including educational materials) that engage the public in practical problem solving;
  o A plan for evaluating progress toward achieving project objectives. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators that you will measure to evaluate whether the extension activities are successful in achieving project goals and in contributing to achievement of the stated program goals and outcomes; and
  o A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.

☼ *For Integrated Project Applications* – Project narratives for these applications also should:
- Include at least two of the three functions of the agricultural knowledge system (i.e., research, education, and extension). Each function should be represented by one or more objectives within the application.
- Include a plan for evaluating progress toward achieving project objectives must be included. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators that you will measure to evaluate whether the research, education, and/or extension activities are successful in achieving project goals and in contributing to achievement of the stated program goals and outcomes.
- Clearly articulate:
  o Stakeholder involvement in project development, implementation, and evaluation, where appropriate;
  o Objectives for each function included in the project (note that extension and education activities are expected to differ and to be described in separate project objectives; see enumerated descriptions in Part II, C; and
  o A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.

☼ *For Conference Grant Applications* – The requirements noted below are in lieu of those in the Approach section mentioned above:
- A justification for the meeting;
- Recent meetings on the same subject with dates and locations;
- Names and organizational affiliations of the chair and other members of the organizing committee;

- A proposed program (or agenda) for the conference, including a listing of scheduled participants and their institutional affiliations; and
- The method of announcement or invitation that will be used.

☼ *For Sabbatical Grant Applications* – The Project Narrative for these applications also should include:
- A general description of the research, education, and/or extension interests and goals of the applicant in order to provide perspective for the application;
- A description of the project to be pursued while on the sabbatical leave;
- A statement of how the sabbatical leave will enhance the capabilities of the applicant; and
- A statement of future research goals and objectives once the sabbatical is complete and how the sabbatical will enable the applicant to pursue these goals.

☼ *For Equipment Grant Applications* – The Project Narrative for these applications also must include a general description of the project(s) for which the equipment will be used, how the equipment will fit into or enhance the research, education, and/or extension program, and how the equipment will allow the applicant to become competitive for future funding or move into new research areas. Also include a description of other similar or complementary equipment available to the PD at the institution and why the requested equipment is necessary.

☼ *For Seed Grant Applications* – Include all of the components detailed in the Project Narrative section above and present enough detail to allow adequate evaluation. In order to be competitive, long-term goals and a statement describing how this Seed Grant will allow the applicant to become competitive for future funding must be included.

d. *Field 9. Bibliography & References Cited* **– PDF Attachment. No Page Limit.** Title the attachment as 'Bibliography & References Cited' in the document header and save file as 'BibliographyReferencesCited'.

All work cited in the text should be referenced in this section of the application. All references must be complete; include titles and all co-authors; conform to an acceptable journal format; and be listed in alphabetical order using the last name of the first author or listed by number in the order of citation.

e. *Field 10. Facilities & Other Resources* **– PDF Attachment. No Page Limit.** Title the attachment as 'Facilities & Other Resources' in the document header and save file as 'FacilitiesOtherResources'.

f. *Field 11. Equipment* **– PDF Attachment. No Page Limit.** Title the attachment as 'Equipment' in the document header and save file as 'Equipment'.

Describe available equipment. Items of nonexpendable equipment necessary to conduct and successfully complete the proposed project for which funds are requested to purchase should be listed in Field C. of the R&R Budget and described in the Budget Justification (see section 6 below).

g. *Field 12. Other Attachments*

The following instructions are in addition to those noted in Part V 4.12 of the NIFA Grants.gov Application Guide.

1) *Project Type* – **PDF Attachment. 1-Page Limit.** Title the attachment as 'Project Type' and save file as 'ProjectType'.

Identify the type of project and the type of grant you are submitting by completing the Project Type template located at: www.nifa.usda.gov/funding/templates/project_type.doc. Before doing so, please refer to Part I, C of this RFA for project type descriptions requested under

each Program Area Description and Part II of this RFA for a full description of each project and grant type.

2) *Key Personnel Roles* – **PDF Attachment. 2-Page Limit.** Title the attachment as 'Key Personnel' and save file as 'KeyPersonnel'.

Clearly describe the roles and responsibilities of the PD, co-PD(s), collaborator(s), and other key personnel (biographical sketches for key personnel should not be included here). If it will be necessary to enter into formal consulting or collaborative arrangements with others, such arrangements should be fully explained and justified. Evidence (letters of support) for this type of collaboration must be provided in the 'Documentation of Collaboration' (see number 5 below).

☼ *For Integrated Grant Applications* – For key personnel provide an estimate of the percent of time devoted to research, education, and/or extension activities.

3) *Logic Model* – **PDF Attachment. Required for Education, Extension, and Integrated Project Grants Only. Allowable for Research Projects. 2-Page Limit.** Title the attachment as 'Logic Model' and save file as 'LogicModel'.

Include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. The logic model planning process is a tool that should be used to develop your project <u>before</u> writing your application. This information may be provided as a narrative or formatted into a logic model chart. More information and resources related to the logic model planning process are provided at
http://www.csrees.usda.gov/about/strat_plan_logic_models.html.
.

4) *Management Plan* – **PDF Attachment. Required for Integrated Project Grants Only. Allowable for Research, Education, and Extension Projects. 3-Page Limit.** Title the attachment as 'Management Plan' and save file as 'ManagementPlan'.

The plan is to be clearly articulated and include an organizational chart, administrative timeline, and a description of how the project will be governed, as well as a strategy to enhance coordination, collaboration, communication, and data sharing and reporting among members of the project team and stakeholder groups. The plan must also address how the project will be sustained beyond termination of an award.

The management plan must also 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/or extension. Please include rationale for their role, and how they will function effectively to support the goals and objectives of the project. The plan must demonstrate how partners and stakeholders contribute to project assessment on an annual basis.

5) *Documentation of Collaboration* – **PDF Attachment. No Page Limit.** Title the attachment as 'Documentation of Collaboration' in the document header and save file as 'Collaboration'.

Evidence, e.g., letter(s) of support, should be provided that the collaborators involved have agreed to render services.

☼ *For Sabbatical Grant Applications* – Provide documentation that arrangements have been made with an established investigator(s) to serve as host, including:
- A letter from the home institution detailing the particular arrangements at the home institution with respect to salary and date and duration of sabbatical;

- A letter from the scientific host(s) indicating willingness to serve in this capacity and a description of the host's contribution to the proposed activities both scientifically and with regard to use of facilities and equipment; and
- A statement signed by the Department Head or equivalent official at the host institution indicating a commitment to provide research space and facilities for the period of the applicant's presence.

☼ *For Equipment Grant Applications* – The application must contain a letter(s) from the organization(s) committed to providing the non-Federal matching funds. Provide evidence of institutional commitment for operation and maintenance of requested equipment. Arrangements for sharing equipment among faculty are encouraged. However, it must be evident that the PD is a principal user of the requested equipment.

6) *Preprints* – **PDF Attachment. Limited to 2 preprints.** Title the attachment as 'Preprints' in the document header and save file as 'Preprints'.

Preprints related to the Project Narrative are allowed if they are directly germane to the proposed project. Information may not be appended to an application to circumvent page limitations prescribed for the Project Narrative. **Extraneous materials will not be used during the peer review process**. Only manuscripts in press for a peer-reviewed journal will be accepted and must be accompanied by letters of acceptance from the publishing journals). Preprints attached in support of the application must be **single-spaced**. Each preprint must be identified with the name of the submitting organization, the name(s) of the PD(s), and the title of the application.

7) *Minority-Serving Institution Documentation* – **PDF Attachment.** Title the attachment as 'Minorityinfo' in the document header and save file as 'Minorityinfo'.
   (a) Letter identifying percentage of applicable minority students – see Part II, D. 3. b. 1) c).
   (b) Request for Determination – see Part III, B.

4. R&R Senior/Key Person Profile
Instructions related to this form are explained in detail in Part V, 5. of the NIFA Grants.gov Application Guide. Additional instructions are described below.

a. *Project Role Field* – Complete appropriately.

☼ *For Sabbatical Grant Applications* – Select "PD/PI" for the Sabbatical Grant applicant. Select "Other" for the corresponding scientific host(s) and any other personnel whose qualification merit consideration in the evaluation of the application.

☼ *For Equipment Grant Applications* – Select "PD/PI" for the Equipment Grant applicant. Select "Faculty" for the other major users of the equipment.

b. *Attach Biographical Sketch Field* – PDF Attachment. 2-Page Limit (excluding publications listings). Title the attachment as 'Biographical Sketch' in the document header and save file as 'BiographicalSketch'.

☼ *For Sabbatical Grant Applications* – A Biographical Sketch must be submitted for the Sabbatical Grant applicant, the scientific host(s), and any other personnel whose qualifications merit consideration in the evaluation of the application.

☼ *For Equipment Grant Applications* – A Biographical Sketch for both the Equipment Grant applicant and other major users of the equipment must be submitted.

c. ***Attach Current and Pending Support Field – PDF Attachment. No Page Limit.*** Title the attachment as 'Current and Pending Support' in the document header and save file as 'CurrentPendingSupport'.

The AFRI program will not fund an application that duplicates or overlaps substantially with other NIFA funding (including non-competitive funds such as Special Grants or Hatch formula funds) or other Federal funding. As an addendum to the Current and Pending Support, provide a brief summary for any completed, current, or pending projects that appear similar to the current application, especially previous NRI or AFRI awards.

☼ *For Sabbatical Grant Applications* – Include for both the Sabbatical Grant applicant and the scientific host(s) (as documentation of on-going work in the host's laboratory).

☼ *For Equipment Grant Applications* – Include for both the Equipment Grant applicant and other major users of the equipment.

5. **R&R Personal Data**
Instructions related to this form are explained in detail in Part V, 6. of the NIFA Grants.gov Application Guide.

6. **R&R Budget**
Instructions related to this form are explained in detail in Part V, 7. of the NIFA Grants.gov Application Guide.

a. **Budget Periods.** Applications must contain a budget for each budget period; a cumulative budget will automatically be generated.

☼ *For Extension Project Applications* – Projects that include partnering with eXtension must include financial support for the Community of Practice core functions as well as project-specific activities.

☼ *For Integrated Project Applications* – Projects must budget sufficient resources to carry out the proposed set of research, extension, and/or education activities that will lead to the desired outcomes. No more than two-thirds of a project's budget may be focused on a single component. Projects that include partnering with eXtension must include financial support for the Community of Practice core functions as well as project-specific activities.

☼ *For Conference, Sabbatical, Equipment, and Seed Grant Applications* –Refer to Part II D. for budget related limitations and other information.

b. ***Field C. Equipment.***

c. ***Field D. Travel –*** *F*or each year supported by NIFA, the project director will be required to attend an annual investigator meeting (excluding Conference, Sabbatical, and Equipment Grant applications). Seed Grant applications are required to attend beginning in the second year of funding. Reasonable travel expenses should be included as part of the project budget.

d. ***Field H. Indirect Costs*** – NIFA is prohibited from paying indirect costs exceeding 30 percent of the total Federal funds provided under each award. This limitation is equivalent to 0.42857 of the total direct costs of an award. See Part IV, E for additional information. **Subcontracts are allowed indirect costs only if the organization has a negotiated rate agreement with a cognizant federal audit agency. Indirect costs are not permitted on Conference Grant or Equipment Grant awards.**

e. ***Field K. Budget Justification – PDF Attachment. No Page Limit.*** Title the attachment as 'Budget Justification' in the document header and save file as 'BudgetJustification'.

Budget categories, for which support is requested, should be listed (with costs) in the same order as the budget and include, where appropriate, an itemization as well as be explained and justified. A proposed statement of work, biographical sketch, and a budget for each arrangement involving the transfer of substantive programmatic work or the provision of financial assistance to a third party must be supplied. In multi-institutional applications, a budget and budget narrative must be included for each institution involved. The lead institution and each participating institution must be identified.

☼ *For Equipment Grant Applications* – The Budget Justification should describe the instrument requested including the manufacturer and model number, if known; provide a detailed budget breakdown of the equipment and accessories required; and indicate the amount of funding requested from USDA for each component of equipment requested.

f. Subcontract Arrangements

Grant recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project. If it will be necessary to enter into a formal subcontract agreement with another institution, financial arrangements must be detailed in the "R&R Subaward Budget Attachment(s) Form." Annual and cumulative budgets, budget justification, and a letter of commitment signed by the Authorized Representative (AR) are required for each subcontract agreement. Refer to Part V, 8. of the NIFA Grants.gov Application Guide for instructions on completing this form.

g. Matching

If a funded project 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.

The sources and the amount of all matching support from outside the applicant organization should be summarized on a separate page and placed in the application immediately following the Budget Justification. All pledge agreements must be placed in the application immediately following the summary of matching support.

The value of applicant contributions to the project shall be established in accordance with applicable cost principles. Applicants should refer to OMB Circular A-21 (2 CFR Part 220), Cost Principles for Educational Institutions, for further guidance and other requirements relating to matching and allowable costs.

☼ *For Equipment Grant Applications* – See Part III, C. for the matching requirements.

7. Supplemental Information Form

Instructions related to this form are explained in detail in Part VI, 1. of the NIFA Grants.gov Application Guide.

a. *Field 2. Program to which you are applying* – Enter the Program Code Name (i.e., **Climate Change: Climate Change Mitigation and Adaptation in Agriculture**) and the Program Code (i.e., **A3141).**

b. *Field 8. Conflict of Interest List* – **PDF Attachment. No Page Limit.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'ConflictofInterest'.

Collate all individual Conflict of Interest lists into a single document file. The lists can only be submitted as a single PDF attachment.

☼ *For Equipment Grant Applications* – Conflict of Interest list for the Equipment Grant applicant and other major users of the equipment must be completed.

C. Submission Dates and Time

1. Letter of Intent

    a. Deadline **– December 31, 2012 (5:00 p.m., ET).**
    b.   Attach the PDF Letter of Intent (LOI) to an *e*-mail addressed to:
             Dr. Michael A. Bowers; (202) 401-4510 or mbowers@nifa.usda.gov
             In the *e*-mail subject line, write: *Letter of Intent A3141_ [PDs Last Name]*.
    c. An acknowledgement receipt will be sent via email by replying to the sender within 5 business days after submission.
    d. LOIs will be reviewed by scientific program staff in order to plan for appropriate expertise for the application peer review panel and ensure that the proposed project fits appropriately within the Program Area Priorities.
    e. Within three weeks after the LOI deadline, the PD will receive a response from the Program Area Contact. The response will indicate whether or not NIFA accepted the Letter of Intent. Note that a LOI will not be accepted if:
        i.   It was not submitted by the established deadline;
        ii.   It did not meet the guidelines noted in Part IV A.; and
        iii. The proposed project was not appropriate for the Program Area Priorities.

Applicants must notify the appropriate Program Area Contact of any changes to project key personnel, title, or objectives from the Letter of Intent to the submission of a full application.

2. Full Application

A Letter of Intent is a prerequisite (except for conference grants) to submission of an application. Any application (conference grants excluded) submitted without an accepted Letter of Intent will not be reviewed.

Instructions for submitting an application are included in Part IV, Section 1.9 of the NIFA Grants.gov Application Guide.

Electronic applications must be submitted via Grants.gov by 5:00 p.m. ET on April 15, 2013. **Applications received after the applicable deadline will not be reviewed unless extenuating circumstances exist (Part III, Section 6.1 of the NIFA Grants.gov Application Guide).**

Correspondence regarding submitted applications will be sent using e-mail. Therefore, applicants are strongly encouraged to provide accurate e-mail addresses, where designated, on the SF-424 R&R Application for Federal Assistance.

If an applicant has not received an e-mail within 30 days of the submission deadline either providing a NIFA application number or indicating the application was not accepted for review, the applicant must contact the agency contact (see Part VII) immediately and ask for the status of the application. Failure to do so may result in the application not being considered for funding by the peer review panel.

D. Funding Restrictions

For FY 2012, section 720 of the General Provisions in Title VII of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Programs (HR 112-284), limited indirect costs to 30 percent of the total Federal funds provided under each award. Applicants should anticipate that the FY 2013 appropriation will contain a similar limitation. Therefore, when preparing budgets, applicants shall limit their requests for recovery of indirect costs to the lesser of their institution's official negotiated indirect cost rate or the equivalent of 30 percent of total Federal funds awarded.

Funds made available for grants under the AFRI program shall not be used for the construction of a new building or facility or the acquisition, expansion, remodeling, or alteration of an existing building or facility (including site grading and improvement, and architect fees).

E. Other Submission Requirements

1. Successful Application Submission

The applicant must follow the submission requirements noted in Part IV., section 1.9 of the NIFA Grants.gov Application Guide.

2. Application Status

For information about the **status of a submitted application**, see Part III., section 6. of the NIFA Grants.gov Application Guide.

3. Multiple Submissions

In accordance with Part III, section 5 of the NIFA Grants.gov Application Guide, duplicate, essentially duplicate or predominantly overlapping applications submitted to one or more program areas within the AFRI (including FASE Grants) in any one fiscal year will not be reviewed. In addition, applicants may not submit to AFRI an application that is considered duplicate, essentially duplicate, or predominantly overlapping with an application submitted to another NIFA program in the same fiscal year.

PART V – APPLICATION REVIEW REQUIREMENTS

A. General

Each application will be evaluated in a two-part process. First, each application will be screened to ensure that it meets the administrative requirements as set forth in this RFA. Applications that do not fall within the guidelines, as stated in the RFA, will not be considered for funding. Second, a review panel will technically evaluate applications that meet the RFA requirements. In addition to the review panel, written comments will be solicited from *ad hoc* reviewers when necessary. Prior to recommending an application for funding, the peer review panel and *ad hoc* reviewer comments will be presented and discussed by the peer review panel.

Reviewers will be selected based upon their training and experience in relevant scientific, extension, or education fields, taking into account the following factors: (a) 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 projects; (b) the need to include experts from various areas of specialization within relevant scientific, education, or extension fields; (c) 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; (d) the need to include experts from a variety of organizational types (e.g., colleges, universities, industry, state and Federal agencies, private profit, and non-profit organizations) and geographic locations; (e) the need to maintain a balanced composition of reviewers with regard to minority and female representation and an equitable distribution of professional rank; and (f) the need to include reviewers who can judge the effective usefulness to producers and the general public of each application.

For more information on the peer review process, see
http://www.nifa.usda.gov/business/competitive_peer_review.html.

B. Evaluation Criteria

Projects supported under this program shall be designed, among other things, to accomplish one or more of the purposes of agriculture research, education, and extension, subject to the varying conditions and needs of States. Therefore, in carrying out its review, the peer review panel will take into account the following factors.

1. Research Project Applications
These evaluation criteria will be used for the review of all single-function Research Project applications.

    a. Scientific Merit of the Application for Research
        1) Novelty, innovation, uniqueness, and originality;
        2) Where model systems are used, ability to transfer knowledge gained from these systems to organisms of importance to U.S. agriculture;
        3) Conceptual adequacy of the research and suitability of the hypothesis, as applicable;
        4) Clarity and delineation of objectives;
        5) Adequacy of the description of the undertaking and suitability and feasibility of methodology;
        6) Demonstration of feasibility through preliminary data; and
        7) Probability of success of the project is appropriate given the level of scientific originality, and risk-reward balance.
    b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management
        1) Qualifications of applicant (individual or team) to conduct the proposed project, including performance record and potential for future accomplishments;
        2) Demonstrated awareness of previous and alternative approaches to the problem identified in the application;
        3) Institutional experience and competence in subject area;
        4) Adequacy of available or obtainable support personnel, facilities, and instrumentation; and

5) Planning and administration of the proposed project, including: time allocated for systematic attainment of objectives; and planned administration of the proposed project and its maintenance, partnerships, collaborative efforts, and the planned dissemination of information for multi-institutional projects over the duration of the project.

   c. Project Relevance
   1) Documentation that the research is directed toward specific Program Area Priority(ies) identified in this RFA and is designed to accelerate progress toward the productivity and economic, environmental, and social sustainability of U.S. agriculture with respect to natural resources and the environment, human health and well-being, and communities.

2. Education Project Applications

These evaluation criteria will be used for the review of all single-function Education Project applications.

   a. Merit of the Application for Science Education
   1) Exhibit standards of high quality and educational excellence;
   2) Include goals with measurable objectives and an evaluation component;
   3) Be replicable, consistent in quality and designed to be sustainable;
   4) Address science education goals identified by USDA and national science education organizations, such as the National Academy of Sciences and the National Science Foundation; and
   5) Increase the number of people who choose to enroll in courses and have careers supporting the science-based food and agriculture mission of USDA. Include under-represented groups as appropriate.

   b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management
   1) Roles of key personnel are clearly defined;
   2) Key personnel have sufficient expertise to complete the proposed project, and where appropriate, partnerships with other disciplines (*e.g.*, social science or economics) and institutions are established;
   3) Evidence of institutional capacity and competence in the proposed area of work is provided;
   4) Support personnel, facilities, and instrumentation are sufficient;
   5) A clear plan is articulated for project management, including time allocated for attainment of objectives and delivery of products, maintenance of partnerships and collaborations, a strategy for recruiting students where appropriate, and a strategy to enhance communication, data sharing, and reporting among members of the project team; and
   6) The budget clearly allocates sufficient resources to carry out a set of education activities that will lead to desired outcomes.

   c. Project Relevance
   1) Documentation that the project is directed toward specific Program Area Priority(ies) identified in this RFA and is designed to accelerate progress toward the productivity and economic, environmental, and social sustainability of U.S. agriculture with respect to natural resources and the environment, human health and well-being, and communities;
   2) Project plan fully addresses the problem or issue identified;
   3) The proposed work addresses identified stakeholder needs;
   4) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
   5) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
   6) Science-based knowledge gained, curricula and related products developed will sustain education functions beyond the life of the project; and
   7) The resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

3. Extension Project Applications

These evaluation criteria will be used for the review of all single-function Extension Project applications.

    a.   **Merit of the Application for Science Extension**
1) Project objectives and outcomes are clearly described, adequate, and appropriate;
2) Proposed approach, procedures, or methodologies are appropriate, clearly described, suitable, and feasible;
3) Proposed extension leads to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group.

    b.   **Qualifications of Project Personnel, Adequacy of Facilities, and Project Management**
1) Roles of key personnel are clearly defined;
2) Key personnel have sufficient expertise to complete the proposed project, and where appropriate, partnerships with other disciplines (e.g., social science or economics) and institutions are established;
3) Evidence of institutional capacity and competence in the proposed area of work is provided;
4) Support personnel, facilities, and equipment/instrumentation are sufficient;
5) A clear plan is articulated for project management, including time allocated for attainment of objectives and delivery of products, maintenance of partnerships with stakeholders and collaborations, and a strategy to enhance communication, data sharing concerning outcomes including changes in learning, actions or conditions, and reporting among members of the project team.

    c.   **Project Relevance**
1) Documentation that the project is directed toward specific Program Area Priority(ies) identified in this RFA and is designed to accelerate progress toward the productivity and economic, environmental, and social sustainability of U.S. agriculture with respect to natural resources and the environment, human health and well-being, and communities;
2) The proposed work addresses identified stakeholder needs;
3) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
4) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
5) Curricula and related products such as materials developed for eXtension communities of practice will sustain informal education or extension functions beyond the life of the project; and
6) Extension activities and the resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

4. Integrated Project Applications
These evaluation criteria will be used for the review of all multi-function Integrated Project applications.

    a.   **Merit of the Application for Science Research, Education, and/or Extension**
1) Project objectives and outcomes are clearly described, adequate, and appropriate. All project components (i.e., research, education, extension) – at least two are required – are reflected in one or more project objectives;
2) Proposed approach, procedures, or methodologies are innovative, original, clearly described, suitable, and feasible;
3) Expected results or outcomes are clearly stated, measurable, and achievable within the allotted time frame;
4) Proposed research fills knowledge gaps that are critical to the development of practices and programs to address the stated problem or issue;
5) Proposed extension leads to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group; and
6) Proposed education (teaching) has an impact upon and advances the quality of food and agricultural sciences by strengthening institutional capacities and curricula to meet clearly delineated needs and train the next generation of scientists and educators.

    b.   **Qualifications of Project Personnel, Adequacy of Facilities, and Project Management**
1) Roles of key personnel are clearly defined;

2) Key personnel have sufficient expertise to complete the proposed project, and where appropriate, partnerships with other disciplines (e.g., social science or economics) and institutions are established;
3) Evidence of institutional capacity and competence in the proposed area of work is provided;
4) Support personnel, facilities, and instrumentation are sufficient;
5) A clear plan is articulated for project management, including time allocated for attainment of objectives and delivery of products, maintenance of partnerships and collaborations, and a strategy to enhance communication, data sharing, and reporting among members of the project team; and
6) The budget clearly allocates sufficient resources to carry out a set of research, education (teaching), and/or extension activities that will lead to desired outcomes, with no more than two-thirds of the budget focused on a single project component. Supporting funds for Community of Practice core functions and project-specific activities are included for partnerships with eXtension.

    c. Project Relevance
1) Documentation that the project is directed toward specific Program Area Priority(ies) identified in this RFA and is designed to accelerate progress toward the productivity and economic, environmental, and social sustainability of U.S. agriculture with respect to natural resources and the environment, human health and well-being, and communities;
2) Project components (research, education, and/or extension) – at least two are required – are fully integrated and necessary to address the problem or issue;
3) The proposed work addresses identified stakeholder needs;
4) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
5) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
6) For extension or education (teaching) activities, curricula and related products will sustain education or extension functions beyond the life of the project; and
7) For extension or education (teaching) activities, the resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

5. Conference Grant Applications

a. Relevance of the proposed conference to agriculture and food systems in the U.S. and appropriateness of the conference in fostering scientific exchange;
b. Qualifications of the organizing committee and appropriateness of invited speakers to topic areas being covered; and
c. Uniqueness, timeliness of the conference, and appropriateness of budget requests.

6. New Investigator, Strengthening Standard, and Strengthening Grant Applications
Refer to the review criteria listed above for the applicable Project Type (Research, Education, Extension or Integrated) to which you are applying.

7. Sabbatical Grant, Equipment Grant, and Seed Grant Applications

a. The merit of the proposed activities or equipment as a means of enhancing the capabilities and competitiveness of the applicant and/or institution;
b. The applicant's previous experience and background along with the appropriateness of the proposed activities or equipment for the goals proposed; and
c. Relevance of the project to long-range improvements in and sustainability of U.S. agriculture, the environment, human health and well-being, and rural communities.

C. Conflicts of Interest and Confidentiality

During the peer evaluation process, extreme care will be taken to prevent any actual or perceived conflicts of interest that may impact review or evaluation. For the purpose of determining conflicts of interest, the academic and administrative autonomy of an institution shall be determined by reference to the current Higher Education Directory, published by Higher Education Publications, Inc., 1801 Robert Fulton Drive, Suite 340, Reston, VA 20191. Phone: 1-888-349-7715. Web site: http://www.hepinc.com.

Names of submitting institutions and individuals, as well as application content and peer evaluations, will be kept confidential, except to those involved in the review process, to the extent permitted by law. In addition, the identities of peer reviewers will remain confidential throughout the entire review process. Therefore, the names of the reviewers will not be released to applicants.

D. Organizational Management Information

Specific management information relating to an applicant shall be submitted on a one-time basis as part of the responsibility determination prior to the award of a grant identified under this RFA, if such information has not been provided previously under this or another NIFA program. NIFA will provide copies of forms recommended for use in fulfilling these requirements as part of the pre-award process. Although an applicant may be eligible based on its status as one of these entities, 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 involved or a determination that an applicant is not responsible based on submitted organizational management information).

PART VI – AWARD ADMINISTRATION

A. General

Within the limit of funds available for such purpose, the awarding official of NIFA shall make grants to those responsible, eligible applicants whose applications are judged most meritorious under the procedures set forth in this RFA. Note that 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 shall be expended solely for the purpose for which the funds are granted in accordance with the approved application and budget, the regulations, the terms and conditions of the award, the applicable Federal cost principles, and the applicable Department's assistance regulations (parts 3015 and 3019 of 7 CFR), and the NIFA General Awards Administration Provisions at 7 CFR part 3430, subparts A through E.

B. Award Notice

The award document will provide pertinent instructions and information shall include at a minimum the following:

1. Legal name and address of performing organization or institution to which the Director has issued an award under the terms of this RFA;
2. Title of project;
3. Name(s) and institution(s) of PDs chosen to direct and control approved projects;
4. Identifying award number assigned by the Department;
5. Award type, specifying whether the grant is a standard or continuation award;
6. Project period, specifying the amount of time the Department intends to support the project without requiring re-competition for funds, and that no-cost extensions of time beyond the five year performance period will be granted only in extenuating circumstances, require prior approval and will be contingent on a satisfactory merit review conducted by NIFA;
7. Total amount of Departmental financial assistance approved by the Director during the project period;
8. Legal authority(ies) under which the award is issued;
9. Appropriate Catalog of Federal Domestic Assistance (CFDA) number;
10. Applicable award terms and conditions (see http://www.nifa.usda.gov/business/awards/awardterms.html to view NIFA award terms and conditions);
11. Approved budget plan for categorizing allocable project funds to accomplish the stated purpose of the award; and
12. Other information or provisions deemed necessary by NIFA to carry out its respective awarding activities or to accomplish the purpose of a particular award.

C. Administrative and National Policy Requirements

Several Federal statutes and regulations apply to grant applications considered for review and to project grants awarded under this program. These include, but are not limited to:

2 CFR Part 215 – Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations (OMB Circular A-110).

2 CFR Part 220 – Cost Principles for Educational Institutions (OMB Circular A-21).

2 CFR Part 230 – Cost Principles for Non-Profit Organizations (OMB Circular A-122).

7 CFR Part 1, subpart A – USDA implementation of the Freedom of Information Act.

7 CFR Part 3 – USDA implementation of OMB Circular No. A-129 regarding debt collection.

7 CFR Part 15, subpart A – USDA implementation of Title VI of the Civil Rights Act of 1964, as amended.

7 CFR Part 331 and 9 CFR Part 121 – USDA implementation of the Agricultural Bioterrorism Protection Act of 2002.

7 CFR Part 3015 – USDA Uniform Federal Assistance Regulations, implementing OMB directives (i.e., OMB Circular Nos. A-21 and A-122, now codified at 2 CFR Parts 220 and 230) and incorporating provisions of 31 U.S.C. 6301-6308 (formerly the Federal Grant and Cooperative Agreement Act of 1977, Pub. L. No. 95-224), as well as general policy requirements applicable to recipients of Departmental financial assistance.

7 CFR Part 3016 – USDA Implementation of Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments.

7 CFR Part 3017 – USDA implementation of Governmentwide Debarment and Suspension (Nonprocurement) and 7 CFR Part 3021—Governmentwide Requirements for Drug Free Workplace (Grants).

7 CFR Part 3018 – USDA implementation of Restrictions on Lobbying. Imposes prohibitions and requirements for disclosure and certification related to lobbying on recipients of Federal contracts, grants, cooperative agreements, and loans.

7 CFR Part 3019 – USDA implementation of OMB Circular A-110, Uniform Administrative Requirements for Grants and Other Agreements With Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations.

7 CFR Part 3021 – Governmentwide Requirements for Drug Free Workplace (Grants).

7 CFR Part 3022 —Research Institutions Conducting USDA-Funded Extramural Research; Research Misconduct.

7 CFR Part 3052 – USDA implementation of OMB Circular No. A-133, Audits of States, Local Governments, and Nonprofit Organizations.

7 CFR Part 3407 – NIFA procedures to implement the National Environmental Policy Act of 1969, as amended.

7 CFR Part 3430 – NIFA Competitive and Noncompetitive Nonformula Grant Programs—General Grant Administrative Provisions.

29 U.S.C. 794 (section 504, Rehabilitation Act of 1973) and 7 CFR Part 15b (USDA implementation of statute) – prohibiting discrimination based upon physical or mental handicap in Federally assisted programs.

35 U.S.C. 200 et seq. – Bayh Dole Act, controlling allocation of rights to inventions made by employees of small business firms and domestic nonprofit organizations, including universities, in Federally assisted programs (implementing regulations are contained in 37 CFR Part 401).

D. Expected Program Outputs and Reporting Requirements

Grantees are to submit initial project information and annual summary reports to NIFA's electronic, Web-based inventory system that facilitates both grantee submissions of project outcomes and public access

to information on Federally-funded projects. The details of these reporting requirements are included in the award terms and conditions. Details of annual and final technical reporting requirements also are included in the award terms and conditions.

PART VII – AGENCY CONTACTS

For general questions related to the AFRI Programs, applicants and other interested parties are encouraged to contact:

Dr. Franklin E. Boteler, Assistant Director, Institute of Bioenergy, Climate, and Environment
Telephone: (202) 401-5022
E-mail: AFRI@nifa.usda.gov

Dr. Louie Tupas, Division Director, Global Climate Change
Telephone: (202) 401-4926
E-mail: ltupas@nifa.usda.gov

Dr. Michael Bowers, Challenge Area Lead, National Program Leader
Telephone: (202) 401-4510
E-mail: mbowers@nifa.usda.gov

Specific questions pertaining to technical matters for this Request for Applications may be directed to the appropriate Program Area Contacts:

Program Area	Program Area Contact:
Climate Change: Climate Change Mitigation and Adaptation in Agriculture Program Area Code – A3141	Michael Bowers – (202) 401-4510; mbowers@nifa.usda.gov Catalino Blanche (202) 401- 4190; cblanche@nifa.usda.gov Nancy Cavallaro – (202) 401-4082; ncavallaro@nifa.usda.gov Greg Crosby – (202) 401-6050; gcrosby@nifa.usda.gov Jim Dobrowolski - (202) 401-5016; jdobrowolski@nifa.usda.gov Tim Grosser - (202) 690-0402; tgrosser@nifa.usda.gov Fen Hunt – (202) 720-4114; fhunt@nifa.usda.gov Diana Jerkins – (202) 401-6996; djerkins@nifa.usda.gov Ed Kaleikau – (202) 401-1931; ekaleikau@nifa.usda.gov Ray Knighton - (202) 401-6412; rknighton@nifa.usda.gov Suzanne Le Menestrel - (202) 720-2297; slemenestrel@nifa.usda.gov Robert Nowierski - (202) 401-4900; rnowierski@nifa.usda.gov Mary Ann Rozum – (202) 401-4533; mrozum@nifa.usda.gov Louie Tupas – (202) 401-4926; ltupas@nifa.usda.gov Adele Turzillo - (202) 401-4336; aturzillo@nifa.usda.gov Isabel Walls - (202) 401-6357; iwalls@nifa.usda.gov

PART VIII – OTHER INFORMATION

A. Access to Review Information

Copies of reviews, excluding the identity of reviewers, and a summary of the panel comments will be sent to the applicant after the review process has been completed.

B. Use of Funds; Changes

1. Delegation of Fiscal Responsibility

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

2. Changes in Project Plans

a. The permissible changes by the grantee, PD(s), or other key project personnel in the approved project grant shall be limited to changes in methodology, techniques, or other similar aspects of the project to expedite achievement of the project's approved goals. If the grantee or the PD(s) is uncertain as to whether a change complies with this provision, the question must be referred to the Authorized Departmental Officer (ADO) for a final determination. The ADO is the signatory of the award document, not the program contact.

b. Changes in approved goals or objectives shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes. In no event shall requests for such changes be approved which are outside the scope of the original approved project.

c. Changes in approved project leadership or the replacement or reassignment of other key project personnel shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes.

d. Transfers of actual performance of the substantive programmatic work in whole or in part and provisions for payment of funds, whether or not Federal funds are involved, shall be requested by the grantee and approved in writing by the ADO prior to effecting such transfers, unless prescribed otherwise in the terms and conditions of the grant.

e. Awards will normally not be considered for additional funding beyond that approved in an original award. No-cost extensions beyond five years will be granted only under extenuating circumstances, will require prior approval of the Authorized Departmental Officer (ADO), and will be contingent on a satisfactory merit review conducted by NIFA.

f. Changes in an approved budget must be requested by the grantee and approved in writing by the ADO prior to instituting such changes if the revision will involve transfers or expenditures of amounts requiring prior approval as set forth in the applicable Federal cost principles, Departmental regulations, or grant award.

C. Confidential Aspects of Applications and Awards

When an application results in a grant, it becomes a part of the record of NIFA transactions, available to the public upon specific request. Information that the Secretary determines to be of a confidential, privileged, or proprietary nature will be held in confidence to the extent permitted by law. Therefore, any information that the applicant wishes to have considered as confidential, privileged, or proprietary should be clearly marked within the application. Such an application will be released only with the consent of the applicant or to the extent required by law. The original electronic application that does not result in a grant

will be retained by the Agency for a period of three years. An application may be withdrawn at any time prior to the final action thereon.

D. Regulatory Information

For the reasons set forth in the final Rule-related Notice to 7 CFR part 3015, subpart V (48 FR 29114, June 24, 1983), this program is excluded from the scope of the 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 collections of information requirements contained in this Notice have been approved under OMB Document No. 0524-0039.

E. Application Disposition

When each peer review panel has completed its deliberations, the responsible program staff of AFRI will recommend that the project: (a) be approved for support from currently available funds or (b) be declined due to insufficient funds or unfavorable review.

AFRI reserves the right to negotiate with the PD and/or with 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.

An application may be withdrawn at any time before a final funding decision is made regarding the application. One copy of each application that is not selected for funding, including those that are withdrawn, will be retained by AFRI for a period of three years.

F. Materials Available on the Internet

AFRI program information will be made available on the NIFA Web site: http://www.nifa.usda.gov/funding/afri/afri.html. The following are among the materials available on the AFRI More Information Page:
1. More information about upcoming AFRI 2013 Requests for Applications
2. AFRI Abstracts of Funded Projects
3. AFRI Annual Reports

G. Electronic Subscription to AFRI Announcements

If you would like to receive notifications of all new announcements pertaining to AFRI RFA, you can register via Grants.gov at http://www.grants.gov/search/subscribeAdvanced.do.
- Enter the e-mail address at which you would like to receive the announcements
- Enter "10.310" for *CFDA Number*
- Select "Subscribe to Mailing List"

Other criteria may be selected; however, your e-mail address and the CFDA number are the only data required to receive AFRI announcements. You do not need to be a registered user of Grants.gov to use this service. You may modify your subscriptions or unsubscribe at any time.

H. Definitions

Please refer to 7 CFR 3430, Competitive and Noncompetitive Non-formula Grant Programs--General Grant Administrative Provisions for the applicable definitions for this NIFA Grant Program

For the purpose of this program, the following additional definitions are applicable:

Director means the Director of the National Institute of Food and Agriculture (NIFA) and any other officer or employee of NIFA to whom the authority involved is delegated.

Food and Agricultural Science Enhancement (FASE) Grants means 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.

Integrated project means a project incorporating two or three functions of the agricultural knowledge system (research, education, and extension) around a problem or activity.

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 will be provided in the RFA.

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, published by Higher Education Publications, Inc., 1801 Robert Fulton Drive, Suite 340, Reston, VA 20191.

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 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.

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., 1801 Robert Fulton Drive, Suite 340, Reston, VA 20191. Phone: 1-888-349-7715.

Strengthening Grants means 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 and Coordinated Agricultural Project Grant types as well as Seed Grants, Equipment Grants, and Sabbatical Grants.

USDA EPSCoR States (Experimental Program for Stimulating Competitive Research) means States which have been less successful in receiving funding from AFRI, or its predecessor, the National Research Initiative (NRI), having a funding level no higher than the 38th percentile of all States based on a 3-year average of AFRI and/or NRI 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 in this RFA.

TABLE 1. Most Successful Universities and Colleges Receiving Federal Funds*.
Use to Determine Eligibility for Strengthening Grants

Arizona State University (all campuses)	Pennsylvania State University (all campuses)	University of Massachusetts, Worcester
Baylor College of Medicine	Princeton University	University of Miami
Boston University	Purdue University (all campuses)	University of Michigan (all campuses)
Brown University	Rutgers, The State University of New Jersey (all campuses)	University of Minnesota (all campuses)
California Institute of Technology	Scripps Research Institute, The	University of Missouri, Columbia
Carnegie Mellon University	Stanford University	University of New Mexico (all campuses)
Case Western Reserve University	State University of New York, Stony Brook (all campuses)	University of North Carolina, Chapel Hill
Colorado State University	Texas A&M University (all campuses)	University of Medicine and Dentistry New Jersey
Columbia University	University of Alabama, Birmingham	University of Pennsylvania
Cornell University (all campuses)	University of Arizona	University of Pittsburgh (all campuses)
Dartmouth College	University of California, Berkeley	University of Rochester
Duke University	University of California, Davis	University of South Florida
Emory University	University of California, Irvine	University of Southern California
Florida State University	University of California, Los Angeles	University of Texas (all campuses)
George Washington University	University of California, San Diego	University of Texas, Austin
Georgetown University	University of California, San Francisco	University of Texas Health Science Center, Houston
Georgia Institute of Technology (all campuses)	University of California, Santa Barbara	University of Texas Health Science Center, San Antonio
Harvard University	University of Chicago	University of Texas M.D. Anderson Cancer Center
Indiana University Purdue University Indianapolis	University of Cincinnati (all campuses)	University of Texas Medical Branch
Iowa State University	University of Colorado (all campuses)	University of Texas Southwestern Medical Center, Dallas
Johns Hopkins University, The	University Corporation for Atmospheric Research	University of Utah
Louisiana State University (all campuses)	University of Connecticut (all campuses)	University of Virginia (main campus)
Massachusetts Institute of Technology	University of Delaware	University of Washington
Medical College of Wisconsin	University of Florida	University of Wisconsin, Madison
Medical University of South Carolina	University of Georgia	Vanderbilt University
Michigan State University	University of Hawaii, Manoa	Virginia Commonwealth University
Mississippi State University	University of Illinois, Chicago	Virginia Polytechnic Institute and State University
Mount Sinai School of Medicine	University of Illinois, Urbana-Champaign	Wake Forest University
New York University	University of Iowa	Washington University, St. Louis
North Carolina State University	University of Kansas (all campuses)	Woods Hole Oceanographic Institute
Northwestern University	University of Kentucky (all campuses)	Yale University
Ohio State University (all campuses)	University of Maryland, Baltimore	Yeshiva University
Oregon Health & Science University	University of Maryland, College Park	
Oregon State University	University of Massachusetts, Amherst	

*Data obtained from the table of Federal obligations for science and engineering research and development to the 100 universities and colleges receiving the largest amounts, ranked by total amount received in FY 2008 of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation). Campuses that are part of a larger university system as listed in Table 1 may petition for an exemption to this rule (see Part III, B (page 30) for information).

TABLE 2. Lowest One Third of Universities and Colleges Receiving Federal Funds*.
Use to Determine Eligibility for Possible Waiver of Matching Funds Requirement for Equipment Grants

A. T. Still University of Health Sciences	Greenfield Community College	Randolph-Macon College
Abilene Christian University	Greenville Technical College	Regis University
Adelphi University	Grinnell College	Rhode Island College
Agnes Scott College	Hamline University	Rider University
Aiken Technical College	Hampshire College	Roanoke College
AK Pacific University	Harford Community College	Robert Morris University
Albion College	Harris-Stowe State University	Robeson Community College
Albright College	Hawaii Pacific University	Rollins College
Allegheny College	Heidelberg College	Rust College
Alma College	High Point University	Saginaw Valley State University
American Indian Higher Ed. Consortium	Hinds Community College (Raymond, MS)	Salem State College
American University	Hiram College	Salisbury University
American University Puerto Rico	Hood College	San Diego Mesa College
Andrews University	Howard Community College	Sarah Lawrence College
Angelo State University	Hudson Valley Community College	Savannah State University
Anna Maria College	Huston-Tillotson University	Savannah Technical College
Arapahoe Community College	Illinois College of Optometry	Scripps College
Arcadia University	Illinois Wesleyan University	Seattle Community College (all campuses)
Arizona Western College	Indiana University-Purdue University Ft. Wayne	Seattle University
Arkansas Tech University	Indiana Wesleyan University	Seminole State College
Armstrong Atlantic State University	Institute of American Indian and Alaska Native Culture and Arts Development	Shawnee State University
Art Center College of Design	Iona College	Simmons College
Ashland University	Iowa Lakes Community College	Skagit Valley College
Assumption College	Ithaca College	Slippery Rock University Pennsylvania
Augsburg College	Ivy Tech Community College Indiana (all campuses)	Sojourner-Douglass College
Augustana College (Rock Island, IL)	J. F. Drake State Technical College	Sonoma State University
Augustana College (Sioux Falls, SD)	Jamestown Community College	South Florida Community College
Austin Community College	Jarvis Christian College	South Texas College
Austin Peay State University	John Carroll University	Southeast Missouri State University
Avila University	Johnson County Community College	Southeastern Oklahoma State University
Baker University	Kalamazoo College	Southern New Hampshire University
Baltimore City Community College	Kankakee Community College	Southern Oregon University
Bard College at Simon's Rock	Kansas City University of Medicine and Biosciences	Southern Polytechnic State University
Baton Rouge Community College	Keene State College	Southwest FL College
Bay Mills Community College	Kenyon College	Southwestern College (Chula Vista, CA)
Bellevue Community College	Kettering University	Southwestern Oklahoma State University
Belmont University	Keweenaw Bay Ojibwa Community College	Southwestern University
Beloit College	King College	Springfield College (Springfield, MA)
Benedictine University	Kutztown University Pennsylvania	St. Augustine's College
Benjamin Franklin Institute of Technology	LA Technical College Florida Parishes Campus	St. Catharine College
Berea College	Lake City Community College	St. Lawrence University
Bethel University (all campuses)	Lake Forest College	St. Mary's University (San Antonio, TX)
Bethune-Cookman University	Lake Superior State University	St. Michael's College
Birmingham-Southern College	Lansing Community College	St. Norbert College
Bismarck State College	Laramie County Community College	St. Peter's College
Black Hawk College (all campuses)	Lasell College	St. Vincent College
Black Hills State University	Lawrence University	St. Xavier University
Bloomsburg University Pennsylvania	Lawson State Community College	State Ctr. Community College District
Bridgewater State College	Lebanon Valley College	State University System Florida (all campuses)
Brookdale Community College	LeTourneau University	Stevenson University
Butler University	Liberty University	Stillman College
Butte College	Little Priest Tribal College	Stonehill College
Cabrini College	Longwood University	SUNY College Brockport
California Lutheran University	Loyola College	SUNY College Cortland
California State University, Bakersfield	Loyola University New Orleans	SUNY College Geneseo
Cameron University	Lyndon State College	SUNY College of Agriculture and Technology Morrisville
Canisius College	Lyon College	SUNY College Oneonta
Carl Albert State College	Macalester College	SUNY College Potsdam
Carlos Albizu University (San Juan, PR)	Macomb Community College	SUNY Empire State College
Carthage College	Madison Area Technical College	SUNY Farmingdale
Casper College	Mansfield University Pennsylvania	SUNY Fredonia
Central College	Marian College Fond du Lac	SUNY Institute of Technology Utica-Rome

Central FL Community College	Marion Military Institute	SUNY Purchase College
Central Georgia Technical College	Martin University	Sweet Briar College
Central MO State University	Mary Baldwin College	Tacoma Community College
Centre College	Marymount University	Tarleton State University
Charleston Southern University	Massachusetts Bay Community College	Taylor University
Chatham College	Massachusetts College of Liberal Arts	Texas College
Christian Brothers University	McKendree University	Texas Wesleyan University
Clarion University Pennsylvania (all campuses)	McNeese State University	Touro College
Clark College	Mercyhurst College	Tri-College University
Cleveland State Community College	Mesa State College	Troy University main campus
College Idaho	Mesabi Range Community and Technical College	Truman State University
College New Jersey, The	Metropolitan State College Denver	University Alaska Southeast
College of Notre Dame Maryland	Middlesex Community College	University Arkansas Ft. Smith
College of St. Catherine	Mid-South Community College	University Central Oklahoma
College of St. Rose	Midwestern University (Chicago, IL)	University Consortium for Geographic Information Science
College of St. Scholastica	Millersville University Pennsylvania	University Houston Clear Lake
College of the Atlantic	Milwaukee School of Engineering	University Illinois Springfield
College Southern Maryland	Minnesota State College Southeast Technical College	University Louisiana Monroe
College Wooster	Misericordia University	University Maine Augusta
Colorado College	Monroe Community College	University Maine Machias
Columbus State University	Mountain State University	University Maryland University College
Community College Rhode Island	MT Tech College of Technology	University New Haven
Community -Technical Colleges	Mt. Hood Community College	University Portland
Concordia Theological Seminary	Mt. St. Mary's University	University Puget Sound
Concordia University (River Forest, IL)	Mt. Wachusett Community College	University Redlands
Cooper Union	Muskingum College	University Sagrado Corazon
Covenant College	National University of Health Sciences	University South Dakota (all campuses)
CUNY Borough of Manhattan Community College	National-Louis University	University Tampa
CUNY Medgar Evers College	Naval Postgraduate School	University Turabo
CUNY New York City College of Technology	Neumann College	University West Florida
Daemen College	New Jersey School of Osteopathic Medicine	University WI-Green Bay
Daytona Beach Community College	New Mexico Military Institute	University Wisconsin-Platteville
Defense Acquisition University	New York Law School	University Wisconsin-River Falls
Del Mar College	NHTI, Concord's Community College	University Wisconsin-Stout
Denison University	Nicholls State University	University Wisconsin-Superior
DePauw University	Normandale Community College	University Wisconsin-Whitewater
Des Moines University	North Central College	Upper Midwest Aerospace Consortium
Dickinson State University	North Dakota State College of Science	Ursinus College
Dixie State College Utah	North Georgia College & State University	Utah Valley State College
Doane College	North Hennepin Community College	Valdosta State University
Dominican University California	Northampton County Area Community College	Valparaiso University
Dowling College	Northern Essex Community College	Vermont Technical College
Drury University	Northern WY Community College District	Virginia Military Institute
East Mississippi Community College	Northwestern Health Sciences University	Virginia Union University
Eastern Mennonite University	Northwestern Michigan College	Wabash College
Eastern Oregon University	Northwestern OK State University	Wake Technical Community College
El Camino College Compton Center	Northwestern State University	Waldorf College
Elizabethtown College	Norwich University	Warren Wilson College
Elmhurst College	Occidental College	Washington and Lee University
Elon University	Ohio Northern University	Washington College
Emporia State University	Orangeburg-Calhoun Technical College	Wayne State College
Erskine College	Oregon College of Oriental Medicine	Webb Institute
Everett Community College	Our Lady of the Lake University	Western Connecticut State University
Fayetteville Technical Community College	Pace University (all campuses)	Western New England College
Finger Lakes Community College	Pacific Lutheran University	Western State College Colorado
Fitchburg State College	Pacific University	Westminster College (Salt Lake City, UT)
Flathead Valley Community College	Palau Community College	Westmont College
Florence-Darlington Technical College	Pasadena City College	Wheaton College (Norton, MA)
Florida Gulf Coast University	Paul Smith's College of Arts and Sciences	Wheaton College (Wheaton, IL)
Fox Valley Technical College	Pearl River Community College	White Earth Tribal and Community College
Francis Marion University	Peninsula College	Whitman College
Franciscan University Steubenville	Pepperdine University Malibu	Wiley College
Franklin W. Olin College of Engineering	Plymouth State University	Wilkes University
Ft. Hays State University	Polk Community College	William Paterson University New Jersey
Gem National Consortium for Graduate Degrees for Minorities in Engineering and Science,	Prescott College	Winona State University

InCollege		
Geophysical Institute, UAF	Prince George's Community College	Wittenberg University
Gonzaga University	Quinnipiac University	York Technical College
Gordon College (Wenham, MA)	Quinsigamond Community College	Randolph-Macon College
Goucher College	Radford University	Regis University

*Data obtained from the table of Federal obligations for science and engineering research and development to universities and colleges, ranked by total amount received, by agency from the FY 2008 Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

FIGURE 1. Flow Chart for Strengthening Grant Eligibility.

Do you have an appointment at a State Agricultural Experiment Station or a degree granting institution?

Yes → Are you eligible for EPSCoR Funds?

No → Not Eligible

Are you eligible for EPSCoR Funds?

Yes → Eligible

No → Are you at a minority-serving institution? See Part VIII, H for a definition.

Are you at a minority-serving institution?

Yes → Is your institution among the most successful (see Table 1)?

Is your institution among the most successful (see Table 1)?
- Yes → Not Eligible
- No → Eligible

No → Is your institution small or mid-sized (total enrollment < 17,500)?

Is your institution small or mid-sized (total enrollment < 17,500)?
- Yes → Is your institution among the most successful (see Table 1)?
- No → Not Eligible

Is your institution among the most successful (see Table 1)?
- Yes → Not Eligible
- No → Eligible