Agriculture and Food Research Initiative Competitive Grants Program

Food Safety

FY 2010 Request for Applications

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
FOOD SAFETY CHALLENGE AREA

INITIAL ANNOUNCEMENT

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

DATES: Applications must be submitted via Grants.gov by 5:00 p.m. Eastern Time on the deadline date indicated in the Program Area Descriptions section beginning in Part I, C (page 4). 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 Branch; Office of Extramural Programs; National Institute of Food and Agriculture; USDA; STOP 2299; 1400 Independence Avenue, SW; Washington, DC 20250-2299; or via e-mail to: RFP-OEP@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 Food Safety RFA.

EXECUTIVE SUMMARY: The Department of Agriculture established the Agriculture and Food Research Initiative (AFRI) under which the Secretary of Agriculture may make competitive grants for fundamental and applied research, extension, and education 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.

In fiscal year (FY) 2010, approximately $262 million is available to support the AFRI program. Of this amount, no less than 30 percent will be made available to fund integrated research, education, and extension programs.

For FY 2010, approximately $20 million is available for support for the Food Safety Challenge Area within AFRI. In the Food Safety Challenge Area, specific program areas are designed to achieve the long-term outcome of reducing food-borne illnesses and deaths through a safe food supply.

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

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PLEASE READ

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Important Information about the Agriculture and Food Research Initiative

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PLEASE READ

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AFRI RFAs: In FY 2010, NIFA will issue seven RFAs for the AFRI Program:

(1) Foundational Program addressing the six AFRI priority areas
(2) Challenge Areas:
    a. Childhood Obesity Prevention
    b. Climate Change
    c. Food Safety
    d. Global 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** is available on the NIFA Web site at: www.nifa.usda.gov/afri.

FY 2010 NIFA Fellowships Grant Program: Beginning in FY 2010, all Pre- and Postdoctoral Fellowship Grants will be solicited via a separate NIFA Fellowships Grant Program RFA. AFRI invites applications from doctoral candidates and individuals who will soon receive or have recently received their doctoral degree for a Pre- or Postdoctoral Fellowship Grant, as appropriate, for research, education, extension, or integrated activities. The AFRI program anticipates awarding at least $6 million in Pre- and Postdoctoral Fellowship Grants. Information on the NIFA Fellowship Grants Program RFA, including the anticipated release date, is available at www.nifa.usda.gov/afri.

Eligibility:
AFRI makes awards under two legislative authorities with different eligibilities. Depending on Program Area Priorities and the requested activities, the authority used, and hence eligibility, may be different within a particular Program. Please check the Program Area Descriptions (beginning in Part I, C (page 4)) 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.

Award Instrument: All awards (excluding Planning/Coordination, Conference, Sabbatical, Equipment, and Seed Grants) under this RFA will be made as continuation 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.

Planning/Coordination, Conference, Sabbatical, Equipment, and Seed Grants will be made as standard awards. 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.

Award Duration: All grants (excluding Coordination/Planning, 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 46).

Letters of Intent: In FY 2010, all Program Areas within the Food Safety Challenge Area require a Letter of Intent for submission of an application. For those programs requiring a Letter of Intent, a letter is required for **all** grant types except Planning/Coordination and Conference Grant applications. Refer to Part IV, A (page 22) for instructions on the preparation of a Letter of Intent.

Annual Investigator Meetings: Beginning in FY 2010, if a Seed Grant application is funded, the Project Director is required to attend annual investigator meetings starting in the second year of funding. Reasonable travel expenses should be included as part of the project budget. For all other grant types (excluding Planning/Coordination, Conference, Sabbatical, and Equipment Grants), Project Directors will continue to be required to attend annual investigator meetings beginning in the first year of funding.

Logic Model Requirements: Beginning in FY 2010, Education and Extension Grants 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. Integrated Grants will continue to require the inclusion of a Logic Model.

Indirect Cost Limitations: NIFA is prohibited from paying indirect costs exceeding 22 percent of the total Federal funds provided under each award. This limitation is equivalent to 0.28205 of the total direct costs of an award. See Part IV, E (page 34) 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, extension, and education 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 as well as integrated programs 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. Providing this support requires that AFRI advance fundamental sciences as well as translational research and development in support of agriculture and coordinate opportunities to build on these discoveries. This will require that AFRI also support education and extension that delivers science-based knowledge to people, allowing them to make informed practical decisions. This AFRI RFA is announcing anticipated funding opportunities for fundamental research, applied research, education, extension, and integrated research, education, and extension projects.

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.

The programs described herein were developed within the context of the authorized purposes of USDA research, extension, and education. 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.

Background
In July, 2008, the National Institutes of Health (NIH), National Science Foundation (NSF), and Department of Energy (DOE) asked the National Research Council's Board on Life Sciences to convene

a committee *to examine the current state of biological research in the United States and recommend how best to capitalize on recent technological and scientific advances that have allowed biologists to integrate biological research findings, collect and interpret vastly increased amounts of data, and predict the behavior of complex biological systems*. The committee produced a report entitled "New Biology for the 21st Century: Ensuring the United States Leads the Coming Revolution," and a set of recommendations that recognize that the most effective leveraging of investments would come from a coordinated, interagency effort to encourage the emergence of a New Biology that would enunciate and address broad and challenging societal problems.

The New Biology is already emerging, but it is as yet poorly recognized, inadequately supported, and delivering only a fraction of its potential. The committee concludes that the most effective way to speed the emergence of the New Biology is to challenge the scientific community to discover solutions to major societal problems and outlined four broad challenges in food, environment, energy, and health that could be tackled by the New Biology.

The four challenges are:

1. *Generate food plants to adapt and grow sustainably in changing environments*
2. *Understand and sustain ecosystem function and biodiversity in the face of rapid change*
3. *Expand sustainable alternatives to fossil fuels*
4. *Understand individual health*

The committee chose to focus on these four areas of societal need because the benefits of achieving these goals would be large, progress would be assessable, and both the scientific community and the public would find such goals inspirational. Each challenge will require technological and conceptual advances that are not now at hand, across a disciplinary spectrum that is not now encompassed by the field. In the committee's view, one of the most exciting aspects of the New Biology initiative is that success in achieving the four goals chosen here as examples will propel advances in fundamental understanding throughout the life sciences. Because biological systems have so many fundamental similarities, the same technologies and sciences developed to address these four challenges will expand the capabilities of all biologists.

USDA – NIFA Approach

The report "New Biology for the 21st Century" bolsters the case for increasing the level and effectiveness of USDA's agricultural research, education, and extension programs. These efforts have included creating NIFA and significantly increasing funding over previous levels for its research, education, and extension programs.

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" report. USDA leadership has integrated the six AFRI priority areas (outlined in Part I, A) with the four 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 change

To address these challenges at a meaningful scale and to achieve outcomes of relevance to the societal challenges, NIFA intends to release several AFRI RFAs. They will address each of the five challenges, enable transition and refocusing of grants made previously under AFRI, and provide pre- and postdoctoral fellowship opportunities. These RFAs will solicit 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 2010, 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 grants in the six AFRI priority areas to continue building a foundation of knowledge critical for solving current and future societal challenges. These six foundational programs 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.

The following table is provided to facilitate identification of appropriate funding opportunities for AFRI applicants:

AFRI Priority Area	FY 2010 AFRI RFA
Plant Health and Production and Plant Products	Climate Change Foundational Program Global Food Security Sustainable Bioenergy
Animal Health and Production and Animal Products	Climate Change Food Safety Foundational Program Global Food Security
Food Safety, Nutrition, and Health	Childhood Obesity Prevention Food Safety Foundational Program
Renewable Energy, Natural Resources, and Environment	Climate Change Foundational Program Sustainable Bioenergy
Agriculture Systems and Technology	Climate Change Food Safety Foundational Program Sustainable Bioenergy
Agriculture Economics and Rural Communities	Childhood Obesity Prevention Climate Change Food Safety Foundational Program Sustainable Bioenergy

Food Safety Challenge Area:
This RFA focuses on the societal challenge to improve food safety for all Americans. In the Food Safety Challenge Area RFA, specific program areas are designed to achieve the long-term outcome of reducing food-borne illnesses and deaths through a safe food supply. Project types supported by AFRI within this RFA include single-function Research and Education Projects, multi-function Integrated Research, Education, and/or Extension Projects, and Food and Agricultural Science Enhancement (FASE) Grants.

Another source of NIFA funding for work relevant to the Food Safety Challenge Area is as follows:

- *National Integrated Food Safety Initiative*
  Total Program Funds: Approximately $13 million in FY 2010.
  Information is available at www.nifa.usda.gov/fo/foodsafetyicgp.cfm

C. Program Area Descriptions

Background

While the U.S. food supply is generally considered to be one of the safest in the world, food-borne illness continues to be a source of concern for the American consumer, federal government, and industry. The Food Safety Challenge Area promotes and enhances the scientific discipline of food safety, with an overall aim of protecting consumers from microbial, chemical, and physical hazards that may occur during all stages of the food chain, from production to consumption. This requires an understanding of the interdependencies of human, animal, and ecosystem health as it pertains to food-borne pathogens.

To meet these identified needs, the long-term outcome for this program is to reduce food-borne illnesses and deaths by improving the safety of the food supply, which will result in reduced impacts on public health and on our economy. Projects are expected to address one of the stated Program Area Priorities which collectively contribute to the achievement of the following goals:

1. Improve the safety of the food supply through developing and implementing effective strategies that prevent or mitigate food-borne contamination, including food processing technologies, resulting in a reduction in the incidence of food-borne illness, while preventing future food-borne outbreaks.
2. Promote the development and adoption of detection technologies for food-borne pathogens and other contaminants in foods, which are sensitive, specific, rapid, economical, easily-implemented, and usable under a variety of conditions, including use in the field.
3. Reduce negative public health and economic impacts through the development and demonstration of effective traceability systems that track the source, movement, critical tracking events (CTEs), storage, and control of contaminated food and food ingredients from production to consumption.
4. Increase the number of food safety scientists, as well as scientists who are cross trained in environmental science, animal science, engineering, and public health, to provide a holistic approach to ensuring the safety of the food supply, from pre-harvest through consumption.

In order to achieve these program goals, the Food Safety Challenge Area will address several focused objectives over the next three years. These specific objectives are intended to allow for a stepwise progression toward effective strategies for prevention and mitigation of contamination, evaluation and demonstration of effective food processing technologies, rapid detection of food contaminants, and development of effective traceability systems for food and food ingredients. Beginning in FY 2010, the AFRI Food Safety program will focus on the following priority areas: shiga toxin producing *Escherichia coli* (STEC), food processing technologies, viruses in food, food safety education and emerging food safety issues. With additional funding to the AFRI Food Safety Program, the program will solicit new grant applications that address *Salmonella* and *Campylobacter* in poultry in FY 2011. In FY 2012, the priority areas will include: microbial ecology of food-borne pathogens; and control of other food-borne pathogens of concern, *e.g.*, *Listeria monocytogenes*. While new funding opportunities to address program goals are anticipated for future fiscal years, these opportunities will be contingent on funding available to NIFA for this purpose.

1. *Prevention, Detection, and Control of Shiga toxin-producing Escherichia coli (STEC) from Pre-Harvest through Consumption of Beef Products*

Program Area Code – A4101
Letter of Intent Deadline – May 5, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – September 22, 2010 (5:00 p.m., ET)
Proposed Budget Requests –

- Coordinated Agricultural Project (CAP) Grants must not exceed $5,000,000 per year ($25 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making 1 to 2 awards in FY 2010.

- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Integrated Projects
Requested Grant Types – CAP, Conference, and FASE Grants
Program Area Contact – Dr. Jeanette Thurston (202-720-7166 or jthurston@nifa.usda.gov)

Program Area Priority – Applicants must address the following:

- Through comprehensive research on farms, feedlots and processing plants for small, medium and large operations: identify risk factors and develop intervention and risk management strategies for reducing STEC contamination in the pre-harvest and post-harvest environments and evaluate the effectiveness of the strategies using a risk-informed approach. Develop statistically valid sampling plans and new or modified detection methods (rapid, sensitive (detect < 10 cfu/g) and specific) for STEC in environmental samples (manure, soil, water, fomites, *etc.*) and use these to evaluate the STEC load (concentration and prevalence) on cattle hides, manure and in the environment, both pre and post-harvest. Detection methods must determine viability and must be rapid, sensitive, specific, economical, and easily conducted, and be demonstrated to work in food and/or environmental samples. Portable, real time and in-line detection capability should be considered. Sampling and detection methods must be validated through round-robin studies or by other means. Develop and evaluate technologies for decontamination of STEC on carcasses and in ground beef and other non-intact beef ready for market deployment. Develop and implement outreach programs and resources for appropriate audiences, including materials for use on-farm, in feedlots, during processing, at retail and for consumers. Science based information should be developed for policy makers and risk managers to help them make informed food safety decisions. In addition to *E. coli* O157:H7, STEC under study must include those identified by the CDC as the serotypes most commonly identified in human illness (O26, O45, O103, O111, O121, and O145). The multidisciplinary research team must include an epidemiologist and an expert in risk assessment for sampling design and risk factor analysis, food microbiologist with STEC expertise, extension specialist, animal scientist, sensor scientist or engineer, and a food engineer with expertise in processing technologies. This CAP project is meant to be a multi-operation and multi-location comprehensive epidemiological study of STEC in pre-harvest and post harvest environments of cattle. Multiple locations and representative animal feeding operations in the U.S. must be included.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications must include all three components of the agricultural knowledge system (research, education, and extension). Each component should be represented by one or more objectives within the application.
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- Novel “advanced” detection devices and systems for STEC detection at very low levels should be considered for ground and other non-intact beef.
- Strategies for simultaneous detection of multiple pathogens are encouraged.
- Energy and water conservation should be an important consideration in technology development whenever possible.
- A partnership among academe, government and food industry for food processing technologies component is highly recommended.
- Involvement of regulatory agencies (such as the USDA Food Safety and Inspection Service (FSIS)) and other government agencies interested in the proposed technology is highly recommended. Food and allied industries such as equipment design, automation and control, and others will be integral to the program. Participation of food industry experts from concept to completion is highly recommended. Validation of technology concept and feasibility for commercial success by the industry experts will be an important evaluation factor.

2. ***Microbial Ecology and Shiga toxin-producing Escherichia coli (STEC) Shedding in Cattle***

Program Area Code – A4111
Letter of Intent Deadline – April 21, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – June 29, 2010 (5:00 p.m., ET)
Proposed Budget Requests –

- Standard Grants must not exceed $500,000 per year ($2.5 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making up to 7 awards in FY 2010.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Research Projects
Requested Grant Types – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Jeanette Thurston (202-720-7166 or jthurston@nifa.usda.gov)

Program Area Priority – Applicants must address one of the following:

- Evaluate changes in microbial communities in the rumen in association with shedding of STEC by cattle (at multiple operations, locations, and management practices). Identify host and environmental factors that affect STEC shedding (including factors that produce "super-shedders"). Develop and apply economical control strategies for reducing shedding of STEC by cattle. The research team must include a molecular biologist or someone with this expertise to conduct bioinformatic analyses. In addition to *E. coli* O157:H7, the study must include other STEC commonly identified in human illness (O26, O45, O103, O111, O121, and O145). An effort to evaluate "super-shedders" must be included. Temporal studies must be conducted to understand community changes and evaluate the variability of STEC levels shed over time.
- Study the affect(s) of season, stress, management, and feed type on STEC shedding. Identify factors that affect STEC shedding, including factors that produce "super-shedders". Develop and apply economical control strategies for reducing shedding of STEC by cattle. In addition to *E. coli* O157:H7, the study must include other STEC commonly identified in human illness (O26, O45, O103, O111, O121, and O145). Temporal studies must be conducted to evaluate the variability of STEC levels shed over time.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.

3. ***Prevention, Detection and Control of Food-borne Viruses in Food: A Focus on Noroviruses***

Program Area Code – A4121
Letter of Intent Deadline – April 26, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – September 1, 2010 (5:00 p.m., ET)
Proposed Budget Requests –

- Coordinated Agricultural Project (CAP) Grants must not exceed $5,000,000 per year ($25 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making 1 to 2 awards in FY 2010.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Integrated Projects
Requested Grant Types – CAP, Conference, and FASE Grants
Program Area Contact – Dr. Jeanette Thurston (202-720-7166 or jthurston@nifa.usda.gov)

Program Area Priority – Applicants must address the following:

- From pre-harvest through consumption, develop studies to evaluate the occurrence and fate of Noroviruses and other food-borne viruses in food (produce, seafood, etc) in order to assess their potential risk to food safety and human health. The project must include Noroviruses and the research team is highly encouraged to investigate other food-borne or potentially food-borne viruses, viral indicators, and other human pathogens. Multiple locations, operations and processors (small, medium and large), and management practices must be evaluated. An effort to identify and characterize "unknown viral etiological" causes of food contamination should be included. New or improved detection methods should a) detect low levels and address the high mutagenicity of RNA viruses; b) detect infectious viruses, if possible, and if not, then a suitable surrogate must be used in analysis of effectiveness of intervention and control strategies; and c) be rapid, sensitive, specific, economical, be easily conducted, and demonstrated to work in a wide variety of food and environmental samples. Detection methods must be validated through round-robin studies or by other means. Current food production and processing practices must be evaluated for their ability to control or eliminate the study pathogens. This should include the development and implementation of novel and effective food processing technologies and novel post harvest interventions for eliminating or controlling viruses in or on foods, including fresh produce. Risk factors must be identified and intervention and risk management strategies must be developed for reducing food-borne viruses. Using a risk-informed approach, the effectiveness of the identified strategies must be evaluated. The research team must include an epidemiologist, an expert in risk assessment, a food safety virologist with experience working with Noroviruses, a processing engineer, sensor scientist or engineer, and education and extension specialists.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications must include all three components of the agricultural knowledge system (research, education, and extension). Each component should be represented by one or more objectives within the application.
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- Novel nanoscale and scale-appropriate detection devices and systems for detection at very low contaminant levels should be considered. Specific emphasis should be given to systems integration for convenient, portable, and affordable devices. Portable, real time and in-line detection capability should be considered.
- Emerging viruses important to high-risk populations should be included.
- Strategies for simultaneous detection of multiple pathogens are encouraged.
- Energy and water conservation should be an important consideration in technology development whenever possible.
- A partnership among academe, government and food industry for the food processing technology component is highly recommended. Involvement of regulatory agencies (FSIS) and other government agencies interested in the proposed technology is also highly recommended. Food and allied industries such as equipment design, automation and control, and others should be an integral part of the program. Participation of food industry experts from concept to completion is encouraged. Validation of technology concept and feasibility for commercial success by the industry experts will be an important evaluation factor.
- In addition to reporting findings at annual PD meetings, the CAP team must develop and execute a National Symposium in year 5 of the project at an appropriate public venue to translate the program's findings to educators, researchers, government officials, and the general public.

4. *Food Processing Technologies to Destroy Food-borne Pathogens with an Emphasis on Viruses and Shiga toxin-producing Escherichia coli (STEC)*

Program Area Code – A4131
Letter of Intent Deadline – April 21, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – June 29, 2010 (5:00 p.m., ET)

Proposed Budget Requests –

- Standard Grants must not exceed $1,000,000 per year ($5 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making up to 4 awards in FY 2010.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Integrated Projects
Requested Grant Types – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Dionne Toombs (202-401-2138 or dtoombs@nifa.usda.gov)

Program Area Priority – Applicants must address the following:

- Develop and implement novel and effective food processing technologies that are practical and cost effective for large, medium, and small processors working through public-private partnerships for STEC in non-intact beef, and food-borne viruses in or on food. This integrated program should involve partnerships or corcortia among academia, the Government, and the food industry. The consortium will be led by a leading academic expert of the proposed technology. The appropriate industry and allied industries such as equipment design, automation and control, and others should be an integral part of the program. Participation of food industry experts from concept to completion is required. Validation of technology concept and feasibility for commercial success by the industry experts will be an important evaluation factor. Research should be applied and built on the previously proved concept and extensive basic research data will demonstrate technology effectiveness in the control of Noroviruses, STEC and other important food-borne pathogens. Research must be multidisciplinary with team members with expertise in virology, engineering, microbiology, chemistry, food safety and quality evaluation.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- The addition of other food-borne pathogens and/or indicators in the research study is highly recommended. Strategy for identification, selection or development of surrogate microorganism must be articulated.
- Novel and effective food processing technologies for decontamination and inactivation of viruses and other important pathogens that are ready for commercial deployment should be developed.
- The emerging technologies may include thermal, minimally thermal, or non-thermal processes.
- Involvement of regulatory agencies such as FDA and FSIS should be an important component of the program. Participation of Government agencies interested in the technology development such as DOD, NASA, and NSF is encouraged.
- Training of graduate and undergraduate students in various aspects of technology should be integral to the projects.
- Extension activities should involve industry partners who participate actively throughout the project duration and beyond.
- Energy and water conservation should be an important consideration in technology development whenever possible.
- Newly developed technology must be approved by the appropriate regulatory authorities. It must then be successfully demonstrated to the food industry partners. The university research team should provide education and extension training and consultation to industry and other target audiences.

5. *Addressing Critical and Emerging Food Safety Issues*

Program Area Code – A4141
Letter of Intent Deadline – April 28, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – June 29, 2010 (5:00 p.m., ET)

Proposed Budget Requests –

- Standard Grants must not exceed $300,000 per year ($1.5 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making up to 5 awards in FY 2010.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Research Projects
Requested Grant Types – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Jeanette Thurston (202-720-7166 or jthurston@nifa.usda.gov)

Program Area Priority – Applicants must address the following:

- Research generated in this priority will alleviate the burden of food-borne illness and death by identifying and determining strategies for the reduction of unknown or unidentified food-borne contaminants before they create negative public health impacts. Studies should close data gaps on emerging food-borne pathogens and other contaminants in which data are lacking on their potential as an important food safety threat. The identification of novel food vehicles transporting known food safety threats is also requested in this priority. The overall goal of the proposed research must be the assessment of the potential risk(s) of the contaminant to be a food-borne health risk and if so, the research must include an evaluation of the ability of current food production practices to reduce or eliminate the contaminant risks. Novel and economical strategies for the control of these contaminants must also be developed and evaluated if current methods are insufficient in protecting the food supply from the emerging contaminant under study. Emerging pathogens important to high-risk populations should be considered.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.

6. *National Education Programs for Food Safety*

Program Area Code – A4151
Letter of Intent Deadline – April 28, 2010 (5:00 p.m., ET); see Part IV, A (page 22) for instructions
Application Deadline – June 29, 2010 (5:00 p.m., ET)
Proposed Budget Requests –

- Standard Grants must not exceed $500,000 per year ($2.5 million total, including indirect costs) for project periods of up to 5 years. Program anticipates making up to 2 awards in FY 2010.
- Conference and Food and Agricultural Science Enhancement (FASE) Grants must adhere to the guidelines outlined beginning in Part II, D. 4 and 5 (page 14).
- Requests exceeding the budgetary guidelines will not be reviewed.

Requested Project Type – Education Projects
Requested Grant Types – Standard, Conference, and FASE Grants
Program Area Contact – Dr. Ali Mohamed (202-720-5229 or alimohamed@nifa.usda.gov)

Program Area Priority – Applicants must address the following:

- Through a multidisciplinary and nationwide effort, develop an innovative, research-based, graduate, undergraduate and formal and non-formal education and training activities in the area of food safety (must include virology). Develop innovative, research-based college level education and formal and non-formal education and training programs, such as 4-H, for future food safety scientists (including food virologists) that include cross-disciplinary training in a variety of related fields. Recruit and retain youth with an interest in food science, food safety, and related fields, including virology. This trans-disciplinary effort should include multiple Universities and faculty from microbiology/virology, agronomy, engineering, food science, public health, environmental science and food technology and processing or similar departments must be represented in each grant application. Students should gain strengths in multiple disciplines while maintaining

competence in their major field by focusing on problem-oriented rather than discipline-oriented education and research. The program should develop and offer education, training and experience relevant to both academic and nonacademic careers by linking graduate education and research, through internships and mentoring, with research and extension in industry, national laboratory, or other settings.

Other Program Area Requirements:

- All applications must adhere to the requirements beginning in Part IV (page 22).
- Applications from and collaborations with Minority Serving Institutions are strongly encouraged.
- The desired outcome is to stimulate the K-12, associate certificates and baccalaureate and master's level education system to produce students with science and math based competencies, who are independent thinkers and thoughtful investigators. These students should have completed interdisciplinary coursework, enabling them to identify solutions to complex food safety problems, work creatively in teams, and present solutions in a clear and concise manner.

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 2010, approximately $262 million is available for support the AFRI program. Of this amount, no less than 30 percent will be made available to fund integrated research, education, and extension projects. 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 2010 funds will be made available for Food and Agricultural Science Enhancement (FASE) Projects, 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.

In FY 2010, approximately $20 million is available for support of the Food Safety 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 37).

All awards (excluding Planning/Coordination, Conference, Sabbatical, Equipment, and Seed Grants) will be made as continuation 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.

Planning/Coordination, Conference, Sabbatical, Equipment, and Seed Grants will be made as standard awards. 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.

C. Project Types

Projects supported by AFRI will propose single-function Research, Education, and Extension Projects and multi-function Integrated Research, Education, and/or Extension Projects. Grant types are: Standard Grants, Coordinated Agricultural Project (CAP) Grants, Planning/Coordination Grants, Conference Grants, and Food and Agricultural Science Enhancement (FASE) Grants which include Pre- and Postdoctoral Fellowship Grants, New Investigator Grants, and Strengthening Grants.

The project types solicited in this Food Safety Challenge Area RFA are indicated in the table below and described in the Program Area Description beginning in Part I, C (page 4). All project types offered for the entire AFRI Program are described below.

Project Types Solicited by Food Safety Challenge Area

	Grant Types									
					Food and Agricultural Science Enhancement (FASE) Grants[1]					
						Strengthening Grants				
	Standard[1]	CAP	Planning/ Coordination[1]	Conference	New Investigator	Sabbatical	Equipment	Seed	Standard	CAP
Research	✓			✓	✓	✓	✓	✓	✓	
Education	✓			✓	✓	✓	✓	✓	✓	
Extension										
Integrated	✓	✓		✓	✓	✓	✓	✓	✓	✓

[1] CAP Grants and Planning/Coordination Grants are solicited by a limited number of Program Area Priorities. Refer to Part I, C (page 4) for Program Area Description.
[2] FASE Grants have special eligibility requirements. Refer to Part II, D. 3 (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 Description beginning in Part I, C (page 4), and the application must be submitted directly to that Program Area by the designated deadline date. Additionally, applicants must adhere to the Application and Submission Information beginning in Part IV (page 22) when preparing applications.

1. Research Projects

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

> ***Fundamental research*** *means research that (i) increases knowledge or understanding of the fundamental aspects of phenomena and has the potential for broad application and (ii) has an effect on agriculture, food, nutrition, or the environment.*
>
> ***Applied research*** *means research that includes expansion of the findings of fundamental research to uncover practical ways in which new knowledge can be advanced to benefit individuals and society.*
>
> ***Multidisciplinary projects*** *are those in which investigators from two or more disciplines collaborate closely to address a common problem. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.*

2. Education Projects

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

The applications for Education Projects may include any of the following activities: conducting classroom and laboratory instruction and practicum experience; faculty research internships for curricula development; cutting-edge agricultural science and technology curriculum development; innovative teaching methodologies; instructional materials development; education delivery systems; student experiential learning (student led-research; internships; externships; clinics); student learning styles and student-centered instruction; student recruitment and retention efforts; career planning materials and counseling; pedagogy; faculty development programs; development of modules for on-the-job training; providing knowledge and skills for professionals creating policy or transferring to the

agriculture workforce; faculty and student exchanges; and student study abroad and international research opportunities relevant to overall program goals for U.S. agriculture. The activities for Education Projects must show direct alignment with increasing technical competency in AFRI priority area(s) to ensure that the U.S. remains globally competitive in the knowledge age.

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

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

3. Extension Projects

Single-function Extension Projects conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make practical decisions. Program delivery may range from community-based to national 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 Projects address one or more of the following key strategic actions:
1) Support informal education to increase food and agricultural literacy of youth and adults;
2) Promote science-based agricultural literacy by increasing understanding and use of food and agricultural science data, information, and programs;
3) Build science-based capability in people to engage audiences and enable informed decision making;
4) Develop new applications of instructional tools and curriculum structures that increase technical competency and ensure global competitiveness;
5) Offer non-formal learning programs that increase accessibility to new audiences at the rate at which new ideas and technologies are tested and/or developed at the community-scale; and
6) Develop programs that increase public knowledge and citizen engagement leading to actions that protect or enhance the nations' food supply, agricultural productivity, environmental quality, community vitality, and/or public health and well-being.

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

4. Integrated Research, Education, and/or Extension Projects

An Integrated Project includes at least two of the three functions of the agricultural knowledge system (*i.e.*, research, education, and extension) within a project, focused around a problem or issue. The functions addressed in the project should be interwoven throughout the life of the project and act to complement and reinforce one another. The functions should be interdependent and necessary for the success of the project and <u>no more than two-thirds of the project's budget may be focused on a single component</u>.

1) The proposed **research** component of an integrated project should address knowledge gaps that are critical to the development of practices and programs to address the stated problem.

2) The proposed **education** (teaching and teaching-related) component of an Integrated Project should follow the same scope and principles as Education Projects. Note that routine use of graduate students and postdoctoral personnel to conduct research is not considered education for the purposes of this program.

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

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

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

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. 5 (page 15)) can be submitted to Program Areas that solicit CAP Grants. Refer to Part I, C (page 4) for Program Area Description.

3. Planning/Coordination Grants

Planning/Coordination Grants provide assistance to applicants in the development of quality future CAP applications. Applications must articulate benefits accrued from formal planning activities and provide evidence of a high likelihood that quality future applications will be submitted. Applications are encouraged to develop events/meetings that bring together biological, physical, and social scientists and others as appropriate, including end-users and technology providers, to identify research, education, and/or extension needs, foster collaboration, and create networking opportunities. These activities can take the form of workshops or symposia. The application must include a preliminary agenda for the planned activity. These events and the information they generate should be used to build teams that can develop applications to address identified Program Area Priorities. Planning/Coordination Grants are solicited by a limited number of Program Area Priorities. Note that

ONLY Planning/Coordination Grants may be submitted to these Program Area Priorities. Refer to Part I, C (page 4) for Program Area Description. Grants range from $25,000 - $50,000 for one year depending on the size and scope of the project and are not renewable. An institutional allowance not exceeding $2500 is allowed. Indirect costs are not permitted on Planning/Coordination Grant awards.

4. Conference Grants

Conference Grants to support scientific meetings that bring together scientists to identify research, education, 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.

5. Food and Agricultural Science Enhancement Grants

Food and Agricultural Science Enhancement (FASE) Grants strengthen science capabilities in research, education, extension, and integrated programs. FASE Grants are designed to help institutions develop competitive research, education, extension, and integrated 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 are 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

Beginning in FY 2010, all Pre- and Postdoctoral Fellowship Grants will be solicited via a separate NIFA Fellows Program RFA. AFRI invites applications from doctoral candidates and individuals who will soon receive or have recently received their doctoral degree for a Pre- or Postdoctoral Fellowship Grant, as appropriate, for research, education, extension, or integrated activities. The AFRI program anticipates awarding at least $6 million in Pre- and Postdoctoral Fellowship Grants. Information on the NIFA Fellowship Grants program RFA, including the anticipated 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, extension, or integrated 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 research support. The work proposed for New Investigator Grants must address a specific program area priority described under Program Area Description in Part I, C (page 4), 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, extension, or integrated activities. Strengthening Grants consist of Standard Grant types (both Single-function and Multi-functional 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 Description in Part I, C (page 4), 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) <u>Strengthening Grant Eligibility</u>

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 grants. See Figure 1 following Part VIII (page 53) to assist with determining eligibility for Strengthening Grants.

2) Strengthening Grant Eligibility Definitions

a) **EPSCoR States**
Every three years, NIFA determines the states that are eligible for USDA EPSCoR funding. This list is generated by calculating which states have had a funding level no higher than the 38th percentile of all states, based on average funding for the previous three-year period (excluding strengthening set-aside funds). Since this is the second year for the AFRI program, the eligibility determinations are based on the data obtained from grants made through the National Research Initiative program from 2005 to 2008. Beginning FY 2009 and continuing through FY 2010, the following States meet the requirements for this category:

FY 2010 USDA EPSCoR States		
Alabama	Louisiana	South Carolina
Alaska	Maine	South Dakota
Connecticut	Mississippi	Vermont
Delaware	Nevada	West Virginia
Hawaii	New Hampshire	Wyoming
Idaho	North Dakota	
Kentucky	Rhode Island	

Other entities eligible for USDA EPSCoR funds in FY 2009 and continuing through FY 2010 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, H (page 48)) 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 50) 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 50), 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 20).

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 Project Director this fiscal year. Investigators are encouraged to contact the Program Area Contact of the appropriate Program Area, 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/outreach 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. 4. c (page 22), 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/outreach 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 in preparation for applying for research, education, extension, or integrated 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 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**
Research, Education, and Integrated Project Standard and Coordinated Agricultural Project (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

Eligibility is linked to the **project type** requested in Program Area Description beginning in Part I, C (page 4). All project types are described beginning in Part II, C (page 11). Eligible institutions for single-function Research, Education, or Extension Projects are described in paragraph #1 below. Eligible institutions for multi-functional Integrated Projects are described in paragraph #2 below.

Applicants must respond to the Program Area Priorities and deadlines found in the FY 2010 RFA. Grant recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project.

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

2. **Integrated Projects**
   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 the Integrated Projects, 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.

3. **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 2010 AFRI RFA. Two-year HSIs, however, may be eligible to apply only upon a determination by NIFA that the institution offers an associate or other accredited degree programs in agriculture-related fields. To seek an eligibility determination for grants under the FY 2010 AFRI RFA, two-year HSIs may submit a one-page request to NIFA certifying that they are a Hispanic-serving institution, as defined in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101a), and providing a justification that they do offer associate or other accredited degree programs in agriculture-related fields. Eligibility determinations are valid for FY 2010 only and must be renewed every fiscal year.

Additional questions on HSACU eligibility can be addressed to Dr. Irma Lawrence, HSI National Program Leader, at ilawrence@nifa.usda.gov, (202) 720-2082, or via fax (202) 720-3398. HSIs that seek a determination of eligibility may submit a request before the application deadline date to Dr. Lawrence directly or as a portable document format (PDF) attachment to the SF-424-R&R application package submitted through Grants.gov. The request should document that the HSI: 1) qualifies as a Hispanic-serving institution; 2) offers accredited degree programs in agriculture-related fields; and 3) is not an 1862 Land-Grant institution.

4. **Food and Agricultural Science Enhancement Grants**
   The Food and Agricultural Science Enhancement (FASE) Grants have additional eligibility requirements. See Part II, D. 5 (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. 5. c (page 15)), but does not serve one or more of the minority groups specified in the Definitions section of this RFA (see Part VIII, H (page 48)), 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 (if required) 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 50), unless located in an EPSCoR state (listed in Part II, D. 5. c. 2) a) (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. The application must include a letter indicating how the institution is independent of the main campus, either through accreditation or administration. In addition, the letter should stipulate that the institution is eligible as a small and mid-sized or minority-serving institution due to enrollment and total federal funds received for science and engineering research and development. The letter must be signed by the Authorized Representative (AR) and included with the Letter of Intent (if required) and with the completed application.

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 51) 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.

For applied research projects: If a project funded for research 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 Food Safety Challenge Area require a Letter of Intent for submission of an application. Refer to the Program Area Descriptions beginning in Part I, C (page 4) 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 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 all collaborating investigators
      ii. the Program Area Priority addressed by the project
   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 Code] _ [PDs Last Name]*.

4. For those programs requiring a Letter of Intent, a letter is required for **all** grant types except Planning/Coordination and Conference Grant applications. See Part II, D (page 11) 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.

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-003039 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.

Note: Do not use special characters (*e.g.*, #, $, %, &, *, -, /, ', ") when completing the forms within the Grants.gov application package. Use of special characters is acceptable in the PDF attachments to the application.

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 (When naming your file, please do not use special characters or spaces in the file names.)

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. The AFRI is not accepting pre-applications in FY 2010 in any of the programs. Some programs require a Letter of Intent. See Program Area Descriptions 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 2010 Program Area Priority(ies) the proposed project addresses. Program Area Priorities are stated within each Program Area Description (see Part I, C (page 4)). 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 Research, Standard Education, Standard Extension, Standard Integrated, Coordinated Agricultural Project, Planning/Coordination, Conference, New Investigator, and Strengthening Standard 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.

Project Narrative must include all of the following:

1) 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 28)).

2) 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.

3) 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 Education Project Applications* – In addition to the Project Narrative requirements above, the proposed Education Project should clearly articulate:

- The potential for advancing the quality of education by addressing a specific problem or opportunity;
- The target audience and the level of education addressed;
- The long-term benefits to the institution, including how the institution attributes a high priority to the project and how the project is linked to and supported by the institution's strategic plan;
- A plan for evaluating progress toward achieving project objectives. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators that you will measure to evaluate whether the research, education, and/or extension activities are successful in achieving project goals and in contributing to achievement of the stated program goals and outcomes; and
- A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.

☼ *For Extension Project Applications* –

- Extension Projects should involve a series of connected learning activities that engage the public in practical problem solving. Programming should be more than a one-time event, a single publication, a one-dimensional activity, or a general public awareness campaign. Together, informal learning activities should be elements in a curriculum-based program that has learning goals and objectives.
- Extension Projects should be connected to both 1) scientific-research based information and 2) science-based teaching techniques and informal education principles.
- In addition to the Project Narrative requirements above, the proposed Extension Project should give emphasis to scholarly principles of engagement and outreach that clearly articulate:
  - The importance of informal education to address a specific local problem or issue;
  - The theoretical basis of informal outreach methods used;
  - Development and/or implementation of a curriculum-based series of connected learning activities (including educational materials) that engage the public in practical problem solving;
  - A plan for evaluating progress toward achieving project objectives. The plan must include milestones, which signify the completion of a major deliverable, event, or accomplishment and serve to verify that the project is on schedule and on track for successful conclusion. The plan should also include descriptions of indicators that you will measure to evaluate whether the research, education, and/or extension activities are successful in achieving project goals and in contributing to achievement of the stated program goals and outcomes.; and
  - A dissemination plan describing the methods that will be used to communicate findings and project accomplishments.
- AFRI encourages “community-based” Extension Projects. Community-based programming ranges from a single town to a county, collection of counties, state, or region. Applications with leadership from campus-based faculty specialists that incorporate programming/work of local agents are highly desirable.
- AFRI encourages Extension Projects that develop content suitable for delivery through eXtension. This content is for “end users” as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan, and other requirements presented at http://about.extension.org/university-researcher. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

☼ *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 11)); 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 align with the eXtension Guiding Principles, Implementation Plan, and other requirements presented at http://about.extension.org/university-researcher. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.
- AFRI encourages Integrated Projects that lead to measurable, documented changes in learning, actions or conditions on projects 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. 4-H provides opportunities for youth to develop skills, practical knowledge, and wisdom with an emphasis on practical application of knowledge or "learning by doing." From the earliest days of the 4-H Program, Land Grant Universities provided research-based education and extension programming to promote technology transfer directly to the future scientists and leaders, and also to their families, leading to the application of cutting-edge research, knowledge, and technologies. 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 Planning/Coordination Grant Applications* – In addition to the Project Narrative requirements above, substitute the following in the Approach section:

- A justification for the event/meeting;
- Recent events/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 activity and a listing of scheduled participants, including stakeholders and their institutional affiliations;
- Expected outcomes, including how the planning project expects to contribute to development of a successful application for an AFRI grant; and

- The method of announcement or invitation that will be used.

☼ *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 4) of this RFA to determine which project types are requested under each Program Area Description. Also please see Part II (page 11) 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 30). 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 Grant Applications* – state for each key personnel an estimate of the percent of time devoted to research, education, and/or extension activities.

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

   Applications proposing Education, Extension, or 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 Only. 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) *Appendices to Project Narrative* – **PDF Attachment. Limited to 2 preprints.** Title the attachment as 'Preprints' in the document header and save file as 'Preprints'.

   Appendices are strictly limited to a maximum of **2 preprints only** (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.

   Each Project Narrative is expected to be complete; however, additions to the Project Narrative (appendices, *i.e.*, preprints) 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.**

7) *Other Documents* (as requested) – **PDF Attachment.** Title the attachment as indicated in the Program Area Description in the document header and save file with the same name.

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 30)).

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 34) 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 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 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.

☼ *For Planning/Coordination Grant Applications* – These awards are limited to one-year duration and are not renewable. An institutional allowance not exceeding $2500 is allowed. Indirect costs are not permitted on Planning/Coordination Grant awards.

☼ *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's 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 and 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 22 percent of the total Federal funds provided under each award. This limitation is equivalent to 0.28205 of the total direct costs of an award. See Part IV, E (page 34) 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 sub contractual 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 30)) 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, 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.

☼ *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 (page 51)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.

For **applied research projects** (as defined in Part II, C. 1 (page 12)), if a grant funded for research 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-003039" 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 4). 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 'Conflict of Interest'.

A Conflict of Interest List is required for all applications submitted to the 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 Description beginning in Part I, C (page 4). **Applications received after the applicable deadlines will not be reviewed.**

E. Funding Restrictions

Section 7132 of the Food, Conservation, and Energy Act of 2008 (Pub. L. 110-246) amended section 1462(a) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3310(a)) on recovery of indirect costs. The recovery of indirect costs on awards made by NIFA under this program may not exceed the lesser of the institution's official negotiated indirect cost rate or the equivalent of 22 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. 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 4). 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 45)). 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. 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, 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 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.*, 2010-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 45)) 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 (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 scientific, extension, or education fields, taking into account the following factors: (a) the level of relevant formal scientific, technical education, or extension experience of the individual, as well as the extent to which an individual is engaged in relevant research, education, or extension projects; (b) the need to include experts from various areas of specialization within relevant scientific, education, or extension fields; (c) the need to include other experts (*e.g.*, producers, range or forest managers/operators, and consumers) who can assess relevance of the applications to targeted audiences and to program needs; (d) the need to include experts from a variety of organizational types (*e.g.*, colleges, universities, industry, state and Federal agencies, private profit, and non-profit organizations) and geographic locations; (e) the need to maintain a balanced composition of reviewers with regard to minority and female representation and an equitable distribution of professional rank; and (f) the need to include reviewers who can judge the effective usefulness to producers and the general public of each application.

B. Evaluation Criteria

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

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

a. Scientific Merit of the Application for Research
1) Novelty, innovation, uniqueness, and originality;
2) Where model systems are used, ability to transfer knowledge gained from these systems to organisms of importance to U.S. agriculture;
3) Conceptual adequacy of the research and suitability of the hypothesis, as applicable;
4) Clarity and delineation of objectives;
5) Adequacy of the description of the undertaking and suitability and feasibility of methodology;
6) Demonstration of feasibility through preliminary data; and
7) Probability of success of the project is appropriate given the level of scientific originality, and risk-reward balance.

b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management
1) Qualifications of applicant (individual or team) to conduct the proposed project, including performance record and potential for future accomplishments;
2) Demonstrated awareness of previous and alternative approaches to the problem identified in the application;
3) Institutional experience and competence in subject area;
4) Adequacy of available or obtainable support personnel, facilities, and instrumentation; and
5) Planning and administration of the proposed project, including: time allocated for systematic attainment of objectives; and planned administration of the proposed project and its

maintenance, partnerships, collaborative efforts, and the planned dissemination of information for multi-institutional projects over the duration of the project.

c. Project Relevance

1) Documentation that the research is directed toward specific program area priority(ies) identified for the program in this RFA. These priorities are designed to yield improvements in and sustainability of U.S. agriculture, the environment, human health and well-being, and rural communities.

2. Education Project Applications

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

a. Merit of the Application for Science Education

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

b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management

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

c. Project Relevance

1) The project addresses a stated Program Area Priority;
2) Project plan fully addresses the problem or issue identified;
3) The proposed work addresses identified stakeholder needs;
4) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
5) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
6) Science-based knowledge gained, curricula and related products developed will sustain education functions beyond the life of the project; and
7) The resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

3. Extension Project Applications

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

a. Merit of the Application for Science Extension

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

b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management

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

c. Project Relevance

1) The project addresses a stated Program Area Priority;
2) The proposed work addresses identified stakeholder needs;
3) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
4) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
5) Curricula and related products such as materials developed for eXtension communities of practice will sustain informal education or extension functions beyond the life of the project; and
6) Extension activities and the resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

4. Integrated Project Applications

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

a. Merit of the Application for Science Research, Education, and/or Extension

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

b. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management

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

6) The budget clearly allocates sufficient resources to carry out a set of research, education (teaching), and/or extension activities that will lead to desired outcomes, with no more than two-thirds of the budget focused on a single project component.

c. Project Relevance

1) The project addresses a stated Program Area Priority;
2) Project components (research, education, and/or extension) – at least two are required – are fully integrated and necessary to address the problem or issue;
3) The proposed work addresses identified stakeholder needs;
4) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;
5) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;
6) For extension or education (teaching) activities, curricula and related products will sustain education or extension functions beyond the life of the project; and
7) For extension or education (teaching) activities, the resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

5. Planning/Coordination Grant Applications

a. Articulates benefits accrued from formal planning activities;
b. Provides evidence of a high likelihood that quality future applications will be submitted;
c. Appropriate participation by stakeholders, including a listing of key participants who will be invited and their affiliations;
d. Clearly stated objectives and suitability of the preliminary agenda to address those objectives;
e. Involvement of individuals with appropriate, relevant expertise in planning committees, speakers, and attendees; and
f. Uniqueness, timeliness of the event(s), and appropriateness of budget requests.

6. 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.

7. New Investigator and Strengthening Standard Grant Applications

Refer to the review criteria listed above for the applicable Project Type (Research, Education, Extension or Integrated) to which you are applying.

8. 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 throughout the entire review process. Therefore, the names of the reviewers will not be released to applicants.

D. Organizational Management Information

Specific management information relating to an applicant shall be submitted on a one-time basis as part of the responsibility determination prior to the award of a grant identified under this RFA, if such information has not been provided previously under this or another NIFA program. NIFA will provide copies of forms recommended for use in fulfilling these requirements as part of the pre-award process. Although an applicant may be eligible based on its status as one of these entities, there are factors that may exclude an applicant from receiving Federal financial and nonfinancial assistance and benefits under this program (*e.g.*, debarment or suspension of an individual involved or a determination that an applicant is not responsible based on submitted organizational management information).

PART VI – AWARD ADMINISTRATION

A. General

Within the limit of funds available for such purpose, the awarding official of NIFA shall make grants to those responsible, eligible applicants whose applications are judged most meritorious under the procedures set forth in this RFA. Note that the project need not be initiated on the grant effective date, but as soon thereafter as practical so that project goals may be attained within the funded project period. All funds granted by NIFA under this RFA shall be expended solely for the purpose for which the funds are granted in accordance with the approved application and budget, the regulations, the terms and conditions of the award, the applicable Federal cost principles, and the applicable Department's assistance regulations.

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 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 required to submit initial project information, annual reports, and comprehensive final reports via the NIFA Current Research Information System (CRIS) at http://cwf.uvm.edu/cris/. The CRIS database contains narrative project information, progress/impact statements, and final technical reports that are made available to the public. For applications recommended for funding, instructions on preparing and submission of project documentation will be provided to the applicant by the agency contact. Documentation must be submitted to CRIS before NIFA funds will be released. Project reports will be requested by the CRIS office when required. For more information on CRIS, visit http://cris.nifa.usda.gov.

NIFA plans to begin the transition from CRIS to REEport, a new reporting system, on October 1, 2010. Additional information about this process and any applicable information collections will be made available at http://www.nifa.usda.gov/business/reeport_imp.html

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 quarterly basis no later than 30 days following the end of each reporting period. 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 Program, applicants and other interested parties are encouraged to contact AFRI:

AFRI Program Office:
Dr. Deborah Sheely, Deputy Administrator
Dr. Mark Poth, Research Director
Dr. Diana Jerkins, Acting Integrated Programs Director
Telephone: (202) 401-5022
Fax: (202) 401-6488
E-mail: AFRI@nifa.usda.gov

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

Program Area	Program Area Contact:
Prevention, Detection, and Control of STEC from Pre-Harvest through Consumption in Cattle	Hongda Chen – (202) 401-6497; hchen@nifa.usda.gov Jeanette Thurston – (202) 720-7166; jthurston@nifa.usda.gov Isabel Walls – (202) 401-6357; iwalls@nifa.usda.gov
Microbial Ecology and STEC Shedding	Gary Sherman – (202) 401-4952; gsherman@nifa.usda.gov Jeanette Thurston – (202) 720-7166; jthurston@nifa.usda.gov
Prevention, Detection and Control of Food-borne Viruses in Food	Hongda Chen – (202) 401-6497; hchen@nifa.usda.gov Jeanette Thurston – (202) 720-7166; jthurston@nifa.usda.gov Mary Ann Rozum – (202) 401-4533; mrozum@nifa.usda.gov
Food Processing Technologies to Destroy Food-borne Pathogens with an Emphasis on Viruses and STEC	Hongda Chen – (202) 401-6497; hchen@nifa.usda.gov Ali Mohamed – (202) 720-5229; amohamed@nifa.usda.gov Ram Rao – (202) 401-6010; rrao@nifa.usda.gov Dionne Toombs – (202) 401-2138; dtoombs@nifa.usda.gov
Addressing Critical and Emerging Food Safety Issues	Jeanette Thurston – (202) 720-7166; jthurston@nifa.usda.gov
National Education Programs for Food Safety	Ali Mohamed – (202) 720-5229; amohamed@nifa.usda.gov Jeanette Thurston – (202) 720-7166; jthurston@nifa.usda.gov

PART VIII – OTHER INFORMATION

A. Access to Review Information

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

B. Use of Funds; Changes

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

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

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

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

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

e) Awards will normally not be considered for additional funding beyond that approved in an original award. No-cost extensions beyond five years will be granted only under extenuating circumstances, will require prior approval of the Authorized Departmental Officer (ADO), and will be contingent upon a satisfactory merit review conducted by NIFA. In future fiscal years, Standard and Coordinated Agricultural Project (CAP) Grants (including New Investigator and Strengthening eligible grants) may be solicited for 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. AFRI 2010 Requests for Applications
2. AFRI Abstracts of Funded Projects
3. AFRI Annual Reports

G. Electronic Subscription to AFRI Announcements

If you would like to receive notifications of all new announcements pertaining to AFRI RFA, you can register via Grants.gov at http://www.grants.gov/search/subscribeAdvanced.do.

- Enter the e-mail address at which you would like to receive the announcements
- Enter “10.310” for *CFDA Number*
- Select “Subscribe to Mailing List”

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

H. Definitions

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

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

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

Food and Agricultural Science Enhancement (FASE) Grants means funding awarded to eligible applicants to strengthen science capabilities of Project Directors, to help institutions develop competitive scientific programs, and to attract new scientists into careers in high-priority areas of National need in agriculture, food, and environmental sciences. FASE awards may apply to any of the three agricultural knowledge components (i.e., research, education, and extension). FASE awards include Pre- and Postdoctoral Fellowships, New Investigator grants, and Strengthening grants.

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

Limited institutional success means institutions that are not among the most successful universities and colleges for receiving Federal funds for science and engineering research. A list of successful institutions will be provided in the RFA.

Minority-serving institution means an accredited academic institution whose enrollment of a single minority or a combination of minorities exceeds fifty percent of the total enrollment, including graduate and undergraduate and full- and part-time students. An institution in this instance is an organization that is independently accredited as determined by reference to the current version of the Higher Education Directory, published by Higher Education Publications, Inc., 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 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 20) 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.