Agriculture and Food Research Initiative Competitive Grants Program

MODIFICATION: PAGES V, 30 & 32

Agriculture and Natural Resources Science for Climate Variability and Change

FY 2012 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: Applications must be submitted via Grants.gov by 5:00 p.m. Eastern Time (ET) on the deadline date indicated in the Program Area Descriptions section beginning in Part I, C (page 6). See Part IV, F (page 33) "Other Submission Requirements" for a full description of what it means to submit an application on time. Applications received after the deadline will normally not be considered for funding. 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: RFP-OGFM@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) 2010 RFAs are discussed in Part I, B. (page 1) 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 FY 2012. 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 2012, approximately $264 million will be available for support of this program. Of this amount, no less than 30 percent will be made available to fund integrated research, education, and extension programs.

For FY 2012, it is anticipated that approximately $12 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 achieve the long-term outcome of adaptation to and mitigation of climate variability and change in agriculture and forestry.

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

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PLEASE READ

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Important Information about the Agriculture and Food Research Initiative

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AFRI RFAs: In FY 2012, NIFA will issue seven RFAs for the AFRI Program:

(1) Foundational Program addressing the six AFRI priority areas
(2) Challenge Areas:
    a. Agriculture and Natural Resources Science for Climate Variability and Change
    b. Childhood Obesity Prevention
    c. Food Safety
    d. Food Security
    e. Sustainable Bioenergy
(3) NIFA Fellowships Grant Program soliciting Pre- and Postdoctoral Fellowship Grant applications

Applications for AFRI funds may also be solicited through other announcements including supplemental AFRI RFAs or in conjunction with multi-agency programs

All **AFRI program information**, including the anticipated release date of the Challenge Area RFAs and the NIFA Fellowships Grant Program RFA, is available on the NIFA Web site at: www.nifa.usda.gov/afri.

RFA Program Area Priorities: This RFA includes priorities from both FY 2011 and FY 2012.

Eligibility: Due to limited resources and in the interest of encouraging linkages between research, education, and extension, NIFA is only soliciting Integrated Projects under this RFA. Eligible applicants for the programs implemented under this RFA include: 1) colleges and universities; 2) 1994 Land-Grant Institutions; and 3) Hispanic-serving agricultural colleges and universities. See the Program Area Descriptions (beginning in Part I, C (page 6)) and the Eligibility Information section (Part III, A (page 19)) for specific information. If you are unsure of your eligibility contact the Program Area Contact for clarification before applying. Applications from ineligible institutions will not be reviewed.

EPSCoR Eligibility: For FY 2012, the states eligible for USDA EPSCoR funding are: Alabama, Alaska, Connecticut, Idaho, Kentucky, Maine, Mississippi, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island, South Carolina, South Dakota, Vermont, West Virginia, Wyoming, and other entities eligible for EPSCoR funding. Please note that institutions in Hawaii and Louisiana are not eligible for USDA EPSCoR funding in FY 2012. Refer to Part II, D. 4. c (page 15).

Award Instrument: Awards will be made under this RFA as continuation and standard awards. A continuation award is an award instrument by which the Department agrees to support a specified level of effort for a predetermined period of time with a statement of intention to provide additional support at a future date: provided that 1) performance has been satisfactory, 2) appropriations are available for this purpose, and 3) continued support would be in the best interest of the Federal government and the public. Awardees are expected to participate in a rigorous post-award management activity to be determined by the Agency Contact at the formative stages of the project. A standard award is an award instrument by which the Department agrees to support a specified level of effort for a predetermined project period without the announced intention of providing additional support at a future date. Conference, Sabbatical, Equipment, and Seed Grants will be made as standard awards.

Award Duration: All grants (excluding Conference, Sabbatical, Equipment, and Seed Grants) have award duration of up to five years. Please note the procedures for no-cost extensions of time that extend the project period beyond five years under Part VIII, B. 2. e) (page 42).

Letters of Intent: In FY 2012, all Program Areas within the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area require a Letter of Intent for submission of an application. A letter is required for **all** grant types except Conference Grant applications. Refer to Part IV, A (page 21) for instructions on the preparation of a Letter of Intent.

Annual Investigator Meetings: If a project is funded, beginning in the first year of funding, the Project Director will be required to attend annual investigator meetings for the duration of the award (excluding Conference, Sabbatical, and Equipment Grant applications). Seed Grant awardees are required to attend beginning in the second year of funding. Reasonable travel expenses should be included as part of the project budget.

Logic Model Requirements: Integrated Projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. 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 www.nifa.usda.gov/funding/integrated/integrated_logic_model.html.

Indirect Cost Limitations: 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 (page 32) for additional information.

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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 Integrated Research, Education, and/or 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, etc.) are proposed, then applicants shall describe indicators that will be used to assess those activities. Appropriate indicators include but are not limited to those posted at the U.S. Government's Feed the Future global food security initiative Web site (http://www.feedthefuture.gov/monitoringevaluation.html).

Stakeholder Input

The programs described herein were developed within the context of the authorized purposes of USDA research, education, and extension 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 2012. NIFA received more than 200 comments from stakeholders, including a wide range of scientific societies, commodity groups, colleges and universities, other research organizations, non-profit organizations, and individuals.

In general, stakeholders congratulated NIFA for its focus on societal challenges, 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. They expressed concern, however, that the continuation grant mechanism used to make grants from the Challenge Area RFAs would limit NIFA's ability to offer new grants in the future. 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 told NIFA that it was difficult to build these teams given the relatively short application deadlines established in FY 2010. 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 in the ways they thought best.

Stakeholders were pleased to see that a portion of the AFRI funding was devoted to the support of fundamental and applied research in the six priority areas identified by Congress in AFRI's authorizing legislation (The Food, Energy, and Conservation Act of 2008 (FCEA,, Pub.L. 110-246)). Research in the six priority areas was solicited through the Foundational Program RFA. Stakeholder feedback associated

with this RFA included comments that insufficient funds were allocated to this RFA, the priority statements within the RFA were too narrowly written, and important areas of science had been omitted from the Foundational Program RFA. In addition, stakeholders commented that some of the priority areas, specifically those within the Agriculture Economics and Rural Communities Program Area, were better suited to projects that integrate research, education, and extension, rather than projects that conduct research only.

In response to the comments received about the Foundational Program, NIFA expanded the scope of the Program Areas within the Foundational Program RFA to be more inclusive of the scientific areas identified in the AFRI authorizing legislation (FCEA, Pub.L. 110-246) and to allow for more investigator-initiated work. Areas believed to have been under-represented in the FY 2010 RFAs, such as conventional plant and animal breeding, weed science, and food technology are more clearly offered in the FY 2011 and FY 2012 RFAs. Integrated Projects were solicited under the Agriculture Economics and Rural Communities Program Area. The level of funding available for support of the Foundational Program within AFRI was increased to $78 million for FY 2011 from $62 million in FY 2010.

The AFRI Challenge Area RFAs will again offer awards as continuation grants. This is standard practice in many Federal granting agencies, including the National Science Foundation where up to 70% of the grant portfolio is funded by the continuation mechanism. The use of continuation grants allows for a much higher level of post-award oversight and quality control since funds are allocated on a year-by-year basis with continued funding provided only if performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interests of the Federal government and the public. Over the short term, lack of growth in the AFRI appropriation will restrict the number of new grants that can be made from the Challenge Areas, but this situation will be corrected over the longer term as projects are completed and Congress grows the AFRI appropriation toward its full authorized level.

The AFRI Challenge Areas were established in FY 2010 to more effectively address challenges faced by society. Programmatically, the tighter focus of the Challenge Area RFAs supports the development of more specific tools and responses to societal challenges. Financially, the shift to larger, multi-institutional grants leverages the nearly 20 year investment history in individual investigator awards and translates this research into solutions for current problems. While NIFA believes that these changes are appropriate to the scope of the work to be done through a project funded in a Challenge Area, we recognize that these changes in the ways that project teams are assembled and in award sizes may take some time to adjust to. 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% 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 EPSCoR states (see Part II, D, 4, c, 2 (page 16). 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.

Stakeholder input is collected in an ongoing basis to guide development of the AFRI Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA (previously AFRI Climate Change Challenge Area RFA). Most of those who commented on the focus of AFRI were supportive of the shift to focused challenge areas. Many, however, commented that the RFA too narrowly focused the funding priorities to specific species, agricultural systems, or geographic regions and that this focus eliminates the opportunity for submission of high quality proposals that do not fall within these narrowly defined constraints. In response to this concern the Agricultural and Natural Resources Science for Climate Variability and Change Challenge Area is soliciting proposals in FY 2012 from all agricultural production systems including forest and range systems, especially in those areas/systems that did not receive CAP funding from the FY 2010 AFRI Climate Change Challenge Area RFA. There were concerns that the Climate Change Challenge Area needs to do more to address the concerns of production agriculture and its ability to remain productive as climate changes occur. There were countervailing concerns that the challenge area needed to do more to assess the impact of agricultural and forestry

practices on environmental parameters. The majority of the comments favored increasing the focus on helping production agriculture adapt to change.

Many comments were received about NIFA obtaining sufficient stakeholder input on the number, award size, and objectives of Coordinated Agricultural Projects (CAP). In regards to the Climate Change Challenge Area, stronger regional involvement in priority setting was recommended. Continuity of funding for numerous core agricultural science disciplines is very important, and stakeholders felt that sporadic funding opportunities that occur on a three to four year cycle are not a good way to sustain expertise and interest in these core disciplines. Sporadic funding opportunities may reduce the quality of proposals by reducing the opportunity for resubmission of proposals that are refined to reflect review panel input. In response to this concern the Agricultural and Natural Resources Science for Climate Variability and Change Challenge Area is soliciting proposals in FY 2012 from all agricultural and natural resource production systems (including forest and range systems) including soliciting the resubmission of applications that were not previously funded, especially resubmissions of proposals focusing on those areas/systems that did not receive CAP funding from the FY 2010 AFRI Climate Change Challenge Area RFA Stakeholders also shared concerns about the opportunity for extension-led and extension-only proposals as well as the ability of researcher-dominated panels to effectively review proposed extension activities. However, stakeholders were pleased with the Climate Change Challenge Area providing the clearest opportunities for extension involvement.

The Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area has broadened language in the FY 2012 RFA to be more inclusive. Emphasis continues to be placed upon multidisciplinary efforts to integrate across multiple systems using a broad range of sciences in order to advance knowledge which impacts societal challenges.

The majority of efforts supported by this RFA advance adaptation and mitigation of agricultural and forest production systems to climate variables to support the sustainable production of food, feed, fiber, and energy resources. Extension and education efforts play a significant role in attaining this goal. The Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA advances integrated work in which at least two of the three agricultural functions are combined to create impact.

The FY 2012 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. Basic climatic variables such as water supply, temperature, and weather extremes significantly impact agriculture and forestry. This RFA focuses modern scientific advancements on adaptation to climate variables through advancing research, education, and extension efforts to have impact.

More detailed comments relevant to each Challenge Area RFA and the Foundational Program RFA are published in each RFA, 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 Revolution* report. USDA leadership has integrated the six AFRI priority areas (outlined in Part 1, A (page 1)) with the five challenges and the approach laid out in the "New Biology for the 21st Century" report to identify five primary challenge areas around which to structure the AFRI program and begin to focus the Department's investment in enabling an integrated approach to biological research, education, and extension. 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
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 refocused 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 2012, 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.

Increases in the productivity of U.S. agriculture are needed to enhance global food security in the face of a rapidly growing world population. Numerous programs within the Agriculture and Food Research Initiative are designed to help increase food productivity while simultaneously meeting the challenges posed by a changing climate and increasing demand for alternative energy sources. Programs included in the Agricultural and Natural Resources Science for Climate Variability and Change Challenge Area RFA, the Sustainable Bioenergy Challenge Area RFA, and the Food Security Challenge Area RFA provide complementary opportunities to address challenges to global food security. Applicants are encouraged to review all three of these RFAs in order to obtain a more comprehensive picture of the range of programs related to animal, crop, and food production.

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 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.

NIFA may also solicit applications for AFRI funds through other announcements, including supplemental AFRI RFAs or RFAs issued in conjunction with other agencies. Such announcements will be made public in the same manner as this announcement. 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:

- *Specialty Crop Research Initiative*
  Total Program Funds: Approximately $50 million
  Information is available at www.nifa.usda.gov/funding/scri/scri.html
- *Agriculture and Food Research Initiative Food Security Challenge Area*
  Total Program Funds: Approximately $19 million
  Information is available at www.nifa.usda.gov/afri
- *Agriculture and Food Research Initiative Sustainable Bioenergy Challenge Area*
  Total Program Funds: Approximately $11 million
  Information is available at www.nifa.usda.gov/afri

C. Program Area Descriptions

Background

The AFRI Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area provides funds to advance the understanding of the impacts of climate variability and change on agriculture, forestry, natural resources, and the environment. Emphasis is placed on the development of sustainable strategies for adaptation of agroecosystems to climate variability and change and development of sustainable mitigation practices that reduce the negative impact of these natural and production systems on climate and the environment. The Challenge Area also emphasizes climate science education and extension and welcomes proposals led by education and extension professionals.

To meet these identified needs, the long-term outcomes for this program are to develop new varieties of plants and animals, and identify new strategies for agriculture and forest production systems for adaptation to climate variability and change; advance sustainable use of natural resources and support sustainable rural economies under variable and changing climates; reduce 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. Projects supported in this RFA should lead to one of the four sustainability goals described under the National Research Council Report "Toward Sustainable Agricultural Systems in the 21st Century" and contribute to achieving the following Challenge Area goals:

1. *Adaptation* – Maximize resiliency and reduce the impact of climate variability and change on the stability and productivity of agriculture and forest agroecosystems 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 agricultural 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 of climate variability and change, its impacts, and options for sustainable environmental stewardship. Use of eXtension is an appropriate mechanism for outreach. Please refer to guidance for eXtension.

To meet the identified needs for climate variability and change adaptation and mitigation in agriculture and forestry, project objectives 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 agricultural and forestry systems.

In order to achieve the focus, scale, and impact sought by all NIFA-funded projects, the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area will address the science for adaptation and mitigation across a broad range of U.S. agricultural production systems including forest and range systems. Emphasis will be given to areas/systems that did not receive funding from the FY 2010 AFRI Climate Change Challenge Area RFA. . Areas/systems could include, but are not limited to the following: food and fiber production systems, including legume production, farmed aquaculture systems, forest systems, forage and range systems, and animal production systems, including ruminant, swine, and poultry production. Priority will be given to those 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 2012, the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area encourages proposals with interests that cut across and integrate different agroecosystems (*e.g.*, integrated farming systems which may combine crops and animal agroecosystems), especially those that are of major importance to the U.S. economy, the U.S. environment, or global food security. Also encouraged are proposals that address fundamental scientific issues relevant to climate variability and change and the development of new technologies or the use of existing technologies for adaptation to and mitigation of climate variability and change. Examples may include, but are not limited to, the development of new plant varieties or cultivars and animal breeds adapted to changing climates and biotechnology or nanotechnology approaches for the development of sensors to monitor environmental conditions and improve precision farming or switching from one production system to another that is more resilient to climate variability and change.

1. **Integrated Approaches to Climate Adaptation and Mitigation in Agroecosystems**

Program Area Code – A3142
Letter of Intent Deadline – October 20, 2011 (5:00 p.m., ET); see Part IV, A (page 21) for instructions
Application Deadline – December 16, 2011 (5:00 p.m., ET)
Proposed Budget Requests –

- Standard Grants must not exceed $750,000 total, including indirect costs, for project periods of up to 4 years. Program anticipates making up to 11 awards in FY 2012.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 2 and 3 (page 15).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type –Integrated Projects
Requested Grant Type – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Diana Jerkins (202-401-6996 or djerkins@nifa.usda.gov)

Program Area Priority – Applications must demonstrate a well developed plan that addresses the primary goals of mitigation and/or adaptation for research, education, and/or extension for a broad range of U.S. agricultural production systems including forest and range systems. Emphasis will be given to areas/systems that did not receive funding in the Climate Change Mitigation and Adaptation in Agriculture Program (A3141) from the FY 2010 AFRI Climate Change Challenge Area RFA, a list of which can be found at the NIFA web-site, http://www.nifa.usda.gov/newsroom/news/2011news/climate_change_awards.html. Areas/systems to be emphasized in FY2012 could include, but are not limited to the following: food and fiber production systems, including legume production, farmed aquaculture systems, forest systems, forage and range systems, and animal production systems, including ruminant, swine, and poultry production. Priority will be given to those 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.

Projects must demonstrate a well developed plan for achieving a reduction of agricultural emissions and/or an increase in carbon sequestration (net positive CO_2 eq.) in agroecosystems (mitigation) and/or an increase in resiliency and sustainability of agriculture production and natural resources under variable climates (adaptation). Projects must involve at least two or more of the following program activities such that at least two of the functions (research, education, extension) are fully represented:

1. Develop or improve management options that will mitigate the impacts of agroecosystems on climate variability and change while maintaining or improving agroecosystem productivity in any of the following areas:
    - Carbon sequestration and storage in soil and above- and below-ground biomass under changing land cover and land use practices;

- Sustainable joint use of nitrogen and water that optimizes yield and quality while reducing greenhouse gas emissions (including carbon dioxide, nitrous oxide, and methane);
- Reduction of greenhouse gas emission from animals in intensive or extensive production systems; and/or
- Integration of coupled climate-agriculture models and technologies into decision support tools for climate friendly agriculture and natural resource management in large, medium, or small scale production systems.

2. Develop or improve management strategies, models and technologies that facilitate adaptation to climate variability and change while maintaining or improving agroecosystem productivity in any of the following areas:
   - Management and control strategies of pest, disease, and invasive species under increasing climate variability and change;
   - Management strategies that reduce the negative effects of changing climates on animal health and/or production efficiency;
   - Systems level analyses to allow targeted and predictable breeding strategies in conjunction with natural resource management to optimize water and nitrogen use efficiency, nutrient utilization, and carbon sequestration; and/or
   - Development of new plant varieties and animal breeding lines that are adapted to changing climates and/or minimize greenhouse gas production.
3. Develop or improve knowledge of how human behavior, decision, and choices affect carbon, nitrogen, water, and energy use and how that behavior may be effectively changed to advance sustainable outcomes in any of the following areas:
   - Development of sustainable alternative adaptation and mitigation strategies that advance prosperity for all agroecosystems, including small and medium-sized farms, forests, or rural communities; and/or
   - Identification of local, regional, and national barriers to the adoption of sustainable on-farm (including forests) mitigation/adaptation technologies and implementation of practices that reduce carbon, nitrogen, water, and energy use in a sustainable manner.
4. Create educational activities that develop human capital relevant to the mitigation and adaption goals in any of the following areas:
   - Increase capacity of agricultural programs to meet the teaching and research demands brought about by climate variability and change through faculty development, improved teaching methods, workshops on climate and agriculture, and collaborative efforts and networking with faculty outside the traditional agricultural disciplines;
   - Develop trans-disciplinary curricula for agricultural sciences programs that include education on climate variability and change; and/or
   - Develop and provide structured research training and academic programs for undergraduate and graduate students that lead to an increased number of professionals with cross-disciplinary training in agriculture and climate science.
5. Develop extension and outreach programs to deliver science-based knowledge and informal educational programs to various communities relevant to the mitigation and adaptation goals in any of the following areas:
   - Develop materials and outreach programs that raise youth and adult consumer awareness of carbon, nitrogen, energy, and water footprints of agriculture production and/or resulting products;
   - Develop appropriate training and resource materials for extension educators to achieve target goals of adaptation and mitigation in farm and forest production systems and promote preparedness for extreme and variable climate conditions; and/or
   - Develop educational materials and outreach programs (in collaboration with eXtension, 4-H, Agriculture in the Classroom, FFA, or similar youth programs) on methods that youth, families, and communities can use to reduce carbon, nitrogen, energy, and water footprints in their community.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 21).

- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- Educational components should focus on enhancing formal classroom instruction, laboratory instruction, and practicum experience. Activities may include faculty development, curriculum development, instructional materials and equipment, and innovative teaching methodologies to address climate change impacts in agriculture and forestry.
- Evaluation of educational 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 shown.
- Extension activities should enable individuals and groups to make informed decisions regarding the production and consumption of climate friendly agricultural goods and services.
- As appropriate, germplasm researchers are encouraged to confer and coordinate with the Crop Curators and Crop Germplasm Committees (CGCs) in the USDA National Plant Germplasm System (NPGS) regarding the desirability of depositing genetic stocks and experimental plant populations generated into the NPGS genebanks.
- As appropriate, germplasm researchers are encouraged to confer with their host institution regarding the Food and Agriculture Organization (FAO) International Treaty's Standard Material Transfer Agreement (SMTA) and arrangements for how germplasm should be handled. For further information, see the International Treaty's web site at www.planttreaty.org/smta_en.htm.
- Applications must include a budgeted plan for the release of genomic research results (e.g., sequence, expression, phenotype, genotype, etc.) to the public in a timely manner. As appropriate, germplasm researchers should confer and coordinate with the Legume Information System (LIS) (www.comparative-legumes.org) or TreeGenes (a forest tree genome database for conifers; http://dendrome.ucdavis.edu/treegenes). Arrangements must be documented in the application.
- As appropriate, applications should use genomic sequence information to identify animals best adapted to changing climatic conditions.
- As appropriate, applications should use classical/conventional breeding and/or new technologies that utilize recent advances in genomic sequence information to develop new plant varieties that are adapted to changing climates and maximize greenhouse gas mitigation potential.
- Studies that test and compare groups of animals must include power analyses to justify the sample size chosen for each group.
- 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.

2. **Regional Approaches for Adaptation to and Mitigation of Climate Variability and Change**

Program Area Code – A3101
Letter of Intent Deadline – October 28, 2011 (5:00 p.m., ET); see Part IV, A (page 21) for instructions
Application Deadline – January 13, 2012 (5:00 p.m., ET)
Proposed Budget Requests –

- Regional Coordinated Agricultural Project (CAP) Grants must not exceed $2,000,000 per year ($10 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making up to 2 awards in FY 2012.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 3 and 4 (page 15).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Integrated Projects
Requested Grant Type – Regional CAP, Conference, and FASE Grants
Program Area Contact – Dr. Raymond Knighton (202-401-6417 or rknighton@nifa.usda.gov)

A Regional Integrated CAP will bring together a multi-state, multi-institutional, and trans-disciplinary team to integrate scientific discoveries and technology with practical application. A Regional

Integrated CAP will includes at least two of the three functions of the agricultural knowledge system (i.e., research, education, and extension) focused around the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area goals of mitigation and adaptation. Project participants serve as a team that conducts targeted research and/or education and/or extension activities to address mitigation and adaptation within a region. A CAP contains the expertise from principal stakeholders and partners, to accomplish project goals and objectives. Applications should outline the potential of the project, the structure, coordination, and plan of implementation, and should achieve specific milestones for each at least two of the knowledge areas (research, education and extension) along with details about how they would be evaluated.

Program Area Priority – Applications must demonstrate a well developed plan that addresses the primary goals of mitigation and/or adaptation for research, education, and/or extension for a broad range of U.S. agricultural production systems including forest and range systems. Emphasis will be given to areas/systems that did not receive funding in the Regional Approaches to Climate Change Program (A3101) from the FY 2010 AFRI Climate Change Challenge Area RFA. A list of which can be found at the NIFA web-site, http://www.nifa.usda.gov/newsroom/news/2011news/02181_climate_change_cap.html. Areas/systems to be emphasized in FY2012 could include, but are not limited to the following: food and fiber production systems, including legume production, farmed aquaculture systems, forest systems, forage and range systems, and animal production systems, including ruminant, swine, and poultry production. Priority will be given to those projects that are integrative across systems, i.e., mixed systems, and that are of major importance to the US economy, to the US environment, or to global food security.

These projects must be trans-disciplinary, involve multiple investigators, and address a significant regional issue with respect to greenhouse gas mitigation and adaptation through increased resiliency in agriculture production and sustainable natural resources management under variable climates. These projects should include consideration of the ecosystem services provided (e.g., provisioning, regulating, supporting, and cultural services as identified under the 2005 Millennium Ecosystem Assessment). These Integrated Projects are expected to develop and implement a network for multi-institutional cooperation and coordination, data management structures, and defined milestones and goals for the duration of the project. Projects must increase capacity for institutional research, education, and extension to address climate impacts on agriculture.

Research activities should:

- Develop and implement a functional network of monitoring sites that will be used to measure and monitor stores and fluxes of water, carbon, nitrogen in the agricultural production system within the region. This network of sites should capture the spatial and temporal variability in stores and fluxes representative of the region. This information should be linked to an appropriate federal government “climate portal” or climate service information system once these are operational.
- Develop standardized methodologies for estimating the carbon, nitrogen, and water footprints of the system in the region and for evaluating the feedback linkages between changes in the agricultural product or production system with human behavior and decision-making. Analysis of these footprints should reflect information generated through the network of monitoring systems established in the region.
- Establish the current baselines for carbon fluxes and energy, nitrogen and water use and storage in the region to advance coupled climate and agriculture models. The project must also inventory the set of existing agricultural or forestry productions practices that impact carbon, nitrogen and water within the region, and determine the links to current management practices
- Develop a suite of existing or novel approaches and management practices that leads to a net decrease in the footprints or increased carbon sequestration with a focus on long-term sustainability of the production system. This can include the use of modeling, classic/conventional breeding, genomics, or genetic technologies.
- Conduct a comprehensive life cycle analyses of the agricultural production system. Life cycle analyses should include physical and economic supply chain information (e.g., fertilizer use, water sources - rainwater, surface and groundwater, or recycled water, and energy inputs to the

supply). Data from this should be integrated into the developing life cycle analyses database administered by the National Agricultural Library (www.nal.usda.gov).

Education activities should:

- Increase capacity of agricultural programs to meet the teaching and research demands brought about by climate variability and change through faculty development, improved teaching methods, workshops on climate and agriculture, and collaborative efforts and networking with faculty outside the traditional agricultural disciplines;
- Develop and provide structured research training and academic programs for undergraduate and graduate students that lead to an increased number of professionals with cross-disciplinary training in agriculture and climate science;
- Synthesize and incorporate a wide range of the latest relevant research results into training and curricula; and
- Lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group.

Extension activities should:

- Conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make practical decisions;
- Include program delivery that may range from community-based to national and from face-to-face to electronic or combinations thereof;
- Synthesize and incorporate a wide range of the latest relevant research results;
- Lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group;
- Demonstrate the adoption of approaches and practices across the region to achieve reductions in greenhouse gas fluxes, and nitrogen and water use in the region/production system; and
- Document economic and social acceptance and/or implications for individuals, regions, funding agencies, and the economy from such changes.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (pages 23).
- Applications must include at least two of the functions of the agricultural knowledge system (research, education, and extension). Each function selected should be represented by one or more objectives within the application.
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- Proposed projects must host a national conference on the regional issue of investigation.
- Educational components should focus on enhancing formal classroom instruction, laboratory instruction, and practicum experience. Activities may include faculty development, curriculum development, instructional materials and equipment, and innovative teaching methodologies to address climate change impacts in agriculture and forestry.
- Evaluation of educational 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 shown.
- Extension activities should enable individuals and groups to make informed decisions regarding the production and consumption of climate friendly agricultural goods and services.

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 2012, subject to availability of funds, approximately $264 million is 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 2012 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. AFRI funds may be used to support applications submitted to supplementary AFRI RFAs and/or solicitations for multi-agency programs in which AFRI is and will be participating.

NOTE: This RFA is being released prior to the passage of an Appropriations Act for FY 2012. 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 2012, subject to availability of funds, it is anticipated that approximately $12 million will be made available for support of 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 (page 35).

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 (page 24). 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 (page 35)) 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.

   Applicants submitting to Program Areas from the FY 2010 AFRI Climate Change Challenge Area RFA may resubmit applications to the appropriate Program Area, if offered in FY 2012, within this RFA.

All awards will be made as continuation and standard awards. A continuation award is an award instrument by which the Department agrees to support a specified level of effort for a predetermined period of time with a statement of intention to provide additional support at a future date provided that: 1) performance has been satisfactory, 2) appropriations are available for this purpose, and 3) continued support would be in the best interest of the Federal government and the public. Awardees are expected to

participate in rigorous post-award management activities to be determined by the Program Area Contacts at the formative stages of the project. A standard award is an award instrument by which the Department agrees to support a specified level of effort for a predetermined project period without the announced intention of providing additional support at a future date. Conference, Sabbatical, Equipment, and Seed Grants will be made as standard awards.

C. Project Types

Applications must propose one of the project types specified within the Program Area(s) and select the appropriate grant type for the application within the constraints of the grant types solicited. The project and grant types solicited in this Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA are indicated in the table below and described in the Program Area Description beginning in Part I, C (page 6).

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]					
		Standard	CAP	Planning/ Coordination	Conference	New Investigator	Strengthening Grants				
							Sabbatical	Equipment	Seed	Standard	CAP
Project Type	Research										
	Education										
	Extension										
	Integrated[2]	✓	✓		✓	✓	✓	✓	✓	✓	✓

[1] FASE Grants have special eligibility requirements. Refer to Part II, D. 4 (page 15) for eligibility and additional information.

The work proposed for all project types must address a specific Program Area Priority described under Program Area Descriptions beginning in Part I, C (page 6), and the application must be submitted directly to that program by the designated deadline date. Additionally, applicants must adhere to the Application and Submission Information beginning in Part IV (page 21) when preparing applications.

1. **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 develop human capital relevant to overall program goals for U.S. agriculture. An education or teaching activity is formal classroom instruction, laboratory instruction, and practicum experience in the food and agricultural sciences and other related matters such as faculty development, student recruitment and services, curriculum development, instructional materials and equipment, and innovative teaching methodologies.

      Educational activities may include any of the following: conducting classroom and laboratory instruction and practicum experience; faculty research internships for curricula development; cutting-edge agricultural science and technology curriculum development; innovative teaching

methodologies; instructional materials development; education delivery systems; student experiential learning (student led-research; internships; externships; clinics); student learning styles and student-centered instruction; student recruitment and retention efforts; career planning materials and counseling; pedagogy; faculty development programs; development of modules for on-the-job training; providing knowledge and skills for professionals creating policy or transferring to the agriculture workforce; faculty and student exchanges; and student study abroad and international research opportunities relevant to overall program goals for U.S. agriculture. Educational activities must show direct alignment with increasing technical competency in AFRI priority area(s) to ensure that U.S. agriculture remains globally competitive in the knowledge age.

Educational components must address one or two of the following key strategic actions:

- Train students for Associate, Baccalaureate, Master's or Doctoral degrees; and/or
- Prepare K-12 teachers and higher education faculty to understand and present food and agricultural sciences.

These projects should synthesize and incorporate a wide range of the latest relevant research results. Note that routine use of graduate students and postdoctoral personnel to conduct research is not considered education for the purposes of this program.

3) The proposed **extension** component of an Integrated Project should conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make practical decisions. Program delivery may range from community-based to national audiences and use communication methods from face-to-face to electronic or combinations thereof. Extension Projects may also include related matters such as certification programs, in-service training, client recruitment and services, curriculum development, instructional materials and equipment, and innovative instructional methodologies appropriate to informal educational programs.

   Extension activities address one or more of the following key strategic actions:

   - Support informal education to increase food and agricultural literacy of youth and adults;
   - Promote science-based agricultural literacy by increasing understanding and use of food and agricultural science data, information, and programs;
   - Build science-based capability in people to engage audiences and enable informed decision making;
   - Develop new applications of instructional tools and curriculum structures that increase technical competency and ensure global competitiveness;
   - 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
   - Develop programs that increase public knowledge and citizen engagement leading to actions that protect or enhance the nation's food supply, agricultural productivity, environmental quality, community vitality, and/or public health and well-being.

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

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. Those interested in submitting Integrated Project applications are encouraged to contact the appropriate Program Area Contact to discuss the anticipated project parameters and outcomes to ensure the application content appropriately meets the requirements of an Integrated Project.

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. **Coordinated Agricultural Project Grants**
   The Coordinated Agricultural Project (CAP) is a type of Research, Education, Extension, or Integrated Project that supports large-scale, multi-million dollar projects to promote collaboration, open communication, and the exchange of information; reduce duplication of effort; and coordinate activities among individuals, institutions, States, and regions. Integrated CAP Grants address problems through multi-function projects that incorporate at least two of the three components of the agricultural knowledge system (*i.e.*, research, extension, and education). Please note that there occasionally may be programs in which an Integrated CAP Grant is required to address all three components of the agricultural knowledge system. In a CAP, participants serve as a team that conducts targeted research, education, and/or extension in response to emerging or priority area(s) of national need. Applications articulate how a CAP will complement and/or link with existing programs or projects at the national level. A CAP contains the needed science-based expertise in research, education, and/or extension, as well as expertise from principal stakeholders and partners, to accomplish project goals and objectives. Applications should outline the potential of the project, the structure, coordination, and plan of implementation, and propose several research, education, and/or extension areas that will be evaluated during the study period. All Research, Education, Extension, and Integrated Project requirements described earlier apply to CAP Grants. CAP Grants are solicited by a limited number of Program Area Priorities. Note that Food and Agricultural Science Enhancement Grants (see Part II, D. 4 (page 15)) can be submitted to Program Areas that solicit CAP Grants. Refer to Part I, C (page 6) for Program Area Descriptions.

3. **Conference Grants**
   Conference Grants to support scientific meetings that bring together scientists to identify research, education, and/or extension needs, update information, or advance an area of science are recognized as integral parts of scientific efforts. 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. Indirect costs are not permitted on Conference Grant awards. AFRI will not support conferences that have already occurred. If there is a short interval from the application deadline date and the conference date (*i.e.,* six months or less), the PD must contact the Program Area Contact to inquire about the possibility of an expedited review.

4. **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. Pre- and Postdoctoral Fellowship Grants

Doctoral candidates and individuals who will soon receive or have recently received their doctoral degree are encouraged to submit an application for a Pre- or Postdoctoral Fellowship Grant, as appropriate, for research, education, extension, or integrated activities to the NIFA Fellowships Grant program. Program information, including the anticipated RFA release date, is available at www.nifa.usda.gov/afri.

b. 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 NRI or AFRI Seed Grants. The application must contain documentation that lists all prior Federal support. The work proposed for New Investigator Grants must address a specific Program Area Priority described under Program Area Descriptions in Part I, C (page 6), and the application must be submitted directly to that Program Area by the designated deadline date.

c. 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. The work proposed for Strengthening Grants must address a specific Program Area Priority described under Program Area Descriptions in Part I, C (page 6), and the application must be submitted directly to that Program Area by the designated deadline date. 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 (page 48) to assist with determining eligibility for Strengthening Grants.

2) Strengthening Grant Eligibility Definitions

a) **EPSCoR States**

Every year, NIFA determines the states that are eligible for USDA EPSCoR funding. This list includes states having a funding level no higher than the 38th percentile of all States based on a 3-year rolling average of AFRI and/or NRI funding levels, excluding FASE Strengthening funds granted to EPSCoR States and small-mid-sized and minority-serving degree-granting institutions. Since this is the third year for the AFRI program and complete award data is not available, the eligibility determinations are based on the data obtained from grants made through the National Research Initiative program from 2008 and the AFRI program from 2009 through 2010. For FY 2012, the following States meet the requirements for this category:

FY 2012 USDA EPSCoR States		
Alabama	Montana	South Carolina
Alaska	Nevada	South Dakota
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 2012 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** are academic institutions with a current total enrollment of 17,500 or less, including graduate and undergraduate as well as full- and part-time students. An institution in this instance is an organization that possesses a significant degree of autonomy as defined by being independently accredited in the current version of the Higher Education Directory, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300; www.hepinc.com).

c) **Minority-serving institutions** are academic institutions whose enrollment of a single minority group or a combination of minority groups (as defined in Part VIII (page 44)) exceeds 50 percent of the total enrollment, including graduate and undergraduate as well as full- and part-time students.

Applicants applying under this category should indicate the current percentage of applicable minority students enrolled at the institution in a cover letter. An institution in this instance is an organization that possesses a significant degree of autonomy as defined by being independently accredited in the current version of the Higher Education Directory, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300; www.hepinc.com). 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** is defined as institutions that are not among the most successful universities and colleges for receiving Federal funds for science and engineering research and development. See Table 1 following Part VIII (page 45) for an alphabetical list of the most successful institutions.

All institutions grouped under one main campus as listed in Table 1 following Part VIII (page 45), 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 (page 19).

3) Strengthening Grant Types

An individual applicant may submit only one of the following types of strengthening applications (Sabbatical Grants, Equipment Grants, and Seed Grants) as PD this fiscal year. Investigators are encouraged to contact the Program Area Contact of the appropriate

program, regarding suitability of project topics to verify that their submission is appropriate to the program. For Equipment Grants, investigators are also encouraged to contact the appropriate Program Area Contact regarding appropriateness of requested equipment for topics within program requirements.

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 (page 21), 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 (page 20), it is the responsibility of the PD to secure required matching funds with non-Federal funds (see Part III, C (page 20) 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 and Strengthening CAP Grants**
Standard Grant and Strengthening CAP Grant applications that meet the eligibility requirements for Strengthening Grants are eligible for reserved strengthening funds as a Strengthening Standard Grant and Strengthening CAP Grant. The eligibility requirements only apply to the lead PD and are not required for co-PD(s) associated with the project.

PART III – ELIGIBILITY INFORMATION

A. Eligible Applicants

Applicants must respond to the Program Area Priorities and deadlines found in the FY 2012 RFA. Grant recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project.

1. **Integrated Projects**
   Since only Integrated Projects are being solicited under this RFA, eligible applicants for the Integrated Projects include: 1) colleges and universities; 2) 1994 Land-Grant Institutions; and 3) Hispanic-serving agricultural colleges and universities.

   For Integrated Programs, 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.

2. **Hispanic-serving Agricultural Colleges and Universities**
   Section 7101 of the Food, Conservation, and Energy Act of 2008 (Pub. L. 110-246) amended section 1404 of NARETPA (7 U.S.C. 3103) to create a definition for a new group of cooperating institutions: 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 2012 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 October 15, 2011, a list of the institutions certified and therefore eligible to apply as HSACUs for grants under FY 2012 RFAs, including this RFA, will be made available at http://www.nifa.usda.gov/nea/education/pdfs/hsacu_institutions_11_12.pdf. Institutions appearing on this list are granted HSACU certification by the Secretary for the period starting October 1, 2011, and ending September 30, 2012. Certifications are valid for FY 2012 only. By August 2012, a new list of certified HSACUs will be made available for FY 2013. 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) 570-7410.

3. **Food and Agricultural Science Enhancement Grants**
   The Food and Agricultural Science Enhancement (FASE) Grants have additional eligibility requirements. See Part II, D. 4 (page 15) for details.

B. Request for Determination

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. c (page 167), but does not serve one or more of the minority groups specified in the Definitions section of this RFA (see Part VIII, H (page 44)), the applicant must submit to NIFA documentation supporting the request. This documentation must be submitted as part of the requestor's Letter of Intent (if required) and with the application package 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 be attached to the Letter of Intent and to the final application. The following information must 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.

All institutions grouped under one main campus as listed in Table 1 following Part VIII (page 45), unless located in an EPSCoR state (listed in Part II, D. 4. a. 2) e) (page 16)), 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.

C. Cost Sharing or Matching

For Equipment Grants: The amount of Federal funds provided may not exceed 50 percent of the cost of the equipment acquired using funds from the grant, or $50,000, whichever is less. 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 (page 46) 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.

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.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. Letter of Intent Instructions

All Program Areas within the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area require a Letter of Intent for submission of an application. Refer to the Program Area Descriptions beginning in Part I, C (page 6) for Letter of Intent deadlines for a specific Program Area.

Failure to follow the guidelines below may result in the Letter of Intent being removed from consideration.

1. The Letter of Intent must adhere to the following formatting 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.

2. The Letter of Intent is limited to **two pages** for all project and grant types, except for Coordinated Agricultural Project (CAP) Grants for which three pages are allowed.
   a. On Page 1 provide **only** 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; and
      ii. the Program Area and the Priority Area within that Program Area most closely addressed in the application.
   b. On Page 2 (or Pages 2-3 for CAP only) include:
      i. a descriptive title
      ii. rationale
      iii. overall hypothesis or goal
      iv. specific objectives
      v. approach
      vi. potential impact and expected outcomes

3. NIFA will only accept Letters of Intent in the portable document format (PDF). Attach the PDF Letter of Intent to an email addressed to the Program Area Contact listed for that Program Area In the email subject line write: *Letter of Intent [Program Area Code] _ [PDs Last Name].*

4. For those programs requiring a Letter of Intent, a letter is required for **all** grant types except Conference Grant applications. See Part II, D (page 135) for a detailed description of grant types.

5. Submission of more than one Letter of Intent to a program is discouraged.

6. An acknowledgement receipt will be sent by replying to the sender within 5 business days.

7. Letters of Intent will be reviewed by scientific program staff in order to plan for appropriate expertise for the peer review panel and ensure that the proposed project fits appropriately within the Program Area Priorities.

8. Within three weeks after the Letter of Intent deadline, the PD will receive a response from the Program Area Contact.

9. Where a Letter of Intent is required, applications submitted without a prior Letter of Intent submission will not be reviewed.

10. 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

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-003537** 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.

C. Content and Form of Application Submission

Electronic applications must be prepared following Part 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 A. 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.

1. **Attachment Requirements**
   NIFA will only accept attachments in PDF. See Part III of the NIFA Grants.gov Application Guide. SUBMITTED APPLICATIONS THAT DO NOT MEET THESE REQUIREMENTS FOR PDF ATTACHMENTS WILL NOT BE REVIEWED. If you do not own PDF-generating software, Grants.gov provides online tools to assist applicants at http://www.grants.gov/agencies/software.jsp#3.

NOTE: DO NOT use the "Assemble Files into a PDF Package" feature of Adobe Acrobat Professional. This will prevent reviewers from reading the files. Use the "Merge Files into a Single PDF" feature.

Submitted PDF documents must adhere to the following formatting guidelines:

- Font size must be at least 12 point;
- Margins must be at least one inch in all directions;
- Line spacing must not exceed six lines of text per vertical inch;
- Follow the page limitations for each attachment;
- Number pages sequentially for each attachment;
- Title each attachment in the document header and save each file with the referenced name;
- The PDF attachment must **NOT** be password protected;
- File names of PDF attachments must be limited to 50 characters, may not include special characters (*e.g.*, #, $, %, &, *, -, /, ', "), periods (.), blank spaces, or accent marks and must be unique (*i.e.*, no other attachment may have the same file name). An underscore (example: my_Attached_File.pdf) may be used to separate a file name; and
- Do not use special characters (*e.g.*, #, $, %, &, *, -, /, ', ") when completing the forms within the Grants.gov application package. Use of special characters is acceptable within the text of the PDF attachments to the application.

Note: It is important to compress PDF attachments (especially those that include scanned files) prior to uploading into the Grants.gov application package to control the overall file size.

2. **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. While AFRI is not accepting pre-applications in FY 2011 in any of the programs, the Program Areas under this RFA require a Letter of Intent. See the Program Area Descriptions in Part I, C (page 6) and Part IV, A (page 21) for more details.

3. **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.

4. **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? and 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 Project Summary is limited to **250 words**. Title the attachment as 'Project Summary' in the document header and save file as 'ProjectSummary'.

A recommended template for the Project Summary/Abstract can be found at: http://www.nifa.usda.gov/funding/templates/project_summary.doc.

The Project Summary must list the names and institutions of the PD and co-PDs and **indicate which specific FY 2011 Program Area Priority(ies) the proposed project addresses**. Program Area Priorities are stated within each Program Area Description; see Part I, C (page 6). 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. 18-Page or 7-Page Limit** (explained below). Title the attachment as 'Project Narrative' in the document header and save file as 'ProjectNarrative'.

For Standard Integrated, Coordinated Agricultural Project, Conference, New Investigator, and Strengthening Standard, and Strengthening CAP Grant applications, the Project Narrative section may not exceed a total of 18 pages with 12-point font and line spacing not exceeding six lines of text per vertical inch, including all figures and tables.

For Sabbatical, Equipment, and Seed Grant applications, the Project Narrative section may not exceed a total of 7 pages with 12-point font and line spacing not exceeding six lines of text per vertical inch, including all figures and tables.

To ensure fair and equitable competition, applications exceeding the applicable page limitation will be returned without review.

Each Project Narrative is expected to be complete; however, preprints (see Part IV, C. 4. g (page 28)) 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 (page 12). The Project Narrative attachment should include 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 7- or 18-page Project Narrative, as required (see section c above).

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 Part IV, C. 4. d (page 26)).

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 (page 1). Any novel ideas or contributions that the proposed project offers should also be discussed in this section.

4) Approach
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 Integrated Project Applications –*

- Integrated Project applications must 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.
- 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).
- 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.
- In addition to the Project Narrative requirements above, the proposed Integrated Project should clearly articulate:
  - Stakeholder involvement in project development, implementation, and evaluation, where appropriate;
  - 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 (page 13)); and
  - A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.
- 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.

☼ *For Conference Grant Applications* – In addition to the Project Narrative requirements above, substitute the following in the Approach section:

- 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* – In addition to the Project Narrative requirements above, substitute the following in the Approach section:

- A general description of the research, education, 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* – In addition to the Project Narrative requirements above, 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, 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'.

In addition to describing available equipment, items of nonexpendable equipment necessary to conduct and successfully complete the proposed project should be listed in Field C. of the R&R Budget and described in the Budget Justification (Field K. of the R&R Budget).

g. ***Field 12. Other Attachments***

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, however, please refer to Part I, C (page 6) of this RFA to determine which project types are requested under each Program Area Description. Also please see Part II (page 13) 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 be attached in the R&R Senior/Key Person Profile described in Part IV, C. 5 (page 28). If it will be necessary to enter into formal consulting or collaborative arrangements with others, such arrangements should be fully explained and justified. If the consultant(s) or collaborator(s) are known at the time of application, a biographical sketch should be provided in the R&R Senior/Key Person Profile. Collaborators simply providing services or materials should not be listed in the R&R Senior/Key Person Profile and a biographical sketch is not required. Evidence (letters of support) for this type of collaboration should be provided in the 'Documentation of Collaboration' (see number 5 below).

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

3) *Logic Model* – **PDF Attachment. Required for Integrated Projects. 2-Page Limit.** Title the attachment as 'Logic Model' and save file as 'LogicModel'.

   Applications proposing Integrated Projects must 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 before 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 www.nifa.usda.gov/funding/integrated/integrated_logic_model.html.

4) *Management Plan* – **PDF Attachment. Required for Integrated Projects and Coordinated Agricultural Project (CAP) Grants. 3-Page Limit.** Title the attachment as 'Management Plan' and save file as 'ManagementPlan'.

   The application must contain a clearly articulated project management plan to ensure efficient functioning of the team that includes 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. Applications must include a plan for sustaining the program beyond the termination of the project.

The management plan should 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 letters of commitment (in Documentation of Collaboration below), 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. The applicant also will be required to provide additional information on consultants and collaborators in the budget portion of the application.

☼ *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 should 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.

5. **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.

A Senior/Key Person Profile should be completed for the PD and each co-PD, senior associate, and other professional personnel, including collaborators playing an active role in the project. Collaborators only providing services or materials should not be listed in the R&R Senior/Key Person Profile. Evidence (letters of support) for this type of collaboration should be provided in the Documentation of Collaboration (see Part IV, C. 4. g. 5 (page 28)).

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. ***Other Project Role Category Field*** – Complete appropriately, if applicable.

c. ***Attach Biographical Sketch Field*** **– PDF Attachment. 2-Page Limit** (excluding publications listings) per PD, co-PD, senior associate, and other professional personnel. Title the attachment as 'Biographical Sketch' in the document header and save file as 'BiographicalSketch'.

A biographical sketch (vitae) of the PD and each co-PD, senior associate, and other professional personnel should be included.

The Conflict of Interest list should not be included in the biographical sketch, but it must be provided as a separate document; see Part IV, C. 8. c (page 32) for more information.

☼ *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.

d. ***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'.

A recommended template for the Current and Pending Support can be found at: http://www.nifa.usda.gov/funding/templates/current_pending.doc.

Current and Pending Support information is only required for personnel with PD or co-PD indicated as their Project Role on the R&R Senior/Key Person Profile. All applications must contain a list of all Current and Pending Support detailing public or private support (including in-house support) to which personnel identified in the application have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Please note that the project being proposed should be included in the pending section of the form. Total project time listed for each PD should be indicated as percent effort and not exceed 100% for concurrent projects.

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* – Current and Pending Support for both the Sabbatical Grant applicant and the scientific host(s) (as documentation of on-going work in the host's laboratory) must be completed.

☼ *For Equipment Grant Applications* – Current and Pending Support for both the Equipment Grant applicant and other major users of the equipment must be completed. If the applicant has significant funding from other sources, a justification must be provided in the Project Narrative for how this equipment will strengthen the applicant's research program or institution.

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

7. **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 for the entire duration of the proposed project. Annual and cumulative budgets are required.

If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings for the duration of the award (excluding Conference, Sabbatical, and Equipment Grant applications). Seed Grant awardees are required to attend beginning in the second year of funding. Reasonable travel expenses should be included as part of the project budget.

☼ *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 Grant Applications* – The budget for the conference may include an appropriate amount for transportation and subsistence costs for participants and for other conference-related costs. Conference awards are not expected to exceed $50,000 and are not renewable. Indirect costs are not permitted on Conference Grant awards. Include an itemized breakdown of all support requested from the AFRI in the Budget Justification (Field K. of the R&R Budget).

☼ *For Sabbatical Grant Applications* – Limit to one year of salary and funds for travel and supplies.

☼ *For Equipment Grant Applications* – Each request shall be limited to one major piece of equipment within the cost range of $10,000-$250,000. Equipment grants are not renewable. The amount requested shall not exceed 50 percent of the cost or $50,000, whichever is less. Unless waived, it is the responsibility of the PD to secure the required matching funds with non-Federal funds (see Part III, C (page 20) for more information). No installation, maintenance, warranty, or insurance expenses may be paid from these awards, nor may these costs be part of the matching funds. Indirect costs are not permitted on Equipment Grant awards.

☼ *For Seed Grant Applications* – These awards will be limited to a total of $150,000 (including indirect costs) for two years and are not renewable.

b. *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 (page 32) for additional information.

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

All cumulative budget categories, with the exception of Indirect Costs, for which support is requested must be individually listed (with costs) in the same order as the cumulative budget. NOTE: For continuation awards, all budget categories for year one must also be fully justified. If consulting, collaborative, or subcontractual arrangements are included in the application, these arrangements should be fully explained and justified. The rate of pay for any consultant must be included, if known at the time of application. Please include a cost breakdown for the consultant, including the number of days in service, travel, and per diem, as well as the rate of pay. Letters of consent or collaboration and other evidence should be provided in the Documentation of Collaboration (see Part IV, C. 4. g. 5

(page 28)) to show that collaborators have agreed to participate. 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 Integrated Project Applications* – Each function should be represented by one or more objectives within the application. Projects must budget sufficient resources to carry out the proposed set of research, education, and/or extension 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.

☼ *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. A letter signed by the institution's AR stating that the necessary non-Federal matching funds will be made available from an institutional or other source is required. An institution that believes it is eligible for the waiver of the matching funds should include a letter stating and documenting the eligibility that is signed by the institution's AR (see Table 2 following Part VIII for eligibility). A justification must be given for how this equipment will strengthen the applicant's research program or institution.

d. Subcontract Arrangements

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 and a budget justification are required for each subcontract agreement. Refer to Part V, 8. of the NIFA Grants.gov Application Guide for instructions on completing this form.

e. Matching

Equipment Grants requiring matching funds, as specified in Part III, C (page 20), must include a letter in the budget justification signed by the institution's AR stating that the necessary non-Federal matching funds will be made available from the institution or other source. The amount of Federal funds provided may not exceed 50 percent of the cost of the equipment acquired using funds from the grant, or $50,000, whichever is less. Grantees are required to match 100% of federal funds awarded from non-Federal sources. If the institution believes it is eligible for the waiver for matching funds (see Part III, C (page 20) for waiver eligibility), the budget justification must include a letter signed by the institution's AR stating this information. NIFA will consider this justification when ascertaining final matching requirements or in determining if required matching can be waived. NIFA retains the right to make final determinations regarding matching requirements.

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.

8. **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 1. Funding Opportunity*** **–** Funding Opportunity Name is pre-populated with "Agriculture and Food Research Initiative" and "**USDA-NIFA-AFRI-003537**" for Funding Opportunity Number in Field 1.

b. ***Field 2. Program to which you are applying*** **–** Enter the Program Code Name and the Program Code for the Program Area to which you are applying from the information provided in the Program Area Descriptions beginning in Part I, C (page 6). An application can only be submitted to one program. It is extremely important that the Program Code Name and Program Code are spelled correctly and match this RFA. If you have a question about which topic area is appropriate for your application, please contact the Program Area Contact.

c. ***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'.

A Conflict of Interest List is required for all applications submitted to AFRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume. A Conflict of Interest List must be completed individually for all personnel who have submitted a Biographical Sketch in the R&R Senior/Key Personnel Profile. **Collate all individual Conflict of Interest lists into a single document file.** The lists can only be submitted as a single PDF attachment.

A recommended template for the Conflict of Interest List can be found at: http://www.nifa.usda.gov/funding/templates/conflict_of_interest.doc.

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

D. Submission Dates and Time

Electronic applications must be submitted via Grants.gov by 5:00 p.m. ET on the dates indicated in the Program Area Descriptions beginning in Part I, C (page 6). **Applications received after the applicable deadlines will not be reviewed.**

E. Funding Restrictions

Pursuant to Section 720 of the General Provisions to the Consolidated and Continuing Appropriations Act, 2012 (Pub. L. 112-55), indirect costs are limited to 30 percent of the total Federal funds provided under each award. Therefore, when preparing budgets, applicants should 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).

F. Other Submission Requirements

1. Proper Application Submission

The applicant must follow the submission requirements noted in the document entitled "A Guide for Preparation and Submission of NIFA Applications via Grants.gov."

Described below are the requirements for successful submission of an application, all of the following steps must be met for an application to be considered for peer review:

1. Meeting the deadline:
   To electronically send the application to Grants.gov the submit button is hit, which triggers a date and time stamp on the application. Note that there can be a slight delay between pressing the submit button and generation of the time stamp at Grants.gov, so please submit your application well in advance of the deadline. The date and time stamp is used to determine whether the application was received by Grants.gov before the deadline, which is 5:00 p.m. Eastern Time on the dated specified in the Program Area Description beginning in Part I, C (page 6). An application submitted or resubmitted after the deadline is late. Consideration of late applications is only given in extenuating circumstances (*e.g.*, natural disasters, confirmed Grants.gov outage) with proper documentation and support of the Agency Contact; see Part VII (page 41). The occurrence of one of these situations does not automatically ensure that a late application will be accepted. If an applicant wants a late application considered under an extenuating circumstance, the applicant should contact the Agency Contact accordingly.
2. Successful Grants.gov validation:
   The Grants.gov system performs a limited check of the application, and applicants are notified by Grants.gov of the outcome of the initial review. **Beginning August 9, 2011, the Grants.gov validation process will include a check for an active Central Contract Registry (CCR) registration (applicants with expired CCR registrations will be rejected)**. Applications meeting Grants.gov requirements are made available to the funding agency for further processing. Applications that fail Grants.gov validation may be resubmitted to Grants.gov if the original agency deadline has **NOT** passed. Note that the Grants.gov system may allow applications to be submitted after the deadline has passed, but the application is considered late by NIFA.
3. Successful Agency validation:
   NIFA staff perform precursory review of the application. The agency validation process includes, for example, meeting eligibility requirements and following agency application guidelines (*e.g.*, formatting, page limitations, and limits on budget requests). Applicants are notified by NIFA of the outcome of this review.

2. Application Status

After an application is submitted, the AR will receive a series of four e-mails. The titles of the four e-mails are:

#1 – Grants.gov Submission Receipt Number
#2 – Grants.gov Submission Validation Receipt for Application Number
#3 – Grants.gov Grantor Agency Retrieval Receipt for Application Number
#4 – Receipt of Grant Application Number for Review at USDA

It is extremely important that the AR watch for and save each of the e-mails. The Grants.gov validation (e-mail #2) may take up to two business days from application submission. Please plan accordingly and submit early. Receipt of e-mail #4 by the AR indicates the application reached NIFA, USDA. To track a submission, use the Submission Receipt Number in e-mail #1.

Receipt of the four e-mails does not indicate the application has been accepted for review. The AR and/or PD will be notified in a two subsequent e-mail if the application has been accepted or

declined for program review. If accepted, the application will be assigned a NIFA application number (e.g., 2011-XXXXX). This number should be cited on all future correspondence.

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 (page 41)) 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.

3. **Multiple Submissions**

Duplicate, essentially duplicate, or predominantly overlapping applications submitted to one or more program areas within the AFRI program (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 be eliminated from program competition and will not be reviewed. Second, a review panel will technically evaluate applications that meet these 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.

Reviewers will be selected based upon their training and experience in relevant research, education, or extension fields, taking into account the following factors: (a) the level of relevant formal research, 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 research, 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.

B. Evaluation Criteria

Projects supported under this program shall be designed, among other things, to accomplish one or more of the purposes of agricultural science, 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. **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.

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) 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.

2. **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.

3. **New Investigator, Strengthening Standard, and Strengthening CAP Grant Applications**

Refer to the review criteria listed above for the applicable Integrated Grant Applications.

4. **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., 6400 Arlington Boulevard, Suite 648, Falls Church, VA 22042. Phone: (703) 532-2300. Web site: 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 permanently. 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.

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 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 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.

If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings (excluding Planning/Coordination, 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.

For informational purposes, the "Federal Financial Report," Form SF-425, consolidates into a single report the former Financial Status Report (SF-269 and SF-269A) and the Federal Cash Transactions Report

(SF-272 and SF-272A). The NIFA Agency-specific Terms and Conditions include the requirement that Form SF-425 is due on a **annual basis no later than 90 days following the award's anniversary date *(i.e.*, one year following the month and day of which the project period begins and each year thereafter up until a final report is required). A final "Federal Financial Report," Form SF-425, is due 90 days after the expiration date of this award.**

PART VII – AGENCY CONTACTS

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

AFRI Program Office:
Dr. Franklin E. Boteler, Assistant Director, Institute of Bioenergy, Climate, and Environment
Dr. Robert E. Holland, Assistant Director, Institute of Food Safety and Nutrition
Dr. Deborah Sheely, Assistant Director, Institute of Food Production and Sustainability
Telephone: (202) 401-5022
Fax: (202) 401-6488
E-mail: AFRI@nifa.usda.gov

For general questions related to the Agriculture and Natural Resources Science for Climate Variability and Change Challenge Area RFA, applicants and other interested parties are encouraged to contact:

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

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

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

Program Area	Program Area Contacts:
Integrated Approaches to Climate Adaptation and Mitigation in Agroecosystems	Diana Jerkins – (202) 401-6996; djerkins@nifa.usda.gov Michael Bowers – (202) 401-4510; mbowers@nifa.usda.gov Daniel Cassidy – (202) 401-6444; dcassidy@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 Fen Hunt – (202) 720-4114; fhunt@nifa.usda.gov Mervalin Morant – (202) 401-6602; mmorant@nifa.usda.gov Eric Norland – (202) 401-5971; enorland@nifa.usda.gov Mary Ann Rozum – (202) 401-4533; mrozum@nifa.usda.gov Louie Tupas – (202) 401-4926; ltupas@nifa.usda.gov
Regional Approaches for Adaptation to and Mitigation of Climate Change	Ray Knighton (202) 401-6412; rknighton@nifa.usda.gov Michael Bowers – (202) 401-4510; mbowers@nifa.usda.gov Daniel Cassidy – (202) 401-6444; dcassidy@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 Rob Hedberg (202) 720-5384; rhedberg@nifa.usda.gov Fen Hunt – (202) 720-4114; fhunt@nifa.usda.gov Diana Jerkins – (202) 401-6996; djerkins@nifa.usda.gov Peter Johnson (202) 401-1896; pjohnson@nifa.usda.gov Ed Kaleikau – (202) 401-1931; ekaleikau@nifa.usda.gov Mervalin Morant – (202) 401-6602; mmorant@nifa.usda.gov Eric Norland – (202) 401-5971; enorland@nifa.usda.gov Mary Ann Rozum – (202) 401-4533; mrozum@nifa.usda.gov Adele Turzillo - (202) 401-4336; aturzillo@nifa.usda.gov Steven Smith – (202) 401-6135; ssmith@nifa.usda.gov LouieTupas (202) 401-4926; ltupas@nifa.isda.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, Standard Grants (including New Investigator and Strengthening eligible grants) may be allowed for a competitive renewal. Renewal applications require full competition with other applications and will be considered provided that 1) performance has been satisfactory, 2) appropriations are available for this purpose, and 3) continued support would be in the best interest of the Federal government and the public.

(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; however, withdrawn applications normally will not be returned. 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 2011 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:

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.

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., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042.

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., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300).

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 rolling 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)	Purdue University (all campuses)	University of Massachusetts, Worcester
Baylor College of Medicine	Rockefeller University	University of Miami
Boston University	Rutgers, The State University of New Jersey (all campuses)	University of Michigan (all campuses)
Brown University	Stanford University	University of Minnesota (all campuses)
California Institute of Technology	State University of New York, Stony Brook (all campuses)	University of Missouri, Columbia
Carnegie Mellon University	Johns Hopkins University	University of New Mexico (all campuses)
Case Western Reserve University	Scripps Research Institute, The	University of North Carolina, Chapel Hill
Colorado State University	Tufts University	University of Oklahoma (all campuses)
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 Health Science Center, Houston
George Washington University	University of California, San Diego	University of Texas Health Science Center, San Antonio
Georgetown University	University of California, San Francisco	University of Texas M.D. Anderson Cancer Center
Georgia Institute of Technology (all campuses)	University of California, Santa Barbara	University of Texas Medical Branch
Harvard University	University of Chicago	University of Texas Southwestern Medical Center, Dallas
Indiana University (all campuses)	University of Cincinnati (all campuses)	University of Texas, Austin
Iowa State University	University of Colorado (all campuses)	University of Utah
Louisiana State University (all campuses)	University of Connecticut (all campuses)	University of Vermont
Massachusetts Institute of Technology	University of Florida	University of Virginia (all campuses)
Medical College of Wisconsin	University of Georgia	University of Washington
Medical University of South Carolina	University of Hawaii, Manoa	University of Wisconsin, Madison
Michigan State University	University of Hawaii, System Office	Utah State University
Mount Sinai School of Medicine	University of Illinois, Chicago	Vanderbilt University
New York University	University of Illinois, Urbana-Champaign	Virginia Commonwealth University
North Carolina State University	University of Iowa	Virginia Polytechnic Institute and State University
Northwestern University	University of Kansas (all campuses)	Wake Forest University
Ohio State University (all campuses)	University of Kentucky (all campuses)	Washington University, St. Louis
Oregon Health & Science University	University of Maryland, Baltimore	Wayne State University
Oregon State University	University of Maryland, College Park	Yale University
Pennsylvania State University (all campuses)	University of Massachusetts, Amherst	Yeshiva University
Princeton University		

*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 2007 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 19) 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	Georgetown College	Radford University
Adams State College	Gettysburg College	Randolph-Macon College
Agnes Scott College	Gonzaga University	Regis College
Albany College of Pharmacy	Goucher College	Regis University
Albion College	Graceland University	Rhodes College
Allan Hancock College	Green River Community College	Rivier College
Allegheny College	Grossmont-Cuyamaca Community College district office	Rockhurst University
Alma College	GU Community College	Rollins College
American University PR	Gustavus Adolphus College	Roosevelt University
Angelo State University	Gwynedd-Mercy College	Russell Sage College all campuses
Anne Arundel Community College	Hampshire College	Rust College
AR Tech University	Hartwick College	Sacred Heart University
Arcadia University	Haywood Community College	Saginaw Valley State University
Armstrong Atlantic State University	Henderson State University	Salisbury University
Asnuntuck Community College	Hendrix College	Salt Lake Community College
Augustana College (Rock Island, IL)	Heritage College (Las Vegas, NV)	Sam Houston State University
Augustana College (Sioux Falls, SD)	Heritage University (Toppenish, WA)	Samford University
Avila University	HI Pacific University	Samuel Merritt College
Azusa Pacific University	Hinds Community College (Raymond, MS)	San Jacinto College
Babson College	Hollins University	Santa Fe Community College (Gainesville, FL)
Bard College	Holy Family University	Science and Engineering Alliance, In College
Bellarmine University	Hood College	Shelton State Community College
Bellin College of Nursing	Howard Community College	Shenandoah University
Belmont University	Husson College	Shippensburg University PA
Beloit College	IA Valley Community College District	Siena Heights University
Berea College	IL Valley Community College	Sierra College
Berry College	IL Wesleyan University	Skidmore College
Bethel College (Mishawaka, IN)	Immaculata University	Slippery Rock University PA
Bethel College (North Newton, KS)	Indian River Community College	Sojourner-Douglas College
Bethel College and Seminary all campuses	Indiana University PA all campuses	Southeastern University
Blackhawk Technical College	Iona College	Southern AR University all campuses
Bloomsburg University PA	John Carroll University	Southern CA College of Optometry
Brenau University	Juniata College	Southern CT State University
Brescia University	Kalamazoo College	Southern Nazarene University
Bridgewater State College	Kean University	Southern Polytechnic State University
Bristol Community College	Kettering University	Southern VT College
Brookdale Community College	LaGuardia Community College CUNY	Southwest FL College
Buena Vista University	Lake Forest College	Southwest TX Jr. College
CA Institute of the Arts	Lake MI College	Southwestern OR Community College
CA State University Stanislaus	Laramie County Community College	Spalding University
Calhoun Community College	Le Moyne-Owen College	Spartanburg Technical College
Canisius College	Le Tourneau University	St. Catharine College
Capital University	Lebanon Valley College	St. Cloud State University
Caribbean University	Lee College	St. Francis University (Loretto, PA)
Carl Albert State College	Lee University	St. John Fisher College
Carlow University	Lewis and Clark College	St. Joseph College (West Hartford, CT)
Carroll College (Helena, MT)	Lewis University	St. Joseph's College NY all campuses
Carroll College (Waukesha, WI)	Lewis-Clark State College	St. Lawrence University
Carteret Community College	Little Priest Tribal College	St. Mary's University (San Antonio, TX)
Central College	Los Angeles Community College district office	St. Mary's University MN
Central CT State University	Los Angeles Valley College	St. Norbert College
Central ME Community College	Loyola College	St. Paul's College (Lawrenceville, VA)
Central MO State University	Loyola University New Orleans	St. Vincent College
Central VA Community College	Lurleen B. Wallace Community College	St. Xavier University
Central WY College	MA College of Liberal Arts	State Ctr. Community College District
Century Community and Technical College	Macomb Community College	Stetson University
Cerritos College	Malone College	Strayer University
Chaminade University Honolulu	Manhattan College	Suffolk University
Chapman University	Marian College Fond du Lac	SUNY College Cortland
Charleston Southern University	Marist College	SUNY College Geneseo
Chatham College	Mary Baldwin College	SUNY College of Technology Alfred
Chemeketa Community College	Marymount University	SUNY College Potsdam
Chesapeake College	Marywood University	SUNY Farmingdale
Cheyenne River Community College	Mayo Graduate School	SUNY New Paltz
Christian Brothers University	Mayville State University	Susquehanna University
Cincinnati State Technical and Community College	Mercy College	Sweet Briar College
Citadel Military College SC	Meredith College	Tacoma Community College
City Colleges Chicago all campuses	Mesa State College	Taylor University
Clarke College	Metropolitan State College Denver	Technical College of the Lowcountry

Clarkson College	Metropolitan State University	Thomas Edison State College
Clatsop Community College	Miami Dade College	Three Rivers Community College
CO College	Middle TN School of Anesthesia	Touro College
CO State University Pueblo	Midwestern State University	Trinity College (Hartford, CT)
Coastal Bend College	MN State University Mankato	Troy State University central office
Coastline Community College	Moberly Area Community College	Troy University main campus
Cochise College	Mohave Community College	Tusculum College
Colby College	Molloy College	TX A&M University Commerce
Colby Community College	Monterey Peninsula College	Union University
College DuPage	Moore College of Art and Design	Universidad del Turabo
College Eastern UT	Moravian College	University Central OK
College Misericordia	Morris Brown College	University HI West Oahu
College New Rochelle	Mountain Empire Community College	University Houston-Clear Lake
College NJ, The	Mountain State University	University Indianapolis
College of Notre Dame MD	MS College	University LA system office
College of Our Lady of the Elms	MS Gulf Coast Community College	University North AL
College of St. Catherine	MS University for Women	University of St. Francis (Ft. Wayne, IN)
College of the Atlantic	Mt. Sacred Heart College	University of St. Francis (Joliet, IL)
College of the Canyons	Mt. St. Mary College (Newburgh, NY)	University of the Incarnate Word
Community College Allegheny County central office	Mt. St. Mary's University	University of the South
Community College Aurora	Muskegon Community College	University Phoenix
Community College Philadelphia	NAES College Chicago	University PR La Montana Regional College
Concordia College (Moorhead, MN)	Nashville State Technical Community College	University Puget Sound
Concordia University (Mequon, WI)	National College of Naturopathic Medicine	University Sioux Falls
Cornell College	Nazareth College Rochester	University System of GA
Crown College (Bible College, MN)	NC Community College system	University Tampa
CUNY Baruch College	ND State College of Science	University TN Space Institute
CUNY John Jay College of Criminal Justice	NE Indian Community College	University West GA
CUNY Medgar Evers College	New York City College of Technology/CUNY	University WI Parkside
CUNY Queensborough Community College	Newman University	UniversityS. Naval Academy
Cuyahoga Community College all campuses	Nicholls State University	Ursuline College
Dakota Wesleyan University	NM Jr. College	UT Valley State College
Danville Community College	Normandale Community College	VA College (Lynchburg, VA)
Delta State University	North Park University	VA Community College system office
Denison University	Northeast State Technical Community College	VA Wesleyan College
DePauw University	Northland College	Valdosta State University
Des Moines Area Community College	Northwest Nazarene University	Viterbo University
Dickinson State University	Northwestern Health Sciences University	Wabash College
Dominican College Blauvelt	Norwich University all campuses	Wagner College
Dowling College	NY Law School	Wake Technical Community College
D-Q University	OH Northern University	Waldorf College
Drury University	OH Wesleyan University	Walsh College of Accountancy and Business Administration
D'Youville College	Okaloosa Walton College	Washington and Lee University
Eastern IA Community College District	Oklahoma City Community College	Washington College
Eastern OR University	Otterbein College	Wenatchee Valley College
El Camino College	Ouachita Baptist University	Wesley College (Dover, DE)
Elizabethtown College	Pacific Graduate School of Psychology	West Chester University PA
Elmhurst College	Pacific Lutheran University	West Los Angeles College
Emerson College	Pacific University	Western Carolina University
Emporia State University	Paine College	Western New England College
Evergreen Valley College	Paul Smith's College of Arts and Sciences	Western OK State College
Fairfield University	Peninsula College	Westminster College (Salt Lake City, UT)
Fairleigh Dickinson University all campuses	Pepperdine University	Westmont College
Felician College	Peralta Community College system office	Wheaton College (Norton, MA)
Ferris State University	Philadelphia College of Osteopathic Medicine	White Earth Tribal and Community College
Fielding Institute, The	Philadelphia University	Whitman College
Finlandia University	Philander Smith College	Wilkes Community College
FL Gulf Coast University	Pikeville College	Wilkes University
FL Memorial University	Pima County Community College District	Willamette University
Franklin W. Olin College of Engineering	Pine Technical College	William Paterson University NJ
Ft. Hays State University	Pitzer College	William Rainey Harper College
Fuller Theological Seminary CA	Plymouth State University	Wilmington College (New Castle, DE)
Fulton-Montgomery Community College	Point Loma Nazarene College	WV University Institute of Technology
GA College and State University	Pontifical Catholic University PR, The	WyoTech
GA Southwestern State University	Portland Community College	Xavier University
Gallaudet University	Prescott College	York College PA
Gannon University	Queens University Charlotte	Youngstown State University
George College Wallace Community College Dothan	Quinnipiac 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 2007 Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

FIGURE 1. Flow Chart for Strengthening Grant Eligibility.