National Research Initiative Competitive Grants Program

FY 2008 Request for Applications

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service

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NRI REQUIRES ELECTRONIC SUBMISSION FOR ALL APPLICATIONS

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Initial Announcement

This Request for Applications (RFA) is being released prior to the passage of the Fiscal Year (FY) 2008 Agricultural Appropriations Act in response to requests from our applicant community, as well as the need to continue to fund critical agricultural research and integrated programs. However, the enactment of the FY 2008 Appropriation Act and passage of the 2007 Farm Bill may not only impact the overall level of funding for the National Research Initiative (NRI) program, but also the overall research and integrated grant portfolio. Hence, the Cooperative State Research, Education, and Extension Service (CSREES) reserves the right to amend, delete, or otherwise alter any programs. As indicated in the title of this RFA, this is an initial announcement for the NRI Program and, depending on the FY 2008 Appropriation Act, CSREES may be issuing a supplemental RFA to address topics already identified in this RFA. The Integrated Research, Education, and Extension Competitive Grants Programs are not included in the RFA. A separate RFA will be issued to solicit applications for those programs. Updated information about this RFA will be made available at http://www.csrees.usda.gov/fo/nri.html.

Executive Summary:

CSREES requests applications for the NRI Program for FY 2008 to support (1) high priority fundamental and mission-linked research of importance in the biological, environmental, physical, and social sciences relevant to agriculture, food, the environment, and rural communities and (2) competitively awarded research, extension, and education grants addressing key issues of national and regional importance to agriculture, forestry, and related topics. In FY 2008, CSREES anticipates that approximately $190 million will be available for support of this program. Of this amount, no more than 22 percent will be made available to fund integrated projects. The remaining funds will be used to fund research projects.

This notice identifies research and integrated program objectives. It describes separate eligibility criteria and matching requirements for each type of project and instructs applicants regarding the submission and review of applications.

Stakeholder Input:

The Competitive Programs staff utilizes the input of diverse stakeholder groups to develop program descriptions that will solicit the highest-quality applications to meet the needs of U.S. agriculture, food, forestry, the environment, and rural communities. Setting program priorities is an important means of facilitating the scientific and technological advances needed to meet the challenges facing U.S. agriculture. Program priorities are developed using several criteria, including 1) mission relevance; 2) scientific opportunity; 3) impact to science and society; 4) linkages to other Federal programs; and 5) stakeholder input.

The new stakeholder page on the CSREES Web site illustrates the diverse input used to generate new research and integrated priorities for NRI programs. The stakeholder Web page can be viewed at www.csrees.usda.gov/business/reporting/stakeholder.html. The NRI relies on legislatively mandated guidance from the National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB) as well as input from coalitions and stakeholders to provide a broad perspective on current research, extension, and education needs and priorities. The NRI staff participates in meetings with representatives of key commodity groups and other user groups to discuss stakeholders' current research priorities, to solicit comments and suggestions on NRI Program priorities, and to determine how the NRI can best meet stakeholders' needs. The NRI scientific staff attends scientific and professional meetings and coordinates program priorities with other federal agencies to ensure scientific trends are reflected in the RFA. In addition, the NRI receives input on its programs from academia, including administrators, staff members, and scientists at land grant and other universities.

CSREES welcomes comments from any interested party for use in developing the next RFA for this program. Such comments 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. Comments should be submitted as provided in the **Deadlines** portion of this announcement.

Written stakeholder comments should be submitted by mail to: Policy, Oversight, and Funds Management Branch Staff; Office of Extramural Programs; USDA-CSREES; STOP 2299; 1400 Independence Avenue, SW; Washington, DC 20250-2299; or via e-mail to: RFP-OEP@csrees.usda.gov. This e-mail address is intended only for receiving comments regarding this RFA and not requesting information or forms. In your comments, please state that you are responding to the National Research Initiative RFA.

Deadlines:

All applications must be submitted via Grants.gov by Close of Business (COB), which is 5:00 p.m. Eastern Time (not local time), on the deadline indicated in the program description (see Part II, E), as well as in Table 5 at the end of this announcement. Applications received after the applicable deadline will not be considered for funding. Comments regarding this RFA are requested within six months from the issuance of this notice. Comments received after this date will be considered to the extent practical.

********PLEASE READ********

Important Changes for NRI FY 2008 Application Submission

********PLEASE READ********

Electronic Application Submission Required:
All applications must be submitted via Grants.gov by Close of Business (COB), which is 5:00 p.m. Eastern Time (not local time), on the deadline indicated in the program description (see Part II, E), as well as in Table 5 at the end of this announcement. Applications received after the applicable deadline will normally not be considered for funding. Information about submitting an application using grants.gov can be found in Part IV. **All attachments must be submitted in portable document format (PDF).** Additional time may be needed for assembling and submitting an electronic application. Please plan accordingly. **Grants.gov does not currently support the Windows Vista operating system. The PureEdge software used by Grants.gov for forms may not be compatible with MS Vista.**

Helpful Information for Submission	Website Address
News, information, and resources related to electronic submission.	www.csrees.usda.gov/funding/electronic
All applications must be submitted through the Grants.gov Web site.	Grants.gov

If you have any questions related to preparing an application for electronic submission, contact CSREES' helpdesk:
Email: electronic@csrees.usda.gov
Phone: 202-401-5048, Business hours are M-F, 7:00 am – 5:00 pm ET, excluding Federal holidays.

If you have any questions related to Grants.gov, contact their helpdesk:
Email: support@grants.gov
Toll Free: 1-800-518-4726, Business hours are M-F, 7:00 am – 9:00 pm ET.

FY 2008 Appropriations:
This RFA is being released prior to the passage of the FY 2008 Agricultural Appropriations Act in response to requests from our applicant community, as well as the need to continue to fund critical agricultural research and integrated programs. However, the FY 2008 Appropriations Act may not only impact the overall level of funding for the NRI Program, but also the overall research and integrated grant portfolio for FY 2008. Hence, CSREES reserves the right to amend, delete, or otherwise alter any programs. As indicated in the title of this RFA, this is an initial announcement for the NRI Program and depending on the FY 2008 Agricultural Appropriations Act, CSREES may issue a supplemental RFA to address topics already identified in this RFA. Updated information about this RFA will be made available at http://www.csrees.usda.gov/fo/nri.html.

Budget Restrictions Require Strict Adherence to Funding Limits:
Each program description details mandatory funding limits for a given grant type. **Applications requesting budgets exceeding the program's funding limit (including indirect costs) will be returned without review.** Applicants are strongly encouraged to read the entire Program Description and contact the appropriate National Program Leader for additional information.

Acceptance of an Application:
Each Program Description in the FY 2008 RFA (see Part II, E) contains priorities for research and/or integrated research, education, and extension projects and the contact information for the National Program Leader responsible for the program. **The National Program Leader will return applications without review that exceed program funding limits, do not meet FY 2008 program priorities, are missing required documents (e.g. the Conflict of Interest list), or do not follow formatting guidelines (e.g. PDF attachment**

requirement, page limitations, margin size, font size, etc.). See Part II, E for program priorities and program funding limits (including indirect costs) and Part IV for formatting guidelines for electronic submission. Please note, Grants.gov will not check the application for agency-specific documents. Nor will Grants.gov convert documents to PDF or check to ensure all attached documents are saved in PDF format. See Part IV of this RFA for a full list of documents that are required for a complete application.

Letters of Intent Required for Specific Programs:

A letter of intent is required for 14 programs spanning 22 program codes in FY08. A letter of intent provides the National Program Leader a method to ensure applications align closely with program priorities. A letter of intent applies to standard research projects, integrated projects, standard strengthening grants, postdoctoral fellowships, and new investigator applications. A letter of intent is not required for sabbatical awards, equipment grants, conference grants, and seed grants.

A letter of intent must follow specific deadline dates, format, and content outlined in the Other Key Information section of the program description, Part II, E. The letter of intent must be saved in PDF format and attached to an email addressed to the appropriate National Program Leader with the subject heading, 'Letter of Intent Program_ *program code_PD's last name*'. An acknowledgement receipt will be sent by email indicating the letter was received. Project Directors are discouraged from submitting more than one letter of intent per program. Project Directors who receive an invitation to submit a full application must do so by the program deadline. The invited applications will be reviewed by the program panel.

Programs requiring a Letter of Intent in FY 2008

Program Code	Program or Program Element
20.2	Plant Biosecurity
23.1	Managed Ecosystems
25.0	Soil Processes
28.0	Air Quality
31.0	Bioactive Food Components for Optimal Health
43.0	Animal Genome (A) Translational Animal Genomics (integrated proposals only)
43.0	Animal Genome (D) Functional Genomics
43.0	Animal Genome (E): Whole Genome Enabled Animal Selection
44.0	Animal Protection and Biosecurity (A): Animal Disease
51.2	Arthropod and Nematode Biology and Management (A): Organismal and Population Biology
51.2	Arthropod and Nematode Biology and Management (B): Suborganismal Biology
51.2	Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics
51.2	Arthropod and Nematode Biology and Management (D): Protection of Managed Bees CAP
51.8	Microbial Biology (B): Microbial Associations with Plants
51.9	Biology of Weedy and Invasive Species in Agroecosystems
52.1	Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)
56.0	Plant Biology (A): Gene Function and Regulation
56.0	Plant Biology (B): Environmental Stress
56.0	Plant Biology (C): Biochemistry
56.0	Plant Biology (D): Growth and Development
56.0	Plant Biology (E): Plant Breeding and Education
71.1	Improving Food Quality and Value
71.2	Biobased Products and Bioenergy Production Research

Program Priorities:

In the Project Summary, applicants must address at least one of the stated research or integrated priorities detailed in the program description of interest. Applications that do not address at least one of the program priorities will be returned without review.

Integrated Projects:

An integrated project brings together at least two of the three components of the agricultural knowledge system (i.e. research, education, and extension) around a problem or issue. In FY 2008, integrated project proposals should interweave at least two of the three components throughout the course of the project. In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, contain strong plans for project management and project evaluation, and produce sustained education/extension initiatives. Please note, integrated project eligibility requirements are different than for research applications. For more information on integrated programs in the NRI please visit http://www.csrees.usda.gov/funding/integrated/integrated.html.

Eligibility and requirements for matching funds and types of projects differ by application type. Applicants are strongly encouraged to read the entire RFA and contact the appropriate National Program Leader with any questions. The NRI will use no more than 22 percent of available funds to support integrated research, extension, and education grants (see Part I, A). These funds will not be distributed uniformly across all NRI programs.

Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

Social Science Research and Integrated Grant Opportunities:

There are an increasing number of opportunities in the NRI for those interested in funding for social science research and integrated projects. These include the three programs with opportunities for many different social science disciplines (Economics, Sociology, Geography, Human Sciences, Agricultural Education, etc):

- Agricultural Prosperity for Small and Medium-Sized Farms (Program Code 66.0);
- Agribusiness Markets and Trade (Program Code 61.0); and
- Rural Development (Program Code 62.0).

The NRI also has opportunities for agricultural economists, rural sociologists, and other social and behavioral scientists in topics related to:

- Markets for ecosystem services (Program Code 23.1);
- Water resources (Program Code 26.0);
- Economic efficiency of biobased products (Program Code 71.2);
- Social, behavioral and economic factors that influence the adoption of practices to reduce agricultural emissions to the atmosphere (Program Code 28.0);
- Economic costs of food safety regulations and its impacts on trade (Program Code 32.0)
- Social and economic factors that influence obesity (Program Code 31.5);
- Economics of invasive species management (Program Code 51.9); and
- Perception and acceptance of nanotechnology (Program Code 75.0)

Although some programs do not clearly identify social sciences in the list of priorities, most integrated programs that include extension can have opportunities in agricultural education and economic analysis. To identify all the opportunities available for social sciences within the NRI, it is important to review the different program solicitations and contact the relevant National Program Leaders.

Electronic Subscription to NRI Announcements:
If you would like to receive notifications of all new announcements pertaining to the NRI 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 "10.206" 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 NRI announcements. You do not need to be a registered user of Grants.gov to use this service. You may modify your email subscriptions or unsubscribe at any time.

Changes in Strengthening Requirements:
In FY 2007, the NRI implemented changes to eligibility requirements for Strengthening awards.
Please review Part II, C 2(c) for more details.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority and Background

The authority to support research projects through this program is contained in 7 U.S.C. 450i(b). Under this authority, subject to the availability of funds, the Secretary may award competitive research grants, for periods not to exceed five years, for the support of research projects to further the programs of the USDA.

In FY 2006, Section 710 of the General Provisions of the Consolidated Appropriations Act, 2004 (Pub. L. 108-447) provided the Cooperative State, Research, Education, and Extension Service (CSREES) with the authority to use up to 22 percent of the amount made available in the Act for the National Research Initiative program (NRI), to carry out a competitive grants program under the same terms and conditions as those provided in Section 401 of the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA) (7 U.S.C. 7621). Section 101 of the Revised Continuing Appropriations Resolution, 2007, (Pub. L. 110-5) sustained that authority. In FY 2008, CSREES anticipates similar language; however, funding for integrated projects is contingent on the inclusion of the integrated authority in the FY 2008 Agricultural Appropriations Act and the availability of appropriated funds.

Section 401 of AREERA authorizes the Secretary of Agriculture to establish a research, extension, and education competitive grants program to address critical emerging U.S. agricultural and rural issues related to future food production; environmental quality and natural resource management; farm income; and rural, economic and business, and community development policy. In addition, the Secretary of Agriculture is authorized to make grants that address priority mission areas related to: (1) agricultural genomics, (2) food safety, food technology, and human nutrition, (3) new and alternative uses and production of agricultural commodities and products, (4) agricultural biotechnology, (5) natural resource management, including precision agriculture, and (6) farm efficiency and profitability, including the viability and competitiveness of small and medium-sized dairy, livestock, crop, and other commodity operations.

B. Purpose and Priorities

CSREES Competitive Programs Unit administers the NRI. The purpose of the NRI is to support research grants and integrated research, extension, and education grants that address key problems of National, regional, and multi-state importance in sustaining all components of agriculture, including farming, ranching, forestry (including urban and agroforestry), aquaculture, rural communities, human nutrition, and processing. Providing this support requires that NRI advances fundamental sciences in support of agriculture and coordinates opportunities to build on these discoveries. This will necessitate new efforts in education and extension that deliver science-based knowledge to people, allowing them to make informed practical decisions. Hence, the NRI is accepting applications for fundamental research, mission-linked research, and integrated research, extension, and education projects. However, applicants should know that the NRI will use no more than 22 percent of available funds to support integrated projects (see Part I, A) and that these funds will not be distributed uniformly, but targeted to specific priorities. Targeted priorities for integrated projects are clearly identified within the detailed descriptions of program offerings (see Part II, E).

CSREES may also solicit applications for NRI funds through other announcements, including supplemental FY 2008 NRI RFAs or in conjunction with multi-agency programs. Such announcements will be made public in the same manner as this announcement.

1. Fundamental research project

Research testing scientific hypotheses and providing basic knowledge that enables advances in applied research and from which major conceptual breakthroughs are expected to occur.

2. Mission-linked research project

Research conducted on specifically identified agricultural problems that, through a continuum of efforts, provide information and technology that may be transferred to users and may relate to a product, practice, or process.

3. Multidisciplinary project

Multidisciplinary projects are research or integrated by nature in which investigators from two or more disciplines collaborate closely. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.

4. Integrated projects

An integrated project brings together at least two of the three components of the agricultural knowledge system (i.e. research, education, and extension) around a problem or issue. In FY 2008, integrated project proposals must interweave at least two of the three components (research, education, and extension) into the project. In general, strong integrated projects will be stakeholder driven, problem focused, and outcome oriented. They will exhibit a collaborative team approach, contain strong plans for project management and project evaluation, and produce sustained education/extension initiatives.

The programs, described herein, were developed within the context of the authorized purposes of USDA research, extension, and education and within the framework of the CSREES Strategic Plan. In addition, the NRI obtains input from Congress, the National Agricultural Research, Extension, Education, and Economics Advisory Board, as well as many university, scientific, and agricultural committees and organizations. CSREES developed a new stakeholder's Web page (http://www.csrees.usda.gov/business/reporting/stakeholder.html) to document stakeholder resources that are considered when developing and updating program descriptions and priorities each year.

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. Contingent on congressional action, in FY 2008, CSREES anticipates that approximately $190 million will be available for support of this program. Of this amount, CSREES anticipates that no more than 22 percent will be made available to fund integrated projects (see Part I, A). The remaining funds will be used to fund research projects. No less than 10 percent of the funds available to support research projects will be made available for Agricultural Research Enhancement Awards, excluding New Investigator Awards, and no more than two percent will be made available for equipment grants. Further, no less than 30 percent of the funds available for research projects shall be made available for research to be conducted by multidisciplinary teams. No less than 40 percent shall be made available for grants for mission-linked systems research. NRI funds may be used to fund applications submitted to supplementary NRI RFAs and/or solicitations for multi-agency programs in which the NRI is participating.

B. Types of Applications

In FY 2008, applications may be submitted to the NRI Program as one of the following four types of requests:

1. New application

This is a project application that has not been previously submitted to the NRI. All new appropriate applications will be reviewed competitively using the selection process and evaluation criteria described in Part V.

2. Renewal application

This is a project application that requests additional funding beyond the period that was approved in an original or amended award. Applications for renewed funding must contain the same information as required for new applications. Additionally, a renewal application must contain a Progress Report. Renewal applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate area to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications, see Part V.

3. Resubmitted application

This is an application that had previously been submitted to the NRI, but was not funded. Project Directors (PDs) must respond to the previous panel review summary. Resubmitted applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate area to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications, see Part V. Applications which appear to be resubmissions (regardless of the designation) are regarded as such by the program and the panel, and compete on the same basis with all other applications (new, renewal, and resubmissions) submitted to the program at the same time.

4. Resubmitted renewal application

This is a project application that requests additional funding for a project beyond the period that was approved in the original or amended award and that had previously been submitted for renewal to the NRI Program, but was not approved. The PD must provide a Progress Report as required under the Project Description and must respond to the previous panel review summary as required under Response to Previous Review. Resubmitted renewal applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate areas to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications, see Part V.

C. Project Types
For applications proposing research or integrated research, education, and extension projects, support will be provided through Standard Research Grants, Integrated Project Grants, Conference Grants, Postdoctoral Fellowships, New Investigator Awards, and Strengthening Awards.

In FY 2008, applications are being solicited for the following project types:

1. Conventional Projects

(a) Standard Research Grants
Research will be supported that is **fundamental** or **mission-linked** and that is conducted by **individual** investigators, co-investigators within the same discipline, or **multidisciplinary** teams. Certain programs within the NRI require a letter of intent prior to submitting a full application. See specific program description to determine whether a letter of intent is required.

In 2004, the Coordinated Agricultural Project (CAP) was created to support 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. CAP awards are only solicited in defined programs. Project participants serve as a team that conducts targeted research 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 research CAP project contains the needed science-based expertise, 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 areas that will be evaluated during the study period.

CAP awards are typically made as continuation grants. A continuation grant is a grant 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 performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

(b) Conference Grants
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. Conference awards are not expected to exceed $10,000 and are not renewable. Indirect costs are not allowed. Conference Grant applications should be submitted by the deadline date for the appropriate program described under Part II, E. Certain programs within the NRI require a letter of intent prior to submitting a full application. A letter of intent, however, is not required for Conference Grant applications. Applicants interested in submitting conference applications are strongly advised to consult the appropriate NRI staff before preparing an application.

2. Agricultural Research Enhancement Awards (AREA)

Agricultural Research Enhancement Awards (AREA) strengthen research capabilities in research programs. These awards are designed to help institutions develop competitive research programs and to attract new scientists into careers in high-priority areas of National need in agriculture, food, and environmental sciences. The AREA program provides support for Postdoctoral Fellowships, research awards for New Investigators, and Strengthening Awards. Specific eligibility requirements for these awards are described below. Applications submitted by non-United States organizations will not be considered for support. However, United States citizens applying as individuals for Postdoctoral Fellowships may do all or part of the proposed work at a non-United States organization.

(a) Postdoctoral Fellowships
Individuals who have recently received or will soon receive their doctoral degree are encouraged to submit an application for a Postdoctoral Fellowship. **These applications may be submitted either directly by the individual or through the mentor's institution. The postdoctoral applicant must be the sole PD listed on the application**. Certain programs within the NRI require a letter of intent prior to submitting a full application. See specific program description to determine whether a letter of intent is required.
The following requirements apply for all Postdoctoral Fellowships:

(1) the doctoral degree must be received after January 1, 2005 and can not be received later than nine months after the application due date for the NRI program of interest;

(2) the individual must be a citizen of the United States;

(3) the application must contain (A) documentation that arrangements have been made with an established investigator to serve as mentor; (B) documentation that arrangements have been made for the necessary facilities, space, and materials for conduct of the research; and (C) documentation from the host institution's authorized organizational representative (AOR) indicating that the host institution concurs with these arrangements; and

(4) the research proposed must be solicited in and submitted directly to a specific program described under Part II, E.

Although a proposed project may fit in the context of the mentor's existing research area, the postdoctoral award should initiate an independent research program, rather than serve as an extension of ongoing projects in the mentor's laboratory. Postdoctoral awards are limited to a total award of $125,000 for a two-year duration and are not renewable. Funds should be requested primarily for salary support, although other expenditures (e.g. supplies, travel, and publication) are allowable costs if properly justified. Institutional allowance, not to exceed $2,400/year, may be requested within the $125,000 maximum award limit. Indirect costs are not allowed.

An institution may provide compensation for non-research services, but such compensation is not considered stipend supplementation. However, it is expected that compensated services will occur on a limited, part-time basis apart from the normal postdoctoral research activities, which require a minimum of 40 hours per week. Under no circumstances may the conditions of stipend supplementation or the services provided for compensation interfere with, detract from, or prolong the fellow's two year approved NRI postdoctoral fellowship.

Applications should be submitted to the appropriate research program described in this solicitation by the designated deadline for that particular program. A separate peer review panel will not be assembled to review these applications. Applicants are urged to contact the appropriate National Program Leader concerning questions related to eligibility, budget, and similar matters.

(b) New Investigator Awards
A new investigator is defined as an individual who is beginning his/her research career, does not have an extensive research publication record, and has less than five years postgraduate, career-track research experience. The new investigator may not have received competitively awarded Federal research funds with the exception of pre- or postdoctoral research awards or USDA NRI Seed Grants. The application must contain documentation that lists all prior Federal research support. New Investigator award applications are subject to letter of intent guidelines. See specific program description to determine whether a letter of intent is required.
Applications may be submitted by any State agricultural experiment station, college, university, other research institution or organization, Federal agency, national laboratory, private organization, corporation, or individual. Applications submitted by non-United States organizations will not be considered for support. The research proposed shall be appropriate to a program described under Part II, E and the application must be submitted directly to that program by the designated deadline date. A separate peer review panel will not be assembled to review these applications.

(c) Strengthening Awards
Strengthening Awards consist of Research Career Enhancement Awards (Sabbatical Awards), Equipment Grants, Seed Grants, and Strengthening Standard Research Awards. **The NRI particularly encourages applications for Research Career Enhancement Awards (Sabbatical Awards).** All applications submitted for Strengthening Awards must fulfill the requirements for a Strengthening Award, as well as be appropriate to one of the programs described in this document.

Flow Chart for Strengthening Award Eligibility
A flow chart is provided at the end of the document, see Figure 1, for determining eligibility for Strengthening Awards.

- Equipment Grants will be available to PDs at **academic institutions not among the top 100 universities and colleges for receiving Federal funds for science and engineering research**, see Table 1 at the end of the document for a list of the most successful institutions. If the institution is listed in Table 1, the Project Director is not eligible for an Equipment Grant.

- Research Career Enhancement Awards, Seed Grants, and Strengthening Standard Research Awards will be available to PDs at **small and mid-sized academic institutions** (not among the top 100 universities and colleges for receiving Federal funds for science and engineering research) or at an **institution located in an Experimental Program for Stimulating Competitive Research (EPSCoR)** state. See Table 1 for a list of the most successful institutions. If your institution is listed in Table 1 and is not in an EPSCoR state, you are not eligible for a Research Career Enhancement Award, Seed Grant, or Strengthening Standard Research Award.

Strengthening Award Definitions

(1) EPSCoR States
Every three years, the NRI calculates which states are eligible for USDA EPSCoR funding. This list is generated by calculating the states that have had a funding level from the NRI no higher than the 38th percentile of all states, based on total funding for the previous three-year period (excluding strengthening set-aside funds). For FY 2008, the following States meet the requirements for this category:

Alabama	Alaska	Arkansas	Delaware	Hawaii	Idaho	Kentucky
Louisiana	Maine	Nevada	New Jersey	New Mexico	North Dakota	Oklahoma
South Carolina	South Dakota	Vermont	West Virginia	Wyoming		

Other entities eligible for USDA-EPSCoR funds in FY 2008 include the following United States commonwealths, territories, possessions and their successors, and the District of Columbia:

American Samoa	District of Columbia	Guam	Micronesia
Northern Mariana Islands	Puerto Rico	Virgin Islands of the U.S.	

(2) Small and mid-sized institutions for Research Projects are academic institutions with a current total enrollment of 15,000 or less, including graduate and undergraduate and full- and part-time students. Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter. 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).

(3) 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. See Table 1 at the end of this document for an alphabetical list of the most successful institutions.

An individual applicant may submit only one of the following types of strengthening applications (research career enhancement, equipment grants, and seed grants) as PD or co-PD this fiscal year. Investigators are encouraged to contact the National Program Leader of the appropriate program, described in Part II, E, regarding questions about suitability of research topics or research topics for which equipment would be used to verify allowability.

(i) Research Career Enhancement Awards (Sabbatical Awards)

The purpose of these awards is to provide an opportunity for faculty to enhance their research capabilities by funding sabbatical leaves. These awards will be limited to individual faculty who have appointments at small and mid-sized degree-granting institutions that previously had limited institutional success and to faculty who have appointments at degree-granting institutions eligible for USDA-EPSCoR funding. Collaborative arrangements are encouraged. Research colleagues who serve as collaborators should not be listed on the Senior/Key Person Profile. Awards will be limited to one year of salary and funds for travel and supplies. These awards are not renewable. Certain programs within the NRI require a letter of intent prior to submitting a full application. A letter of intent, however, is not required for Research Career Enhancement Award applications.

CSREES also encourages and will support the concept of "mini-sabbaticals" for faculty desiring short-term training to learn new techniques that will improve their competitiveness. These short-term training opportunities generally follow all of the sabbatical items described below but for a shorter duration. These awards may be used to participate in short courses offered at various research institutions.

- The sabbatical description must include the research interests and goals of the PD, the research project to be pursued while on sabbatical leave, an indication of how the sabbatical leave will enhance the research capabilities of the PD, and a statement of future research goals and how the sabbatical will enable the PD to pursue these goals.

- The application should include a letter detailing the particulars of the arrangement with the home institution (e.g. dates and duration of sabbatical and salary arrangements).

- The application should also include a letter from the established investigator who will be the host. The host's letter should provide intent and assurance that all facilities and space necessary to conduct the proposed research will be available.

(ii) Equipment Grants

Equipment grants are designed to strengthen the research capacity of institutions. Eligibility for equipment grants is open to any degree-granting institution that is not among the most successful universities and colleges in receiving Federal funds for science and engineering research. See Table 1 for most successful institutions. If the institution is listed in Table 1, Project Directors employed by the institution are not eligible for Equipment Grants.

These awards are not intended to replace requests for equipment in individual research projects. Rather, they are intended to help fund items of equipment that will upgrade research 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. 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. 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. Certain programs within the NRI require a letter of intent prior to submitting a full application. A letter of intent, however, is not required for Equipment Grant applications. The following requirements apply to all Equipment Grant applications.

- A letter(s) from the organization(s) committed to providing the remaining matching non-Federal funds must be included in the application.

- The application should include a description of the research project(s) for which the equipment will be used and detail how the equipment will fit into or enhance the research program and allow the applicant to become more competitive for future funding.

- The application should also include a description of similar or complementary equipment currently available to the PD and an explanation as to why the requested equipment is necessary.

- PDs are encouraged to 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.

- The requirement for matching funds may be waived if three criteria are met.
    1. The award is made to a college, university, or research foundation maintained by a college or university that ranks in the lowest one-third of academic institutions receiving Federal research funds (see Table 2 for a list of institutions that are eligible for waiver of matching funds for equipment grants);
    2. The equipment to be acquired costs not more than $25,000; and
    3. The equipment will have either multiple uses within a single research project or is useable in more than one research project.

(iii) Seed Grants

The purpose of these awards is to provide funds to enable investigators to collect preliminary data in preparation for applying for a Standard Research Grant. The awards are not intended to fund stand-alone research projects, but rather projects that will lead to further research applicable to one of the research areas in the NRI.

These awards will be limited to faculty with appointments at small and mid-sized degree-granting institutions that have had limited institutional success and to faculty with appointments at degree-granting institutions eligible for USDA-EPSCoR funding. These awards will be limited to a total of $100,000 (including indirect costs) for two years and are not renewable. Certain programs within the NRI require a letter of intent prior to submitting a full application. A letter of intent, however, is not required for Seed Grant applications. The following requirement applies to all Seed Grant applications.

- Applications for seed grants are expected to indicate how the research will enhance future competitiveness of the PD in applying for Standard Research Grants from the NRI.

(iv) Strengthening Standard Research Project Awards

These awards will be limited to faculty with appointments at small and mid-sized degree-granting institutions that have had limited institutional success and to faculty with appointments at degree-granting institutions eligible for USDA-EPSCoR funding. Certain programs within the NRI require a letter of intent prior to submitting a full application. See specific program description to determine whether a letter of intent is required.

3. Integrated Projects

(a) Integrated Project Grants

An integrated project, as defined in Part VIII, H, includes two of the three components of the agricultural knowledge system (i.e. research, education, and/or extension) within a project. The components addressed in the project should be interwoven throughout the life of the project and act to complement and reinforce one another.

(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 extension component of an integrated project should lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group. Extension related activities designed to build institutional capacity are also allowable. Extension programs should incorporate a wide range of research results, not just those of the current project. 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.

(3) The proposed education (teaching and teaching-related) component of an integrated project should strengthen institutional capacities and result in curricula and related products that will be sustained beyond the life of the project. The following activities are appropriate for the education component of an integrated project: curriculum development; instructional materials development; education delivery systems; student experiential learning (internships, externships, clinics); student recruitment and retention efforts; career planning materials and counseling; pedagogy; student learning styles and student-centered instruction; faculty development programs; student study abroad and international research opportunities relevant to overall program goals for U.S. agriculture; and faculty and student exchanges.

The bullets below describe additional requirements for integrated project proposals.

- Integrated projects should aim to resolve today's problems through the application of science-based knowledge;
- Integrated projects should address needs identified by stakeholders, and stakeholder involvement in project development, implementation, and evaluation is strongly encouraged, where appropriate;
- Integrated projects should clearly identify anticipated outcomes and must have a plan for evaluating and documenting the success of the project. The applicant is strongly advised to consult with an evaluation specialist to develop appropriate measures of success;
- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.
- Integrated proposals should contain objectives for each component of the project. Please note that extension and education activities are expected to differ (see enumerated descriptions above and definitions in Part VIII, H) and should be described in separate project objectives;
- Integrated projects must budget sufficient resources to carry out the set of extension, research, 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. In other words, no more than two-thirds of the project's budget may be allocated to research (or education, or extension);
- Integrated projects must include individuals on the project team with significant expertise in each component of the project (research, education, and/or extension);

Those interested in submitting integrated applications are encouraged to contact the appropriate National Program Leader to discuss the anticipated project parameters and outcomes to ensure the application content appropriately meets the requirements of an integrated project.

See http://www.csrees.usda.gov/funding/integrated/integrated.html for additional information on integrated programs, including tips for writing integrated project proposals and an example of an integrated proposal.

Programs soliciting integrated applications in FY 2008.

Program Code	Program and Program Element
20.2	Plant Biosecurity[1]
23.1	Managed Ecosystems[2]
28.0	Air Quality[2]
31.0	Bioactive Food Components for Optimal Health[2]
31.5	Human Nutrition and Obesity[2]
41.0	Animal Reproduction[2]
42.0	Animal Growth and Nutrient Utilization[2]
43.0	Animal Genome (A) Translational Animal Genomics[2]
44.0	Animal Protection and Biosecurity (B): Animal Well-Being[2]
44.0	Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Project (CAP)[1]
51.2	Arthropod and Nematode Biology and Management (D): Genes to Practice – Protection of Managed Bees Coordinated Agricultural Project (CAP)[1]
51.9	Biology of Weedy and Invasive Species in Agroecosystems[2]
52.1	Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)[1]
56.0	Plant Biology (E): Plant Breeding and Education[1]
62.0	Rural Development[1]
66.0	Agricultural Prosperity of Small and Medium-Sized Farms[1]
71.1	Improving Food Quality and Value[2]

A limited number of programs (those with Program Codes 44.0C and 52.1D) solicit applications for the Integrated Coordinated Agricultural Project (CAP) award. Integrated CAP awards support 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. Like integrated projects, Integrated CAP projects address problems through research, education, and extension. Project participants serve as a team that conduct targeted research, extension, and education in response to emerging or priority area(s) of National need. Applications articulate how an Integrated CAP award will complement and/or link with existing programs or projects at the National level. An Integrated CAP project contains the needed science based expertise in teaching, extension, and research, 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, extension, and education areas that will be addressed during the study period. All integrated project requirements described earlier in this section apply to integrated CAP projects.

An integrated CAP award is typically made as a continuation grant. A continuation grant is a grant instrument by which the USDA-CSREES agrees to support a specified level of effort for a predetermined period of time, typically

[1] Program soliciting only grants for integrated projects.
[2] Program soliciting grants for integrated and research projects.

one year, with a statement of intention to provide additional support at a future date, provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

(b) Bridge Grants

Bridge grants are a type of integrated award designed to assist small, mid-sized, and minority-serving institutions that have not previously been successful in obtaining competitive grants under subsection (b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) (i.e. NRI). Bridge Grants provide funding to sustain and enhance important collaborations and activities with the goal of leading to future program success or success in obtaining other grants. A flow chart for determining applicant eligibility for bridge grants is provided at the end of this document in Figure 2. Institutions eligible for bridge grants will be considered for up to $100,000 if an integrated project application is considered meritorious, but ranks below the funding cutoff during the peer review process.

Applicants may not apply directly for bridge grants. Bridge grants will be awarded only to eligible small- and mid-sized institutions and minority-serving institutions (as defined below) which are not among the most successful universities and colleges for receiving Federal and/or NRI funds for science and engineering research. See Table 3 at the end of this document for an alphabetical listing of the most successful institutions. If the institution appears in Table 3, Project Directors employed by the institution may not be eligible for Bridge Grants. Applicants in this category should indicate whether the institution qualifies as a small, mid-sized institution or a minority-serving institution (as defined in Part VIII, H) and include the documentation requested below.

(1) Small and mid-sized institutions for integrated projects are defined as academic institutions with a current total enrollment of 15,000 or less including graduate, undergraduate, as well as full and part-time students. The institutions are not higher than the 50th percentile of academic institutions funded by the NRI Program in the past three years and not within the top 100 Federally-funded institutions. See Table 3 at the end of this document for an alphabetical listing of the most successful institutions for Federal and NRI funding. If the institution appears in Table 3, Project Directors employed by the institution are not eligible for Bridge Grants.

- Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter. 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). Other institutions or organizations involved in small- and mid-sized institution eligible projects need not meet the criteria described in the definitions for small- and mid-sized institution, but will not be eligible for bridge grant funds.

(2) Minority-serving institution is defined as an academic institution whose enrollment of a single minority group or a combination of minority groups (as defined in Part VIII, H) exceeds 50 percent of the total enrollment, including graduate and undergraduate and 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. 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). Other institutions or organizations involved in minority-serving institution eligible projects need not meet the criteria described in the definitions for minority-serving institutions, but will be not be eligible for bridge grant funds. A list of post-secondary minority-serving institutions can be found at http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html.

D. The NRI and CSREES Strategic Planning

The NRI supports the objectives and goals identified in the CSREES Strategic Plan (http://www.csrees.usda.gov/about/offices/pdfs/csrees_stratic_plan.pdf). The CSREES plan has the following goals:

1. Strategic Goal 1: Enhance International Competitiveness of American Agriculture
2. Strategic Goal 2: Enhance the Competitiveness and Sustainability of Rural Farm Economics
3. Strategic Goal 3: Support Increased Economic Opportunities and Improved Quality of Life in Rural America
4. Strategic Goal 4: Enhance Protection and Safety of the Nation's Agriculture and Food Supply
5. Strategic Goal 5: Improve the Nation's Nutrition and Health
6. Strategic Goal 6: Protect and Enhance the Nation's Natural Resource Base and Environment

The CSREES plan is compatible with the goals of the USDA Strategic Plan and is a dynamic working document that evolves in response to changes in National needs. Decisions about NRI priorities are also informed by stakeholder input, congruence with Presidential initiatives, and reports from the National Academy of Sciences and National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB). These priorities are further designed to address the purposes of Section 401 of AREERA including all statutorily-identified, critical, emerging agricultural and rural issues and priority mission areas (See Part I, A).

E. Program Opportunities

CSREES offers a number of programs that support research, education, and extension, or a combination thereof. CSREES solicits separately for the Integrated Research, Education, and Extension Program and other programs that deal with biotechnology risk assessment and higher education. The programs provide funding for many topic areas related to, but not duplicated by NRI programs. Applicants are encouraged to examine other CSREES program descriptions to find the most appropriate source of funding. Eligibility for these programs is noted in the RFA of a given program. RFAs can be accessed through the Agency's Web site (http://www.csrees.usda.gov/fo/funding.cfm).

The following program opportunities provide a base from which applications for Standard Projects, AREA, and Integrated Projects may be developed. These descriptions provide boundaries on the scope of each individual program. The NRI encourages submission of innovative "high-risk" projects with potential for future high impact on agriculture, as well as innovative applications with potential for near-term use.

Research projects addressing biological issues should focus on agriculturally-important organism(s) to accomplish the research objectives. The use of other organisms as experimental model systems **MUST** be justified relative to the goals of the appropriate research program.

Note to multidisciplinary research teams: The NRI recognizes the value of research performed as a team effort and recommends the following be taken into consideration when assembling a project team and developing an application for funding. To be competitive, the number of objectives and the level of personnel involved in the application should be appropriate to the NRI program and to the activities proposed. A clear management strategy should be provided which identifies the contribution of each member of the team.

Agricultural Genomics and Biosecurity Cluster Overview

The Agricultural Genomics and Biosecurity program cluster primarily addresses CSREES' strategic goal to enhance protection and safety of the Nation's agriculture and food supply and to enhance economic opportunities for agricultural producers. It also supports CSREES' strategic goal of protecting and enhancing the Nation's natural resource base and environment.

The Agricultural Genomics and Biosecurity program cluster helps improve agricultural efficiency and sustainability, lower production costs, and aid the discovery of new and improved food and forest products for consumers, as well as alternatives to pesticides and antibiotics to control disease outbreaks. Crop, forestry, and animal improvements are supported. Knowledge from this cluster also provides a foundation to respond to new and re-emerging pathogens or pests of major economic significance in the U.S. and that threaten both industry viability and consumer access to safe and affordable food. These programs also contribute to an agrosecurity program for animals and plants that will effectively respond to the intentional or accidental entry of a foreign pathogen, pest, or other biological threat to the United States. Activities emphasize basic and applied research approaches, as well as integrated research, education, and extension solutions for identified priorities.

Microbial, Arthropod, or Nematode Sequence Data and Distribution of Genomic Resources

Investigators funded by CSREES to work with microbial, arthropod or nematode genome applications (e.g. genome sequencing, microarrays, etc.) must include a plan for timely dissemination of information and deliverables to a clearly identified community of users, as well as to the scientific community as a whole. In addition to the scientific plan, applications must include a clear, complete, and workable plan for sharing results. The plan should be specific about the nature of the results to be shared, the timing and means of release, constraints on release, long-term maintenance of data accessibility, and plans for updating data in response to new information about functional assignments. If proposing microarray studies, applicants are strongly encouraged to include a statement addressing Minimum Information About Microarray Experiment (MIAME) compliance, see www.mged.org. Applications involving the development of microarrays should include plans for distributing the arrays as a community resource.

Animal or Plant Genome Sequence Data and Distribution of Animal or Plant Genomic Resources

Investigators funded by CSREES must make animal and plant genome sequences, protein sequences, and genomic resources available to all for use without restriction. Investigators are also encouraged to collaborate and make information available via the relevant worldwide Web sites. DNA sequence assemblies of 2kb or greater are to be deposited in a pre-existing public nucleotide sequence database, such as GenBank: www.ncbi.nlm.nih.gov, within 24 hours of generation. Sequence traces from these projects are to be deposited in a trace archive, such as the National Center for Biotechnology Information {NCBI} Trace Repository, within one week of production. Sequence traces from whole genome shotgun projects are to be deposited in a trace archive, such as NCBI Trace Repository or Ensemble Trace Server, within one week of production. Whole genome assemblies are to be deposited in a public nucleotide sequence database as soon as possible after the assembled sequence has met a set of quality evaluation criteria. Other nucleotide sequences, such as ESTs, full-length cDNA sequences, etc., must be submitted to a pre-existing public nucleotide sequence database, such as Genbank: www.ncbi.nlm.nih.gov, according to the currently accepted community standards (Bermuda and Ft. Lauderdale agreements; www.wellcome.ac.uk/assets/wtd003207.pdf) following the current guidelines for quality assessment. At a minimum, these sequences should be deposited within one month of production and quality assessment. CSREES requires that results of community resource projects be made immediately available for free and unrestricted use by the scientific community as soon as the quality of these resources is verified. CSREES requires that data collection and analysis for microarray projects comply with the Minimum Information about Microarray (MIAME; www.mged.org) guidelines. CSREES also encourages use of the MIAME checklist (www.mged.org/Workgroups/MIAME/miame_checklist.html) to enable unambiguous interpretation of the data and potential verification of the conclusions. Data from microarray projects funded by CSREES must be submitted to a pre-existing public repository for microarray data, such as Gene Expression Omnibus {GEO}: www.ncbi.nlm.nih.gov/geo, as part of the process for publishing the experimental results in a peer-reviewed scientific journal. Data from plant microarrays should also be submitted to the PLEXdb (www.plexdb.org/) to enable comparative analysis with additional plant gene expression data sets. Protein sequences generated with CSREES funding must be deposited in a pre-existing public database, such as the Universal Protein Resource {UniProt}: www.uniprot.org, as part of the process for publishing the experimental results in a peer-reviewed scientific journal. If the Project Director decides not to publish the microarray data or protein sequence data

generated with CSREES funding, CSREES requires the Project Director to submit the microarray data to a pre-existing public repository for microarray data within six months after performing quality control tests on the data or upon termination of the CSREES funding, whichever comes first. If CSREES funding produces additional genomic resources (e.g. libraries, biological reagents, software, plant genetic stocks, etc.) these should be made available to the public as soon as their quality is verified according to community standards. Budgeting and planning for short-term and long-term distribution of these resources and the timing of release to a clearly identified community of users, as well as to the scientific community as a whole should be as described in the original application or in a revised plan of work prior to funding. When the project involves the use of proprietary data or materials from other sources, the data or materials resulting from research supported by this program must be readily available without any restrictions to the users (no reach-through rights). The terms of any usage agreements should be stated clearly in the application or revisions prior to funding. If a project will use genetic resources from outside the United States, it is strongly recommended that the Project Director seek information regarding any required prior informed consent from and benefit-sharing with the appropriate host country authorities. For further information, see "Information for U.S. Government Funded Researchers Collecting In Situ Genetic Resources Outside the United States," housed on the U.S. Department of State's web site at: www.state.gov/g/oes/rls/or/25962.htm, or contact the Plant Exchange office, ARS, USDA, at: www.ars.usda.gov/Main/docs.htm?docid=7456, or contact the National Animal Germplasm Program at: www.ars-grin.gov/animal/index.html, as appropriate.

In FY 2008, the NRI invites applications in the following programs related to Agricultural Genomics and Biosecurity:

20.2 Plant Biosecurity

43.0 Animal Genome
- 43.0 Animal Genome (A): Translational Animal Genomics
- 43.0 Animal Genome (B): Tools and Resources
- 43.0 Animal Genome (C): Bioinformatics
- 43.0 Animal Genome (D): Functional Genomics
- 43.0 Animal Genome (E): Whole Genome Enabled Selection

44.0 Animal Protection and Biosecurity
- 44.0 Animal Protection and Biosecurity (A): Animal Disease
- 44.0 Animal Protection and Biosecurity (B): Animal Well-Being
- 44.0 Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Project (CAP)

51.0 Microbial Genomics
- 51.0 Microbial Genomics (A): Genome Sequencing
- 51.0 Microbial Genomics (B): Functional Genomics of Microorganisms

51.2 Arthropod and Nematode Biology and Management
- 51.2 Arthropod and Nematode Biology and Management (A): Organismal and Population Biology
- 51.2 Arthropod and Nematode Biology and Management (B): Suborganismal Biology
- 51.2 Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics
- 51.2 Arthropod and Nematode Biology and Management (D): Protection of Managed Bees CAP

51.8 Microbial Biology
- 51.8 Microbial Biology (A): Microbial Observatories
- 51.8 Microbial Biology (B): Microbial Associations with Plants

52.1 Plant Genome
- 52.1 Plant Genome (A): Tools, Resources, and Bioinformatics
- 52.1 Plant Genome (B): Functional Genomics
- 52.1 Plant Genome (C): Genome Structure and Organization
- 52.1 Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)

Agricultural Genomics and Biosecurity Program Descriptions

20.2 Plant Biosecurity

National Program Leaders –
Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov)
Dr. John L. Sherwood (202-690-1659 or jsherwood@csrees.usda.gov)
Total Program Funds – approximately $4.0 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed $1million for project periods of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due March 14, 2008 (5:00 P.M. ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – June 5, 2008 (5:00 P.M. ET)

Background
This program only supports integrated projects aimed at ensuring a continued supply of safe, high-quality, affordable food and fiber for consumers in the U.S. and international trade partners. The goal of the program is to harness our Nation's scientific and technological resources to help agricultural producers and professionals implement strategies to safeguard agriculture in the U.S. from critical and emerging high-consequence plant pathogens and arthropods. To accomplish this, the program will focus on integrated research, education, and extension projects that counter threats to the agriculture system in the U.S., both by stepwise improvements to current responses and by development of innovative new capabilities.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: to provide the understanding and technologies needed to anticipate, deter, protect against, detect, mitigate, and recover from threats to the Nation's agricultural plant security; to provide decision makers and responders with knowledge and decision support tools needed to anticipate, prevent, prepare for, and respond to agricultural threats of high-consequence plant pathogens and arthropods; and to enable strategies for control and elimination of high-consequence plant pathogens and arthropods.

The proposed integrated project must address, by direct investigation of a high consequence pathogen or arthropod (or with appropriate proxy species), gaps in knowledge of pathogens and arthropods of high economic/social impact to the United States. Species of concern to U.S. plant biosecurity are characterized as emerging, invasive, or threatening pathogens or arthropods that may be introduced through intentional or natural pathways and once in the U.S. pose a high risk of becoming established with significant consequences.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Development of rapid detection/diagnostic procedures that build on genomic sequences as available to facilitate monitoring and mitigation of plant pathogens and arthropods of high consequence and importance. The application must contain a compelling case for the proposed work relative to plant biosecurity as outlined in the "Background" section of the program description.

2. Monitoring and mitigation of diseases caused by high consequence plant pathogens and arthropods through extension/education programs to implement strategies resulting from, or developed in conjunction with, etiological and epidemiological investigations. The application must contain a compelling case for the proposed work relative to plant biosecurity as outlined in the "Background" section of the program description.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **March 14, 2008, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Liang-Shiou Lin (llin@csrees.usda.gov) and Dr. John L. Sherwood (jsherwood@csrees.usda.gov) with the subject heading '*Letter of Intent Program 20.2_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 28, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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 either priority 1 or 2, the budget should reflect how the integration of the research/education/extension activities will be achieved.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome

National Program Leaders –
Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)
Total Program Funds – approximately $11 million total
Proposed Budget Requests – This program contains five elements. See each program element for additional budgetary information.
Animal Genome (A) Translational Animal Genomics
Animal Genome (B) Tools and Resources
Animal Genome (C) Bioinformatics
Animal Genome (D) Functional Genomics
Animal Genome (E): Whole Genome Enabled Animal Selection
Letter of Intent – See each program element for additional details.
Application Deadline – See each program element for additional details.

Overview
The Animal Genome program provides science-based knowledge and technologies to generate new or improved high-quality products/processes and to promote the efficiency of agricultural production systems. This information will also enhance protection and safety of the Nation's agriculture and food supply through development and delivery of information/technologies to genetically improve animals of agricultural importance. Program success will result in a reduction in the number and severity of animal disease outbreaks and a decreased dependence on the widespread use of antibiotics. These program priorities will also contribute to the protection and enhancement of the Nation's natural resource base and environment by increasing productivity while minimizing the environmental consequences.

To meet these identified needs of agriculture, the program's near-term goals (1-3 years) include using the EST sequence information in dbEST in an increasing number of ways, particularly as mapping tools and for the development of gene expression profiling tool. In addition, the program aims to continue the development and use of micro-arrays to further our understanding of gene function, develop computational and biological tools necessary to proceed in the post sequence era, and identify QTL and ETL for traits of importance to improve livestock production efficiency and animal health. The mid-term (five year) goals include developing *in silico* methods that pave the 'virtual path' leading from sequence to global function identifying, validating, and fine mapping of new QTL or ETL for use in genetic improvement and developing high density SNP marker maps for important livestock species. The long-term goals (10 years) include using sequence information to identify new genes, discover and understand regulatory elements, and study individual genes, their functional products on a molecular level, and their interactions with other genes or gene networks. Additional long-term goals include identifying candidate genes for economically important traits that can be quickly tracked and identified to improve animal health, product quality, and production efficiency, make these technologies available to producers, and promote unanticipated discoveries that have significant impacts on animal agriculture.

43.0 Animal Genome (A): Translational Animal Genomics

National Program Leaders –

Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)

Total Program Funds – approximately $3 million

Proposed Budget Requests –

- Proposed research project budget requests must not exceed $450,000 for a project period of up to 3 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $550,000 for a project period of up to 4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Required for integrated proposals only. Due March 14, 2008 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.

Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background

Applications should be developed with Translational goals in mind, including acceleration of animal breeding, mapping and deployment of quantitative trait loci (QTLs) and markers in breeding programs, and molecular identification of beneficial alleles of any particular gene of agricultural significance. Translational genomics, or "applied genomics," refers to the investigation of the genome of animals of agricultural importance and the application of knowledge of the animal genome to the understanding of more efficient animal production, superior product quality, and disease prevention. This program element provides the opportunity to develop new approaches to improve agriculturally important animals and their products or to aid in disease prevention. Translational genomics research employs innovative advances arising from the genome mapping projects and other basic advancements in animal genomics and applies these advances to the development of improved animal products. Mapping of the genome is only the first step. Research is now needed to translate variations in animal genes to discover the underlying cause for differences in the efficiency of production, susceptibility or resistance to disease, and improved and/or healthier products from animals. Although many pieces of the animal's genetic make-up have been identified, scientists now have the formidable task of interpreting how they fit together in order to apply the genome information to improve animal production. Cutting edge translational genomic research allows investigators to unravel the genetic components of common and complex traits.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Identification and mapping of genomic markers, including quantitative-trait loci (QTL), economic trait loci (ETL), causative mutations, and candidate genes for traits of importance to animals in agriculture, including aquaculture species.

2. SNP-based cost-effective genotyping as it relates to whole genome enabled animal selection, genomic capabilities that enable parentage, and identity verification (traceability) and genetic diversity.

3. Development and application of methods to modify the animal genome to aid in the understanding of gene function or expression (e.g. RNAi, nuclear transfer, embryonic stem cells, and transgenics).

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Implementation of programs to manipulate and manage the animal's genome through the application of new genomic technology. These projects are aimed at developing the research needed to fill critical knowledge gaps and innovative extension programming necessary to enable stakeholders to manipulate and manage the animal's genome through the use of molecular markers, including quantitative-trait loci (QTL), economic trait loci (ETL), SNPs, and/or whole animal genotypes. The results of these research and extension projects should be aimed at genetically improving animal health, product quality, and/or production efficiency for animals of agricultural importance. Projects need to lead to measurable changes in the ability of the identified audience or stakeholder group to be able to manipulate and manage the animal's genome.

Other Key Information for Research and Integrated Projects

- A letter of intent is required for integrated projects for this program element. The letter of intent deadline is **March 14, 2008, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Peter Burfening (pburfening@csrees.usda.gov) with the subject heading '*Letter of Intent Program 43.0A_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 28, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- In the full application, a one-page appendix to the proposal titled "Meeting Program Goals" is expected to articulate how their proposal meets the near-, mid-, and long-term goals of the Animal Genome program. It is not anticipated that any particular proposal will meet all of the program goals, but each should meet at

least one of the near-, mid- and long-term program goals. Attach as a PDF to the R&R Other Project Information form in Field 11. Other Attachments.

- Applications whose primary aim is to improve the efficiency in the production of clones or transgenic animals through manipulation of the nucleus will no longer be accepted by the Animal Genome program.

- All model systems, especially the use of laboratory animals, cell cultures, etc., must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (B): Tools and Resources

National Program Leaders –

Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)

Total Program Funds – approximately $1.5 million

Proposed Budget Requests –

- Proposed research project budget requests must not exceed $1million for a project period of up to 4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.

Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background

The Tools and Resources program element will emphasize the development of basic tools and resources to accelerate research in agricultural animal genomics. The goal is to develop state-of-the-art tools and resources that will advance the understanding of animal genomes in terms of organization and function.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Generation of comparative maps (contig maps and high density linkage maps) for use in comparative genomics.

2. Development of high density SNP maps where these do not already exist.

Other Key Information

- Applicants must demonstrate that they can apply the most recent technologies to the production of these tools and resources and that they will adequately and efficiently store and distribute the tools and resources once they are available. A description of quality control measures must be included in the application.

- Investigators applying under this program element must make a strong case that the tools and resources are needed by the community of scientists involved and that they do not duplicate resources available elsewhere.

- In a one-page appendix to the proposal titled “Meeting Program Goals”, PD’s are expected to articulate how their proposal meets the near-, mid-, and long-term goals of the Animal Genome program. It is not anticipated that any particular proposal will meet all of the program goals, but each should meet at least one of the near-, mid-, and long-term program goals. Attach as a PDF to the R&R Other Project Information form in Field 11. Other Attachments.

- Investigators are encouraged to develop national and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness.

- Model systems (especially the use of laboratory animals, cell cultures, etc.) will no longer be accepted by the Tools and Resources program element.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (C): Bioinformatics
National Program Leaders –
Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)
Total Program Funds – approximately $2.25 million
Proposed Budget Requests –
- Proposed research project budget requests must not exceed $1.0 million for a project period of up to four years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this element.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
The Bioinformatics program requests applications for the development of bioinformatic tools that will assist in functional genomics, annotation and comparative genomics, *in silico* analysis, and use of genomic data in genetic improvement programs of agriculturally important animals. These tools need to be designed to integrate with existing data/databases (not create new ones), serve as tools for genome analysis, provide for practical applications of genomic data, and have a biological framework.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.
1. Tools that integrate genome sequence, genome annotations, and pedigree information with biological function and phenotypic information for a single species or across multiple species.

2. Animal bioinformatic tools that efficiently and effectively handle and interpret the genomic/genetic data being generated to accelerate the knowledge discovery process. Examples include technology platforms, computational resources, and analytical tools for integrative and comparative research.

3. Development of tools to integrate the use of genomic data (i.e. SNPs, haplotypes, and/or whole animal genotypes) into large-scale genetic evaluation programs and the use of genomic information to design precision mating systems.

Other Key Information
- Investigators applying under this program element must make a strong case that the tools are needed by the community of scientists involved and that they do not duplicate resources available elsewhere.

- In a one-page appendix to the proposal titled “Meeting Program Goals”, PD’s are expected to articulate how their proposal meets the near-, mid-, and long-term goals of the Animal Genome program. It is not anticipated that any particular proposal will meet all of the program goals but each should meet at least one of the near-, mid-, and long-term program goals. Attach as a PDF to the R&R Other Project Information form in Field 11. Other Attachments.

- The research plan must include an exit strategy beyond the requested award period, without assuming long-term NRI support.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (D): Functional Genomics

National Program Leaders –

Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)

Total Program Funds – approximately $3 million

Proposed Budget Requests –

- Proposed research project budget requests must not exceed $750,000 for a project period up to 3 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due March 14, 2008 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.

Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background

Although progress has been made in understanding the mechanisms that regulate individual genes in isolated systems, many of the basic mechanisms that regulate gene expression in the context of the whole animal still need to be determined. The Functional Genomics program element aims to assess gene function through development and application of global (genome-wide or system-wide) experimental approaches. Such approaches should make use of the information and reagents provided by genome sequencing and mapping and should employ high-throughput major innovative technologies for genome-wide analysis supported by information technology.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Increase the understanding of the biological role of genomic sequence, including coding and regulatory sequences, in agriculturally important animals and link these sequences to biological functions, product quality, or production efficiency.

2. Increase the understanding of mechanisms that regulate agriculturally relevant genes in a systems biology framework.

Other Key Information

- Applications should make creative and innovative use of available sequence information and should focus on the function of genes and their associate sequence information relative to biological function.

- A letter of intent is required for standard research projects for this program element. The letter of intent deadline is **March 14, 2008, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives

- Attach the PDF letter of intent to an email addressed to Dr. Peter Burfening (pburfening@csrees.usda.gov) with the subject heading '*Letter of Intent Program 43.0D_PD's Last Name'*.
- An acknowledgement receipt will be sent indicating the letter was received.
- A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
- Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
- Submission of more than one letter of intent is discouraged.
- Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 28, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
- Only invited full applications will be reviewed by the panel.

- In a one-page appendix to the proposal titled "Meeting Program Goals", PD's are expected to articulate how their proposal meets the near-, mid-, and long-term goals of the Animal Genome program. It is not anticipated that any particular proposal will meet all of the program goals but each should meet at least one of the near-, mid-, and long-term program goals. Attach as a PDF to the R&R Other Project Information form in Field 11. Other Attachments.

- Applications should use tissue or cell-specific high-through-put gene expression profiling to identify novel gene products that are temporally expressed in these animals. A significant bioinformatics component is expected in the application and must be budgeted for appropriately. The bioinformatics component of the application must include:
  - Data collection protocols;
  - Curation protocols, including quality assessment and quality control;
  - Procedures for archiving of data to prevent accidental loss;
  - Protocols and policies related to release of data and submission of raw and processed data to public database; and
  - Data warehousing for online-access, including web-interfaces and bulk download capability.

- Collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- All model systems, especially the use of laboratory animals, cell cultures, etc., must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (E): Whole Genome Enabled Animal Selection

National Program Leaders –

Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov)
Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov)

Total Program Funds – approximately $5.0 million over five years

Proposed Budget Requests –

- Proposed research project budget requests must not exceed $1.25 million per year for up to 4 years in duration for a total request of $5.0 million (including indirect costs). It is anticipated that one award will be made for this program element.
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due by November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.

Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background

The Whole Genome Enabled Animal Selection Project element is seeking applications from a community of researchers to focus on large-scale application and translation of genome discoveries and technologies for whole genome animal selection for animals of agricultural importance, including aquaculture species. The goal of the project is to move animal genome science from the laboratory to the field to the marketplace and, in the process, to solve real world problems. To accomplish this goal, the program is seeking applications that respond to existing or emerging problems, opportunities, and issues through the development and application of science-based knowledge to whole genome animal selection.

Applications are expected to demonstrate coherent and complementary activities with the ultimate goal of being a National strategy or solution that could be implemented for U.S. agricultural animal improvement through the application of genome-wide selection to livestock populations. Applications are expected to take advantage of recent advances in genomics, including sequenced genomes and high density SNPs and to translate these basic discoveries and knowledge to practical applications. Comprehensive approaches are expected to include coordinated work on several of the following areas, but not limited to: identification of knowledge gaps and research to close these gaps; development and implementation of easy-to-use whole genome high through-put SNP panels; utilization of functional genomic tools, resources, and knowledge; implementation of bioinformatic-based tools for data management, selection, and breeding decisions; and effective communication of whole genome animal selection to end-users, producers, breeding organizations, livestock producers, scientists, students, and the lay public.

This project seeks to bring together a multi-institutional and multi-disciplinary team to integrate genomic discoveries and technologies with breeding practice and accelerate identification of traits of interest directly useful to animal breeders. International collaborations are also encouraged. The project aims to reduce duplication of efforts and integrate activities among individuals, institutions, and states. Therefore, applications should clearly articulate how this award will complement and/or link with existing programs or projects.

Participants would serve as a team comprised of members working to conduct research on this emerging genomic area to improve animals important to U.S. agriculture. This team would contain expertise in genomics, quantitative genetics and animal breeding, bioinformatics, animal molecular biology, as well as expertise from principal stakeholders and partners. Partnerships with end user groups (e.g. breed associations, breeding organizations, livestock producers, etc.) are a principal component of this project. The application should outline the potential of the project team, its structure, coordination, plan of implementation, and proposed research project will be evaluated during the project period.

FY 2008 Priority for Research Projects – Applicants must address the following priority.

1. Whole Genome Enabled Animal Selection Project will focus on the application of genome discoveries and technology applied to whole genome animal selection for U.S. agriculturally important animal improvement. This priority is open to all applicants and is not animal species specific.

Other Key Information

- The program anticipates making awards as a continuation grant, which is a grant instrument by which the Department agrees to support a specified level of effort for a predetermined project period (e.g. annually) with a statement of intention to provide additional support at a future date provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

- A letter of intent is required for standard research projects for this program element. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director and institutional affiliation;
            - the names of collaborating investigators, institutional affiliation; and
            - the program priority addressed by the project.
        - On Page 2 include:
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Peter Burfening (pburfening@csrees.usda.gov) with the subject heading '*Letter of Intent Program 43.0E_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- In a one-page appendix to the proposal titled "Meeting Program Goals", PD's are expected to articulate how their proposal meets the near-, mid-, and long-term goals of the Animal Genome program. It is not anticipated that any particular proposal will meet all of the program goals but each should meet at least one of the near-, mid-, and long-term program goals. Attach as a PDF to the R&R Other Project Information form in Field 11. Other Attachments.

- An aim of this award is to encourage maximum flexibility in translational animal genomics research. Applications will be evaluated based on how well their goals and objectives respond to current needs utilizing genomic tools and resources. As an award's comprehensive approach unfolds, unexpected advances and promising leads, or unforeseen new National needs related to project goals and objectives, may be identified. The project management plan is expected to be capable of responding to these opportunities.

- Invited applications for the Whole Genome Enabled Animal Selection Project should include the following information in a single project:
    - A budgeted project management plan to ensure efficient functioning of the project team that includes an organizational chart, administrative timeline, a description of how the project will be governed, identification of short-, medium- and long-term metrics to be evaluated, what expectations are required from each team member, a mechanism whereby progress metrics can be evaluated for future budgetary allocations, and how the project will complement and/or link to existing programs or projects to include multi-disciplinary, multi-institutional, multi-state and

international collaborations. The plan must include an exit strategy beyond the requested award period, without assuming long-term NRI support;

- A budgeted data management plan that includes a description of how project information, data, and results will be made publicly available. The plan must include capacity to freely interface with major community databases and with all project locations, a description of the database development, deployment, nomenclature standardization, data mining and analysis, interoperability, web presentation, etc. Applicants must aim to release the results of their research to the public in a timely manner and in an accessible and usable form. If a professional managed community database exists, the plan must demonstrate coordination with that database and a letter of support submitted with the application. The plan should adapt software and data structures already available through an open source system, training for all project personnel who will generate or analyze data, agreement on nomenclature at every level, assurance that the data are compatible with databases or information services for long-term curation and storage, dedicated personnel to provide day-to-day management of the database and compliance monitoring, etc.;

- Applications must include an assessment of the present state of the genome map, the availability of existing genetic materials and technologies, the rationale for choice of the population, genotypes or breeding line, and the short and long-term applications for animal breeding or other research;

- If needed for successful completion of the objectives of this research a budgeted plan to develop or improve web accessible informatics-based tools for animal breeders that enable efficient access to genetic, trait, physical, and expression data, etc. The plan may focus on: providing informatics training and education opportunities that foster a collaborative interface between project participants, computational scientists, and end users; the improvement of statistical and computational methods for analyzing genome/genetic data critical for animal breeding objectives that include controlled vocabularies; the improvement of resources for the acquisition, management, storage, and interoperability of genome/genetic data that can incorporate increasingly diverse information for animal improvement;

- If needed for successful completion of the objectives of this research, a budgeted plan to develop or improve SNP panels and/or molecular markers needed to apply whole genome selection to U.S. animal breeding objectives and to utilize new genome technologies to address problems not readily solved by conventional quantitative breeding methods. To prevent duplication of effort, applicants are strongly encouraged to use the available genetic tools and resources, such as existing genomic/genetic maps, SNPs, molecular markers or other existing information and technologies to locate, identify and isolate traits for selection that are directly useful to breeders;

- A budgeted plan for sharing results and management of intellectual property that includes a description of what, how, and when the user community would have public access to the research, education and extension deliverables and outcomes of the project; and

- A budgeted plan and timeline for an advisory group of principal stakeholders and scientists relevant to the proposed research projects (e.g. include letters of commitment and rationale for their role) to assess and evaluate the quality, potential outcomes and impacts, and how they could function effectively to support the goals and objectives of the projects.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

44.0 Animal Protection and Biosecurity

National Program Leaders –
Dr. Peter J. Johnson (202-401-1896 or pjohnson@csrees.usda.gov)
Dr. Peter R. Brayton (202-401-4399 or pbrayton@csrees.usda.gov)
Total Program Funds – approximately $15.5 million
Proposed Budget Requests – This program contains three elements. See each program element for additional budgetary information.
Animal Protection and Biosecurity (A): Animal Disease
Animal Protection and Biosecurity (B): Animal Well-Being
Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Project (CAP)
Letter of Intent – Required for program element (A) Animal Disease priority 2. See the **Other Key Information** section for format and submission instructions.
Application Deadline - December 19, 2007 (5:00 P.M., ET)

Overview
This program supports research and integrated projects ranging from fundamental science to practical application for the protection and well-being of agriculturally important animal species, including equine and aquaculture species. The ultimate goal of the program is to contribute knowledge about agriculturally important animal diseases so that their severity and economic impacts are eliminated or reduced. In addition, the program will contribute to knowledge that will improve the well-being of agriculturally important animals.

44.0 Animal Protection and Biosecurity (A): Animal Disease
National Program Leaders –
Dr. Peter J. Johnson (202-401-1896 or pjohnson@csrees.usda.gov)
Dr. Peter R. Brayton (202-401-4399 or pbrayton@csrees.usda.gov)
Total Program Funds – approximately $10.0 million
Proposed Budget Requests

- Proposed research project budget requests must not exceed $375,000 for a project period from 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent Deadline – Due October 9, 2007 (5:00 P.M., ET); **Priority 2 ONLY.** See the **Other Key Information** section for format and submission instructions.
Program Deadline – December 19, 2007 (5:00 P.M., ET)

Background
The Animal Disease section of the Animal Protection program focuses on a select group of high priority diseases of economic importance to U.S. animal agriculture, including equine and aquaculture species. Applications will increase knowledge and technology needed to prevent or reduce the severity of animal diseases. They will also contribute to an increase in the efficiency of animal production systems, a reduction in non-tariff trade barriers, and safe guard, high-quality foods for consumers.

The element addresses a major limiting factor in animal agriculture; insufficient basic and applied information is currently available about diseases in animals of agricultural importance. This knowledge gap impedes our ability to reduce costly economic losses from animal diseases present in the United States and to prepare for foreign diseases that may enter accidentally or intentionally. Information gaps also jeopardize food security and the future viability of animal industries. Applications should focus on one or more of the following: pathogen biology; mechanisms of host/pathogen interactions; immunology; etiology; prevention; control; epidemiology; and ecology.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Species-Specific High Priority Areas **(This priority does NOT require a letter of intent).**
    a. Aquaculture: *Edwardsiella ictaluri*, *Flavobacterium psychrophilum*, and *Viral Hemorrhagic Septicemia (VHS)-Great Lakes Strain;*
    b. Equine: Laminitis, *Streptococcus equi* (strangles), and *Rhodococcus equi*;
    c. Poultry: Avian *Clostridium perfringens*, Marek's Disease, and Avian pneumovirus;
    d. Ruminants: Bovine viral diarrhea, Bovine and ovine respiratory disease complex, Infectious causes of dairy cattle mastitis, and Johne's Disease;
    e. Swine: Porcine Reproductive and Respiratory Syndrome (PRRS), Porcine Circovirus 2, and Swine influenza.; and

2. Non-Species-Specific High Priority Areas. **(This priority requires a Letter of Intent prior to application submission.** See the **Other Key Information** section for format and submission instructions).
    a. Endemic:
        i. Diseases that may be introduced to agriculturally important animals through interactions with wildlife, including Chronic Wasting Disease, with a required emphasis on the interface between livestock and the relevant wildlife species; Model species are not appropriate (e.g. for Chronic Wasting Disease non-cervid models are not appropriate).

        ii. An immunologic approach that seeks to develop a novel vaccine or control strategy involving a disease agent other than one of the listed species-specific high-priority agents if convincing justification is presented that the outcome will be broadly applicable to multiple diseases. Also, immunology applications that do not include work with a specific disease agent provided there is convincing justification for broad applicability.

    b. Foreign or Emerging:
        iii. High consequence, economically relevant Foreign Animal Diseases of agricultural species (e.g. Foot and Mouth Disease, Avian Influenza, Exotic Newcastle Disease, or Classical Swine Fever), as well as high consequence, economically relevant Emerging Animal Diseases of agricultural species.

Other Key Information

- A letter of intent is required for **Priority 2**. The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Ms. Leslie Gilbert (lgilbert@csrees.usda.gov) with the subject heading '*Letter of Intent Program 44.0A_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.

  - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
  - Only invited full applications will be reviewed by the panel.

- Inclusion of power analyses is required if the project uses experimental animals.

- Applications that address Avian Influenza, Johne's Disease, and Porcine Reproductive and Respiratory Syndrome (PRRS) remain a high priority for funding within the program, which seeks to support and strengthen efforts initiated under the Coordinated Agricultural Projects (CAPs). Applications on Avian Influenza, Johne's Disease, or Porcine Reproductive and Respiratory Syndrome (PRRS) are expected to document in the Project Description: (1) how the proposed work fits within the framework of the community objectives established for the CAPs in the relevant area; (2) that the Project Director is not already funded by the CAP for the specific proposed objectives; and (3) the Project Director will participate in reporting and coordinating activities associated with those projects. Project Directors submitting applications on the three diseases who are not already affiliated with the projects should consult the websites established for these community efforts. Avian Influenza: http://www.aicap.umd.edu; Johne's Disease: http://www.jdip.org; and PRRS: http://www.prrs.org.

- Surveillance as a principal objective is not suitable for this program.

- The program encourages applicants to take advantage of genomic approaches (e.g. functional genomics and proteomics) in order to accelerate the discovery of new targets for diagnostics, vaccines, and treatments. The program supports international efforts to better capture the current and future value of microarray data. If proposing microarray studies, applicants are required to include a statement addressing Minimum Information about Microarray Experiment (MIAME) compliance, see: http://www.mged.org. Applicants must plan to release the results of their research to the public in a timely manner.

- Studies of secondary effects or indirect effects of disease (e.g. muscle growth) are not suitable for this program.

- Proposals studying plant-based vaccines for animal diseases are not suitable in this program.

- Applications that develop new or improved diagnostic tests are expected to include an appropriate validation plan.

- Animal genetics applications (i.e. applications with a primary focus on identifying, isolating, and characterizing the genetic basis for disease resistance in the host animal) should consider submission to the Animal Genome program (43.0).

- Vaccine development applications that may approach or enter the commercialization stage are also encouraged to explore the USDA Small Business Innovation Research program for possible funding. The RFA for that program is available at http://www.csrees.usda.gov/funding/sbir/sbir.html.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget. Meetings are expected to be held in conjunction with the Conference of Research Workers in Animal Disease (CRWAD) in early December.

44.0 Animal Protection and Biosecurity (B): Animal Well-Being
National Program Leader – Dr. Peter R. Brayton (202-401-4399 or pbrayton@csrees.usda.gov).
Total Program Funds – approximately $1.5 million, with up to $1 million for integrated projects
Proposed Budget Requests

- Proposed research project budget requests must not exceed $375, 000 for a project period of 2–4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $450,000 for a project period of 2–4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
This element focuses on enhancing animal well-being throughout the food production cycle by providing information on how animals of agricultural importance in the U.S. interact with the production environment and respond to animal management practices. Where appropriate, management practices will be developed that improve animal well-being. Such knowledge is needed to remain competitive globally and to maintain consumer trust through science-based studies. Research to ensure animal well-being may also help decrease animal management and health-care costs. This area addresses agricultural food security by helping to assure continued access of U.S. animal products to National and international markets.

FY 2008 Priority for Research Projects – Applicants must address the following priority.

1. Develop science-based criteria to: standardize measurements of well-being, including pain, stress, fear, and behavioral needs; and assess how each impact animal well-being.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Develop, test, and recommend alternative management practices to promote animal well-being and adaptability. Areas of interest include housing, handling, transportation, and harvest, for example gas stunning/slaughter procedures for food animals.

Other Key Information for Research Projects

- Both basic and applied research applications are solicited that contribute to the development of long-term management options and/or short-term production practices that assure animal well-being. Multi-disciplinary approaches are encouraged.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

Other Key Information for Integrated Projects

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or

formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

44.0 Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP)
National Program Leader – Dr. Peter J. Johnson (202-401-1896 or pjohnson@csrees.usda.gov).
Total Program Funds – approximately $4.0 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed $1.2 million per year not to exceed four years, providing a total award of $4.8 million (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
Strengthening the Nation's capacity to protect animal agriculture from disease losses and threats arising from high impact endemic diseases, new or re-emerging challenges, or foreign diseases accidentally or intentionally introduced is a major challenge facing the United States. The Animal Biosecurity CAP program was initiated in FY 2004 and serves as a catalyst to bring the larger animal health community together for specific diseases or issues. The result will better integrate, coordinate, and complement current and future programs or projects related to that area beyond those objectives supported by an Animal Biosecurity award. The program develops and delivers science-based information and technologies to reduce the number and severity of agricultural disease outbreaks. Studies of zoonotic diseases, such as Avian Influenza, also benefit public health.

To meet these identified needs of agriculture, the long-term (10-year) goal for this program is to implement biosecurity protocols on a national scale for program-identified issues that detect, contain, minimize, and eliminate the spread of diseases from animal to animal, site to site, and animal to human (where applicable). This will include improving the management of program-identified animal diseases that represent a threat to animal production, biosecurity, and public health. It will also include major progress towards diminishing the economic impact of animal diseases, and/or eradicating selected diseases, or preventing disease introduction into the United States.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. This program only invites a renewal application for the existing Coordinated Agricultural Project (CAP) for Porcine Reproductive Respiratory Syndrome (PRRS) Virus.

Other Key Information

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- This program initiates or maintains CAPs that develop an integrated (research, education, and extension) community approach for a limited number of program-identified diseases or issues.
    - Community products such as:
        - Community roadmaps, including gap analysis;
        - Standardized protocols for various areas (e.g. diagnostics, vaccine trials, animal studies, and genetic resistance studies);
        - Sample repositories and databases, including surveillance activities;
        - Genomics/proteomics tools, reagents, and protocols (e.g. mutants, arrays, clone sets, immunological typing of animals, bioinformatics tools, and services); or
        - Extension and communication programs (e.g. training tools, demonstrations, conferences, continuing education, publications, impact assessment, and websites).

    - Leveraging and coordinating project resources with other USDA and non-USDA efforts for the same area;

    - Filling critical knowledge gaps (e.g. pathogen biology, mechanisms of host/pathogen interactions, epidemiology, and effective communication protocols) including the exploration of some high-risk approaches; the award size is not sufficient to support all needed research, some of which is leveraged and supported by other programs; and

    - Piloting the implementation of new disease control strategies and tools (e.g. vaccines, new or improved diagnostics and detection systems, preventatives, and achieve producer outreach programs) for the adoption of improved biosecurity measures and awareness.

- A PRRS CAP Renewal application should:
    - Respond to the previous panel summary;
    - Summarize originally funded research, education, and extension project objectives and describe progress to date, including milestones achieved for each objective;
    - Document stakeholder/partner assessment of project impact;
    - Outline research, education, and extension activities proposed for a renewal period, including a discussion of how the proposed activities support the Animal Biosecurity program's long-term objectives; include a logic model that captures the CAP's integrated activities during the next four year period. Additional information on logic models can be found at http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html. The overall plan should include an approach(es) to measure outcomes. CSREES also encourages participation by minority serving institutions;
    - Summarize and assess project management and structure to date, including interactions among project participants (e.g. project director, co-project directors, collaborators, advisory board(s), other relevant partners, and stakeholders); and
    - Describe proposed changes in project management (if any).
- Applications that do not address at least one of the stated integrated program priorities will be returned without review.
- If a competitive renewal is received by the PRRS CAP, the program anticipates that a second competitive renewal would not be solicited. Instead, the program would initiate a focused effort for another high impact disease or issue. Therefore, renewal applications should also articulate an exit strategy or an alternative self-sustaining strategy from continued Animal Biosecurity program support as a multi-million dollar CAP.

51.0 Microbial Genomics

National Program Leader –
Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov)
Dr. Daniel Jones (202-401-6854 or djones@csrees.usda.gov)
Total Program Funds – approximately $5 million
Proposed Budget Requests – This program contains two elements. See each program element for additional budgetary information.
51.0 Microbial Genomics (A): Genome Sequencing
51.0 Microbial Genomics (B): Functional Genomics of Microorganisms
Letter of Intent – Not required for this program.
Application Deadline – See each program element for additional details.

Overview
The Microbial Genomics program is part of the larger effort at CSREES to use the understanding of the biological role of gene sequences and gene expression to address the CSREES strategic goals to enhance economic opportunities for agricultural producers and to enhance the protection and safety of the Nation's agriculture and food supply. Investment in microbial genomics has and will continue to enable improvements in the quality of agricultural commodities and products and the realization of more efficient and sustainable production practices. Public investment in genome sequencing of agriculturally relevant microbial species will result in improved traits of commodities and more efficient breeding programs; discovery and utilization of microbes to enhance innate properties of agriculturally important organisms; improved animal and plant production and protection; and facilitate better stewardship of land, air, and water resources.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to increase the ability to manipulate microorganisms to benefit U.S. agriculture based on improved understanding of microbial processes, create faster, more accurate and cost-effective detection and diagnosis of plant and animal pathogens, and improve methods of managing plant and animal pathogens and other agriculturally relevant microbes.

51.0 Microbial Genomics (A): Genome Sequencing
National Program Leader –
Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov)
Dr. Daniel Jones (202-401-6854 or djones@csrees.usda.gov)
Total Program Funds – approximately $5 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $2.5 million for project periods for up to 3 years (including indirect costs).

Letter of Intent – Not required for this program.
Application Deadline – This program element is in partnership with the National Science Foundation (NSF). Please note that proposals submitted for review in this program element must be submitted through NSF in accordance with submission instructions outlined in the separate program solicitation for the FY 2008 NSF/USDA-CSREES Microbial Genome Sequencing program. Visit the program website (see http://www.csrees.usda.gov/fo/microbialgenomesequencingnri.html) for detailed application submission and project deadline information.

Background
The availability of genome sequences provides the foundation for understanding how microorganisms function and live, as well as how they interact with their environments and with other organisms. The sequences are expected to be available to and used by a community of investigators to address issues of scientific and societal importance including:

- Novel aspects of microbial biochemistry, physiology, metabolism, development, and cellular biology.
- The diversity and the roles microorganisms play in complex ecosystems and in global geochemical cycles.
- The impact that microorganisms have on the productivity and sustainability of agriculture and natural resources (e.g. forestry, soil, and water), as well as on the safety and quality of the Nation's food supply.
- The organization and evolution of microbial genomes and the mechanisms of transmission, exchange, and reshuffling of genetic information.

51.0 Microbial Genomics (B): Functional Genomics of Microorganisms
National Program Leader – Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov)
Total Program Funds – anticipated level of approximately $6 million in FY 2009
Proposed Budget Requests – Not accepting applications for FY 2008
Letter of Intent – Not required for this program.
Application Deadline – Microbial Genomics (B): Functional Genomics of Microorganisms will not be offered in FY 2008. This program is offered in alternate years and it is anticipated that the program will be accepting applications again in FY 2009.

51.2 Arthropod and Nematode Biology and Management

National Program Leader – Dr. Mary Purcell-Miramontes (202-205-0440 or mpurcell@csrees.usda.gov)
Total Program Funds – approximately $12.9 million
Proposed Program Funds – This program contains four elements. See each program element for additional budgetary information.

Arthropod and Nematode Biology and Management (A): Organismal and Population Biology
Arthropod and Nematode Biology and Management (B): Suborganismal Biology
Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics
Arthropod and Nematode Biology and Management (D): Protection of Managed Bees

Letter of Intent – See each program element for additional details.
Application Deadline – See each program element for additional details.

Overview
The intentional or accidental introduction of arthropod or nematode pests into the U.S. is a major threat to the security of agricultural systems, our food supply, and communities. To combat these threats, conventional agricultural chemicals are the primary means to control most of these pests, despite concerns about adverse effects on public health, non-target organisms, and natural resources. Environmentally safer alternatives have been developed in some systems, such as the use of biological control organisms (e.g. parasites, predators, and microbes), semiochemicals, resistant plant varieties, and genetically modified crops that resist attack by pests. However, fundamental knowledge of arthropod and nematode biology, which could lead to better usage of these alternatives or novel approaches to management, is still lacking in many areas. In addition, growing demands for organically-grown commodities in the U.S. has led to increased needs for biologically-based approaches to managing pests. Also, the health of pollinator populations could be greatly improved if the mechanisms that affect susceptibility to pests, diseases, disorders, and environmental stressors were better understood.

To meet these identified needs of agriculture, the long-term (10-year) goals of this program area are to 1) improve our understanding of the biotic and abiotic factors associated with establishment and distribution of pests and beneficial species; and 2) develop the scientific and technological framework for environmentally sound pest management strategies. Examples of promising outcomes include genetically modified arthropods or nematodes for pest control, improved utilization of biological control organisms, development of novel pheromone blends or biologically-based pesticides, and adoption of pest-resistant strains of managed bees.

All four program elements in the Arthropod and Nematode Biology and Management program area support research in the following systems: Horticultural and field crops, forests, rangelands, urban landscapes, livestock, and food or feed transported and stored for human consumption. Pest organisms are limited to insects, mites, ticks, plant-parasitic nematodes, and weeds in the context of a biological control agent. Beneficial species include biological control organisms (e.g. insects, microbes, or nematodes) of the above pests and pollinators. Arthropods, which vector plant or livestock diseases important to agriculture, are also appropriate.

51.2 Arthropod and Nematode Biology and Management (A): Organismal and Population Biology

National Program Leader – Dr. Mary Purcell-Miramontes (202-205-0440 or mpurcell@csrees.usda.gov)
Total Program Funds – approximately $5.3 million
Proposed Program Funds –

- Proposed research budget requests must not exceed $350,000 for single-investigator projects and $450,000 for multi-institutional or multidisciplinary projects for project periods of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The Organismal and Population Biology element of the Arthropod and Nematode Biology and Management program will support fundamental and applied research at the organismal and population level to address the challenges of managing arthropod or nematode pests and enhancing use of beneficial organisms.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Determine chemical-ecological or eco-physiological mechanisms that affect abundance of pests or beneficial species.

2. Characterize population genetic processes that affect establishment and/or movement of pests or beneficial species.

3. Elucidate multitrophic interactions between pests, beneficial organisms, or microbes and commodities (e.g. plants or livestock).

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Mary Purcell-Miramontes **(**mpurcell@csrees.usda.gov**)** with the subject heading '*Letter of Intent Program 51.2A_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- The Project Description portion of the application must include a section providing a clear justification for the system studied, in terms of economic and/or societal benefit to agriculture and rural communities. Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance within the submitted project.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management (B): Suborganismal Biology
National Program Leader – Dr. Mary Purcell-Miramontes (202-205-0440 or mpurcell@csrees.usda.gov)
Total Program Funds – approximately $3.1 million
Proposed Program Funds –

- Proposed research project budget requests must not exceed $400,000 for project periods of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due March 14, 2008 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
The Suborganismal Biology element of the Arthropod and Nematode Biology and Management program supports fundamental and applied research at the cellular and molecular levels to address the problem of managing arthropod and nematode pests and the Nation's over-dependence on harmful pesticide applications. Advances in the molecular genetics, physiology, biochemistry, and genomics of arthropods and nematodes are poised to provide novel solutions to these problems that threaten the Nation's food supply and natural resources.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Characterization of digestive physiology, endocrine, neurophysiological, or biochemical processes of arthropods and nematodes.

2. Understanding the cellular, biochemical, and molecular level interactions of arthropods or nematodes with associated organisms (e.g. host plants, livestock, microbes, or beneficial organisms).

3. Elucidation of the mechanism of action of novel targets for pest control, including semiochemicals and fundamental pesticide resistance studies.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **March 14, 2008, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
  - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
  - The letter of intent is limited to two pages.
    - On Page 1 include a cover letter with the following information:
      - the name of the lead project director;
      - the names of collaborating investigators; and
      - the program priority addressed by the project.
    - On Page 2 include
      - a descriptive title; and
      - a brief statement of approaches and objectives
  - Attach the PDF letter of intent to an email addressed to Dr. Mary Purcell-Miramontes **(**mpurcell@csrees.usda.gov**)** with the subject heading '*Letter of Intent Program 51.2B_PD's Last Name'*.
  - An acknowledgement receipt will be sent indicating the letter was received.
  - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
  - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
  - Submission of more than one letter of intent is discouraged.
  - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 28, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
  - Only invited full applications will be reviewed by the panel.

- The Project Description portion of the application must include a section providing a clear justification for the system studied, in terms of economic and/or societal benefit to agriculture and rural communities. Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance within the submitted project.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics
National Program Leader – Dr. Mary Purcell-Miramontes (202-205-0440 or mpurcell@csrees.usda.gov)
Total Program Funds – approximately $3.5 million
Proposed Program Funds –

- Proposed research project budget requests must not exceed $750,000 for project periods of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – March 14, 2008 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
The Tools, Resources, and Genomics element of the Arthropod and Nematode Biology and Management program will support research to better develop genomic resources, tool development, and fundamental knowledge about the functions of genes for arthropods and nematodes of agricultural importance.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Develop innovative approaches for mapping, identification, sequencing, and/or expression of genes to enable future studies on genome organization and lead to hypothesis testing research.

2. Generate bioinformatic tools to manage and interpret sequence data (e.g. analytical tools for integrative and comparative genomics), technology platforms, and computational resources.

3. Characterize, on a large scale, the function(s) of genes or networks of genes.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **March 14, 2008, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Mary Purcell-Miramontes **(**mpurcell@csrees.usda.gov**)** with the subject heading '*Letter of Intent Program 51.2C_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.

- A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
- Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
- Submission of more than one letter of intent is discouraged.
- Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 28, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
- Only invited full applications will be reviewed by the panel.

- We encourage submission of proposals for organisms with extensive genomic information (e.g. ESTs and physical maps).

- The Project Description portion of the application must include a section providing a clear justification for the system studied, in terms of economic and/or societal benefit to agriculture and rural communities. Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance within the submitted project.

- The outcome of all draft sequencing projects is expected to include generation of high quality sequence data, organization of sequence reads into contiguous sequences (contigs), correlation with physical maps when appropriate, annotation of open reading frames, and deposition of information in a publicly accessible database.

- Investigators are encouraged to seek support from other sources so that complete sequence data can be obtained in a reasonable time frame. If parallel support from another agency is under consideration or being planned, investigators should indicate in the proposal how the funded activity will be organized and coordinated within the larger project.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management (D): Protection of Managed Bees Coordinated Agricultural Project (CAP)
National Program Leader – Dr. Mary Purcell-Miramontes (202-205-0440 or mpurcell@csrees.usda.gov)
Total Program Funds – approximately $4 million
Proposed Program Funds –
- Proposed integrated project budget requests must not exceed $1 million per year, not to exceed 4 years, providing a total award of $4.0 million (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
Coordinated Agricultural Project (CAP) proposals will be solicited for a community of researchers, extension specialists and/or educators focusing on an existing or emerging issue of national importance on the biology and management of arthropods or nematodes, and which is poised to lead to practical management solutions for pests or beneficial species.

Due to the award size, only 1 proposal is likely to be funded for a 4 year period. The program anticipates making awards as a continuation grant, which is a grant instrument by which the Department agrees to support a specified level of effort for a predetermined project period (e.g. annually). Additional support will be made at a future date.

Provided that performance has been satisfactory, appropriations are available for this purpose, and continued support is in the best interest of the Federal government and the public. Solicitation for new CAP proposals on this topic is not anticipated the following year.

In FY 2008, the issue will focus on the decline of managed bee pollinators. Bee pollination is responsible for $15 billion in added crop value, particularly for specialty crops, such as almonds and other nuts, berries, fruits, and vegetables. Bee populations throughout the U.S. are in serious decline due to pests, diseases, and environmental stresses, including pesticide exposure, inadequate nutritional resources, and extreme temperatures. In addition, a potentially new phenomenon, tentatively termed Colony Collapse Disorder, is threatening the honey bee industry and potentially may impact the Nation's food supply. It has become increasingly difficult for beekeepers to meet the pollination demand for several crops and the cost of bees used for pollination services has more than doubled. The recent completion of the honey bee genome and whole genome microarray may allow researchers to develop effective strategies to better protect managed bees and to improve the viability of the apiculture industry. A coordinated approach that links basic and applied research, in conjunction with extension and educational activities to better protect and manage bee pollinators is encouraged.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Improve the health of managed bee populations in agricultural systems. Submitted proposals should include at least two of the following activities:

    a. Research that could be applied to future extension and/or educational programs. Research is expected to be multidisciplinary, addressing genomics, breeding, pathology, immunology, and/or applied ecology that elucidates the interaction of population declines of managed bees with biotic and abiotic factors (e.g. pests, diseases, disorders, environmental stressors, or current management practices).

    b. Extension programs that develop and implement novel management strategies for protection of managed bees.

    c. Educational programs that develop innovative curricula on the intersection of ecology and genomics with student experiential learning elements to facilitate practical application of knowledge.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Mary Purcell-Miramontes **(**mpurcell@csrees.usda.gov**)** with the subject heading '*Letter of Intent Program 51.2D_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.
- Applications that do not address the stated integrated program priority will be returned without review.

- Applicants are strongly encouraged to see the previously funded CAP awards for guidance (e.g. http://www.aicap.umd.edu/; http://www.prrs.org/; http://maswheat.ucdavis.edu/; http://www.uark.edu/ua/ricecap/)

- Flexibility in attainment of project goals is an important feature of CAP projects. It is recognized that unexpected advances and promising leads, or unforeseen needs related to project goals and objectives, may emerge during the project. As a result, objectives may be revised and/or new objectives may be developed with associated budget adjustments. In addition, the program does not expect that all investigators associated with the proposed project will be supported throughout its duration. It is suggested that investigators involved in shorter-term, specific tasks be supported through a series of renewable subcontracts.

- CAP projects should include an advisory board of principal stakeholders and partners (to aid in evaluation of scientific merit, agricultural relevance, and progress). The advisory board will also serve to identify the most promising objectives and work plans to pursue in the coming year (for which sub-contracts and plans of work would subsequently be submitted for approval from the Authorized Departmental Officer).

- The lead project director is expected to make a significant time commitment to assure that the project remains his or her top priority. To support the lead project director, as well as other project personnel, applicants are encouraged to include additional administrative support in the budget request.

- A project management plan should be included to ensure efficient functioning of the CAP team. The plan should include an organizational chart, administrative timeline, a description of how the project will be governed, and identification of short-, medium- and long-term metrics to be evaluated, roles and responsibilities of team members, a mechanism whereby progress metrics can be evaluated for future budgetary allocations, and how the project will complement and/or link to existing programs or projects. The plan must include an exit strategy beyond the requested award period, without assuming long-term NRI support

- For projects with an educational objective, an integral part of the project should be a broadening educational experience for students, postdoctoral research associates and others to participate in the CAP. The plan must include examples of measurable outcomes (e.g. development of integrative university-level teaching modules/curricula utilizing the knowledge for the problem area). Also, the plan should include approaches to evaluate educational deliverables (e.g. curricula design; exceptional expertise development). We also encourage coordination with the CSREES educational programs to partner with minority serving institutions. The following link has been included to access CSREES educational funding opportunities, http://www.csrees.usda.gov/about/offices/serd_funding.html;

- The CAP program must develop publicly accessible products such as (but not limited to):

    - Standardized protocols for various areas (e.g. diagnostics for pest or pathogen detection, resistance, or breeding studies);
    - Sample repositories and databases;
    - Genomics/proteomics tools, reagents, and protocols (e.g. arrays, clone sets, bioinformatics tools, and services); or
    - Extension and communication programs (e.g. training tools, demonstrations, conferences, continuing education, publications, impact assessment, and Web sites).

- Leveraging and coordinating project resources with other USDA and non-USDA efforts for the same area;

- Filling critical knowledge gaps including the exploration of some high-risk approaches

- If a project is funded, beginning in the first year of funding, project directors are required to organize annual meetings for the CAP group. Reasonable travel expenses should be included as part of the project budget.

51.8 Microbial Biology

National Program Leaders –
Dr. John L. Sherwood (202-690-1659 or jsherwood@csrees.usda.gov)
Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov)
Total Program Funds – approximately $7.4 million
Proposed Budget Restrictions – This program contains two elements. See each program element for additional budgetary information.
Microbial Biology (A): Microbial Observatories
Microbial Biology (B): Microbial Associations with Plants
Letter of Intent – See each program element for additional details.
Application Deadline – See each program element for additional details.

Overview
Microorganisms have a tremendous impact on the productivity and profitability of U.S. agriculture. Microorganisms associated with plants and animals may increase productivity, cause or help prevent disease, and/or affect the safety and quality of the Nation's food supply. New microbes and microbial communities are routinely being discovered and characterized as genomic and metagenomic tools become readily available to the research community. The pattern and distribution of microbes can have a tremendous effect on the environment. Understanding both the interaction of individual microbes with their host and how communities of microbes become established, communicate, and prosper are essential to elucidate the mechanisms by which microbes impact agricultural production.

This program enhances the protection and safety of the Nation's agriculture and food supply. More specifically, through science-based knowledge and education, information and technologies are developed and delivered that reduce the incidence of food-borne illnesses and contaminants and reduce the number and severity of agricultural

pest and disease outbreaks. Understanding the nature of microbes and their communities will assure sustainable agricultural production systems to provide food, fiber, and biofuels for tomorrow. Additionally, aspects of these programs also enhance economic opportunities for agricultural producers and protect the Nation's natural resource base and environment.

51.8 Microbial Biology (A): Microbial Observatories
National Program Leaders – Dr. John L. Sherwood (202-690-1659 or jsherwood@csrees.usda.gov)
Total Program Funds – approximately $2.0 million will be provided by USDA-CSREES
Proposed Budget Restrictions –

- Proposed awards are expected to range between $500,000 and $2,000,000 for project periods from 2-4 years (including indirect costs).

Letter of Intent – Not required for this program element.
Application Deadline – This program element is in partnership with the National Science Foundation (NSF). Please note that proposals submitted for review in this program element must be submitted through NSF in accordance with submission instructions outlined in the separate program solicitation for the FY 2008 NSF/USDA-CSREES Microbial Observatories program.

Background
Microorganisms are critical to the productivity and sustainability of agricultural ecosystems. They can be detrimental (e.g. by causing disease) or beneficial (e.g. by reducing the incidence of disease or by contributing to nutrient cycling). Methods of managing agricultural systems can significantly impact microbial community composition and functioning. Very little is currently known about the extent and significance of such impacts.

CSREES, in partnership with the National Science Foundation, has announced an expanded competitive grants program on Microbial Observatories. This program will now support research to discover and characterize novel microorganisms and microbial communities and to study their roles in agriculturally relevant environments. Additional information regarding this program has been released as a separate program announcement. Please visit: www.csrees.usda.gov/fo/fundview.cfm?fonum=1460 .

51.8 Microbial Biology (B): Microbial Associations with Plants
National Program Leaders – Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov)
Total Program Funds – approximately $5.4 million
Proposed Budget Restrictions –

- Proposed research project budget requests must not exceed $400,000 for project periods of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due October 9, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
Unlocking the information in microbial genomes is essential to understanding the molecular mechanisms underlying agriculturally relevant processes in microbes and managing microorganisms for the benefit of U.S. agriculture. These processes include pathogenicity, disease suppression by biological control agents, and mechanisms of microbial communication. This program supports fundamental hypothesis-driven research on the interactions between microorganisms and plants with which they are associated. The program encourages application of knowledge gained to systems of economic importance to U.S. agriculture or of importance to agricultural sustainability.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: improved resistance to high-impact plant diseases based on knowledge of plant pathogens, their plant hosts, and host-pathogen interactions; improved methods of manipulating plant-associated microorganisms to develop more effective,

environmentally sound, profitable, and safer disease management practices by interfering with microbial cell to cell signaling; and improved understanding of how pathogens spread within a plant.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Elucidation of molecular mechanisms of disease and resistance interactions between microbial plant pathogens and their host plants. This priority area will accept research applications that focus only on the microorganism, as well as applications that focus on the association between the microorganism and the plant. Applications that address plant defense or plant disease resistance genes without a significant focus on the microorganism are not appropriate for this program element, but may be appropriate for the Plant Biology (A): Gene Function and Regulation program.

2. Molecular mechanisms of communication among plant-associated microorganisms (e.g. plant pathogens, microbial biological control agents, and nitrogen-fixing bacterial endosymbionts) and their plant hosts. Within communities of microorganisms, there are communication and interaction among the same and different species of microbes. Microbes are also communicating with the plants within and on which they live. This priority area includes communication associated with microbial quorum sensing, as well as signaling between plants and their associated microbial communities.

3. Mechanisms by which pathogens spread over short distances, within a plant host or between neighboring plants. Pathogens studied under this priority area can be either plant pathogens or human food safety pathogens.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Ann Lichens-Park (apark@csrees.usda.gov) with the subject heading '*Letter of Intent Program 51.8B_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel

- Applications must address microbial associations with plants using microorganisms and/or plants that are economically important or that are important to agricultural sustainability (e.g. microorganisms that contribute to more environmentally sustainable crop production). In the "Rationale and Significance" section of the project description, applicants are required to include a subsection entitled "Justification of Relevance to U.S. Agriculture" providing a clear justification for the system studied in terms of economic and/or societal benefit to U.S. agriculture.

- Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance to U.S. agriculture within the experimental design of the submitted project and to be implemented during the project period. If the application focuses significantly on the plant side of the association in addition to the microbes, knowledge gained from a model plant must be applied to a plant of economic importance to U.S. agriculture or to agricultural sustainability.

- Applications that focus on how microbial processes affect the soil environment should consider submission to the Soil Processes program (25.0).

- Applicants proposing to study long-distance spread of plant pathogens of significant consequence should consider submission to the Plant Biosecurity program (20.2).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome

National Program Leader – Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov)
Total Program Funds – approximately $10.0 million, with up to $5.0 million for integrated projects.
Proposed Budget Requests – This program contains four elements. See each program element for additional budgetary information.

Plant Genome (A): Tools, Resources, and Bioinformatics
Plant Genome (B): Functional Genomics
Plant Genome (C): Genome Structure and Organization
Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)

Letter of Intent – Required for Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP).
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Overview
This program supports research and integrated projects ranging from technology development to fundamental science and practical application for crop or forestry improvement in the United States. The ultimate goal of the program is to contribute knowledge about the biology of agriculturally important plant processes and traits, which can be used to develop plants with enhanced economic value and expanded utilities.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program include increased fundamental knowledge of the structure, function and organization of plant genomes to improve agricultural efficiency and sustainability; effective integration of modern molecular breeding technologies and classical breeding practice for U.S. crop and forestry improvement; and improved U.S. varieties for agricultural growers and producers.

In FY 2008, the program will continue to focus on agriculturally significant plant families or species. The program elements Plant Genome (A): Tools, Resources, and Bioinformatics and (B): Functional Genomics are focused on agriculturally important specialty crops in Rosaceae (e.g. apple, cherry, peach, strawberry, etc.) and Compositae (e.g. lettuce, sunflower, etc.). Plant Genome (C): Genome Structure and Organization will focus on wheat (*Triticum aestivum*); and Plant Genome (D): Applied Plant Genomics CAP is open to all applicants and is NOT plant species specific.

Next year, in FY 2009, the program anticipates focusing on the agriculturally important crops or reference model species in Poaceae (e.g. rice, wheat, barley, maize, sorghum, etc.) and/or Fabaceae (e.g. soybean, peanut, alfalfa, Phaseolus, *Medicago truncatula*, etc.).

52.1 Plant Genome (A): Tools, Resources, and Bioinformatics
National Program Leader – Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov)
Total Program Funds – approximately $2.0 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $400,000 for project periods of 2-3 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The Plant Genome (A): Tools, Resources, and Bioinformatics program element will focus on research to advance knowledge of the genome in agriculturally significant specialty crops in Rosaceae (e.g. apple, cherry, peach, strawberry, etc.) and Compositae (e.g. lettuce, sunflower, etc.) for U.S. agriculture. The development and transfer of genome-wide high-throughput technologies can lead to improved quality of human nutrition, health and well-being, enhanced economic opportunities, and protection of the environment.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Use of genome-wide high-throughput approaches for mapping and identification of important genes (e.g. Physical maps, ESTs, cDNAs, BAC libraries, SNPs, FISH, micro-arrays, transformation technologies, etc.) including MAS and QTL analysis (e.g. biotic and abiotic tolerance, quality, yield, growth habit, root morphology, branching, seed dormancy, heterosis, male sterility, fertility restoration, flowering time, seed shattering, self-incompatibility, etc.) and comparative genomics (e.g. enabling cross-species markers, etc.). These tools and resources can be developed with fundamental or applied goals in mind, including but not limited to mapping and deployment of beneficial QTL in classical breeding programs and molecular identification of beneficial alleles of any particular gene of agricultural significance.

2. Plant bioinformatics to enable genome-wide high-throughput cross-species comparisons and to link genomic data to agronomic and quality traits of economic value in agricultural plants.

Other Key Information

- Applicants must justify the potential impact of the proposed research and demonstrate that they can apply the most recent technologies. If tools and resources are developed (e.g. biological materials, germplasm, software, etc.), an applicant must budget for and demonstrate an adequate and efficient storage and distribution of the tools and resources once they are available. A description of quality control measures must be included in the application.

- Applicants must include a budgeted plan for the release of the results of their research to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. Genbank under the Bermuda standards; GEO under MIAME compliance; etc.). All phenotype and map data must be deposited into an appropriate public database (e.g. major community databases, etc.) in a rapid timeframe after quality control tests. Arrangements must be documented in the application.

- Applicants are encouraged to develop National and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome (B): Functional Genomics
National Program Leader – Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov)
Total Program Funds – approximately $2.0 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $400,000 for project periods of 2-3 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The Plant Genome (B): Functional Genomics program element will focus on assessing gene function through development and application of genome-wide high-throughput experimental approaches in agriculturally significant specialty crops in Rosaceae (e.g. peach, apple, strawberry, cherry, etc.) and Compositae (e.g. lettuce, sunflower, etc.) for U.S. agriculture.

FY 2008 Priority for Research Projects – Applicants must address the following priority.

1. Increase the understanding of the biological role of genomic sequence, including coding, regulatory and repeated sequences, and to link these sequences to physiological functions or agricultural and food processes.

Other Key Information

- Applicants must justify the potential impact of the proposed research. If tools and resources are developed (e.g. biological materials, germplasm, software, etc.), an applicant must budget for and demonstrate an adequate and efficient storage and distribution of the tools and resources once they are available. A description of quality control measures must be included in the application.

- Applicants must include a budgeted plan for the release of the results of their research to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. Genbank under the Bermuda standards; GEO under MIAME compliance; etc.). All phenotype and map data must be deposited into an appropriate public database (e.g. major community databases, etc.) in a rapid timeframe after quality control tests. Arrangements must be documented in the application.

- Applicants are encouraged to develop National and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome (C): Genome Structure and Organization
National Program Leader – Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov)
Total Program Funds – approximately $1.0 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $1million for project periods of 2-3 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program element.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The Plant Genome (C): Genome Structure and Organization program element will focus on research to advance knowledge of the genome of wheat (*Triticum aestivum*) as an international effort (http://www.wheatgenome.org/) and in coordination with other U.S. Federal Agencies and currently funded projects.

FY 2008 Priority for Research Projects – Applicants must address the following priority.

1. Develop or improve the physical map of the genome of hexaploid wheat (*Triticum aestivum*) as a prerequisite for genome sequencing or other basic and applied research.

Other Key Information

- Applicants must justify the potential impact of the proposed research. If tools and resources are developed (e.g. biological materials, germplasm, software, etc.), an applicant must budget for and demonstrate an adequate and efficient storage and distribution of the tools and resources once they are available. A description of quality control measures must be included in the application.

- Applicants must include a budgeted plan for the release of the results of their research to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. Genbank under the Bermuda standards; GEO under MIAME compliance; etc.). All phenotype and map data must be deposited into an appropriate public database (e.g. major community databases, etc.) in a rapid timeframe after quality control tests. Arrangements must be documented in the application.

- Applicants are encouraged to develop National and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)
National Program Leader – Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov)
Total Program Funds – approximately $5.0 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed a cumulative $5 million for a four year period (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The applied plant genomics Coordinated Agricultural Project (CAP) element is seeking applications for a community of researchers, educators, and extension specialists to focus on large-scale application and translation of genome discoveries and technology for U.S. crop or forestry improvement. The goal of the CAP is to move science from the lab to the field to the marketplace and, in the process, to solve real world problems. To accomplish this goal, the program is seeking applications that respond to existing or emerging problems, opportunities, and issues through the development and application of science-based knowledge.

CAP applications are expected to demonstrate coherent and complementary integrated activities with the ultimate goal of being a National strategy or solution that could be implemented for U.S. agricultural crops or forestry improvement. Applications are expected to take advantage of recent advances in genomics and to translate basic

discoveries and knowledge to practical applications. Comprehensive approaches are expected to include coordinated work on several of the following areas but not limited to: development and implementation of easy-to-use molecular markers for breeding; establishment of mapping populations; utilization of functional genomic tools, resources, and knowledge; identification of genomic intervals carrying genetic traits of interest (e.g. yield, quality, and disease) and pest resistance, stress tolerance, bioenergy, etc.; implementation of informatics-based tools for breeding; development and use of extension tools to provide appropriate audiences with information on agricultural advances and challenges; and educate future generations of agricultural scientists in technology use and transfer.

A CAP should seek to bring together a multi-state, multi-institutional, and multi-disciplinary team to integrate genomic discoveries and technology with breeding practice; accelerate identification of traits of interest directly useful to breeders to develop improved varieties; develop related education and degree program training for students and emerging scientists in the practical application of genomics-based tools; and provide complementary extension efforts to bring science-based information to relevant audiences that will allow them to make informed decisions. The intent of the CAP is to promote collaboration, open communication, the exchange of information and the development of resources that accelerate application of genome discovery and technology to plant improvement. The CAP aims to reduce duplication of efforts and integrate activities among individuals, institutions, states, and regions. Therefore, applications should clearly articulate how a CAP award will complement and/or link with existing programs or projects.

CAP participants would serve as a team comprised of members working in discovery, learning, and engagement to conduct research, education, and extension utilizing an integrative approach on an emerging or priority area to improve plants important to U.S. agriculture. This integrated team would contain expertise in genomics, genetics, breeding, genetic resources, bioinformatics, plant biology, extension education, program evaluation, agricultural education, curriculum development, economics, sociology, and human sciences, as appropriate, as well as expertise from principal stakeholders and partners. Partnerships with end user groups (e.g. industry, processors, growers, etc.) are strongly encouraged. The application should outline the potential of the CAP team, its structure, coordination and plan of implementation, as well as propose an integrated research, education, and extension project that will be evaluated during the project period.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Improvements in U.S. crop and forestry production through the application and translation of knowledge generated via genome-wide discoveries and high-throughput technologies for traditional breeding practice. This priority is open to all applicants and is NOT plant species specific. Submitted proposals should include the following activities:

    a. Extension programs to deliver timely, sound and objective translation of genomic, genetic and breeding information directly useful to U.S. growers and producers to make informed decisions and adopt new technologies that result in measurable changes in practice.
    b. Education programs to develop graduate curriculums in modern molecular breeding technologies, including the use of genomic tools to train the next generation of plant breeders and strengthen U.S. plant breeding capacity.
    c. Research programs to fill knowledge gaps and adopt new genomic technologies that significantly reduce the breeding cycle time and cost of phenotypic evaluations for improvements in U.S. crop or forestry production.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to three pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.

        - On Page 2 and 3 include
            - a descriptive title; and
            - a brief statement of **integrated** approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov) with the subject heading '*Letter of Intent Program 52.1D_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is not permitted.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Support will be provided as a Coordinated Agricultural Project (CAP) award that will not exceed a total budget (including indirect costs) of $5 million ($1.25 million per year) for a period of time not to exceed 4 years. The program anticipates making awards as a continuation grant, which is a grant instrument by which the Department agrees to support a specified level of effort for a predetermined project period (e.g. annually) with a statement of intention to provide additional support at a future date, provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Applicants are encouraged to see the previously funded CAP awards for guidance (e.g. http://www.aicap.umd.edu/; http://www.prrs.org/; http://maswheat.ucdavis.edu/; http://www.uark.edu/ua/ricecap/). Projects may not reflect this current FY CAP program description that has evolved from earlier descriptions.

- Applicants are encouraged to develop National and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost

effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- An aim of a CAP award is to encourage maximum flexibility in applied plant genomics research, education and extension. Applications will be evaluated based on how well their goals and objectives respond to current needs utilizing genomic tools and resources. It is recognized however, that as an award's comprehensive approach unfolds, unexpected advances and promising leads, or unforeseen new National needs related to project goals and objectives, may be identified. The CAP team members are expected to be capable of responding to these opportunities. As a result, there is an expectation that objectives may be redirected and/or new objectives may be developed with associated budget adjustments. To encourage flexibility, the program does not expect that all investigators associated with the proposed project will be supported throughout its duration. It is suggested that investigators involved in shorter-term, specific tasks be supported through a series of renewable subcontracts. In their original budgets, applicants may request that no more than 25 percent of the requested funds be available to accomplish time-critical objectives of National interest that they will determine at a later date. The requested funds should be indicated on Field H, Other Direct Costs, of the budget form and identified as "Future National Interests" in the budget narrative.

- In a Single Integrated Research, Education, and Extension Application, applied plant genomic projects are requested that incorporate the following:

  (a) A budgeted plan and timeline for extension initiatives leading to measurable behavior change or adoption of technology in an identified audience or stakeholder group. Collaboration with Extension personnel is encouraged to transform developed plant genomics information into eXtension Communities of Practice http://about.extension.org/university-researcher/ where appropriate;

  (b) A budgeted plan and timeline for education (teaching) initiatives must include approaches to evaluate educational deliverables (e.g. curricula design and exceptional core competencies in plant genomics) for expertise development through undergraduate and graduate training. As an integral part of the project approach, a broadening educational experience for students (e.g. provide innovative frameworks for curriculum development); undergraduate and graduate training; and/or exceptional learning opportunities in emerging knowledge areas, postdoctoral research associates and others, to participate in the CAP. The plan must include education (e.g. development of integrative university-level teaching modules/curricula utilizing the knowledge for the problem area) opportunities with measurable outcomes for groups under-represented in science to participate. We also strongly encourage coordination with the CSREES educational programs as an opportunity, for example, to partner with minority serving institutions. The following link has been included to access CSREES educational funding opportunities, http://www.csrees.usda.gov/about/offices/serd_funding.html;

  (c) A budgeted project management plan and timeline to ensure efficient functioning of the CAP team that includes an organizational chart, administrative timeline, a description of how the project will be governed, and identification of short-, medium- and long-term metrics to be evaluated, what expectations are required from each team member, a mechanism whereby progress metrics can be evaluated for future budgetary allocations, and how the project will complement and/or link to existing programs or projects to include multi-disciplinary, multi-institutional, multi-state and international collaborations. The plan must include an exit strategy beyond the requested award period, without assuming long-term NRI support. The management of the research, education, and extension integrative activities must be clearly incorporated in the overall management plan;

  (d) A budgeted data management plan and timeline that includes a description of how project information, data, and results will be made publicly available (e.g. capacity to freely interface with major community databases and with all project locations), a description of the database development, deployment, nomenclature standardization, data mining and analysis, interoperability, web presentation, etc. Applicants must aim to release the results of their research to the public in a timely manner and in an accessible and usable form. If a professional managed community database exists, the plan must demonstrate coordination

to that database and a letter of support submitted with the application. To the extent possible, the plan should adapt software and data structures already available through an open source system, adopt a LIMS convention for the project with breeder input into the ontogeny and design of the system, training for key project personnel who will generate or analyze data, agreement on nomenclature at every level, assurance that the data are compatible with databases or information services for long-term curation and storage, dedicated personnel to provide day-to-day management of the database and compliance monitoring, etc.;

(e) A budgeted plan and timeline to develop or improve high-throughput mapping and marker development, establish mapping populations, and identify genomic intervals carrying traits of agronomic interest directly useful to breeders and to other biologists for fundamental plant science research. The plan may include production of localized or total-genome maps that will be useful in improvement or in cloning genes of agricultural importance. The application should clearly justify the nature of the map to be constructed (e.g. genetic, physical, or comparative); high density or low density. Applications must include an assessment of the present state of the genome map, the availability of existing genetic materials and technologies, the rationale for choice of the mapping population, genotype or breeding line, and the short- and long-term applications of the map for plant breeding or other research;

(f) A budgeted plan and timeline to develop or improve web accessible informatics-based tools for plant breeders that enable efficient access to genetic, trait, physical, and expression data, etc. The plan may focus on to the extent possible: providing informatics training and education opportunities that foster a collaborative interface between CAP participants, breeders, biologists, computational scientists, and end users; the improvement of statistical and computational methods for analyzing genome/genetic data critical for plant breeding objectives that include controlled vocabularies; the improvement of resources for the acquisition, management, storage, and interoperability of genome/genetic data that can incorporate increasingly diverse information for plant improvement; the enhancement of tools for analysis of plant genome sequence data including quantitative and graphical representation of germplasm relatedness, comparison of data across species, and QTL analysis; and the improvement of resource Web pages for specific classes of traits, proteins, genes, or metabolic pathways for plant improvement, etc.;

(g) A budgeted plan and timeline to develop or improve molecular markers and apply marker-assisted breeding/selection to U.S. plant breeding objectives and to utilize new genome technologies to address problems not readily solved by conventional breeding methods. The CAP will support projects to locate, identify, and isolate genes that are important to the productivity and sustainability of U.S. agriculture. To prevent duplication of effort, applicants are strongly encouraged to use the available genetic tools and resources, such as existing genomic/genetic maps, cytogenetic stocks, alien addition lines, near isogenic lines, mutants, transposons, molecular markers, or other existing information and technologies to locate, identify, and isolate genes that are directly useful to breeders;

(h) A budgeted plan and timeline for sharing results and management of intellectual property that includes a description of what, how, and when the user community would have public access to the research, education, and extension deliverables and outcomes of the project; and

(i) A budgeted plan and timeline for an integrated advisory group of principal stakeholders and scientists relevant to the proposed research, education, and extension projects (e.g. include letters of commitment and rationale for their role) to assess and evaluate the quality, potential outcomes, and impacts, and how they could function effectively to support the goals and objectives of the CAP.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

Agricultural Production and Value-Added Processing Cluster Overview

The Agricultural Production and Value-Added Processing program cluster addresses CSREES' strategic goals to enhance competitiveness and sustainability of rural and farm economies and to enhance international competitiveness of American agriculture. The programs in this cluster also generate knowledge that will assist CSREES' strategic goals to support increased economic opportunities and improved quality of life in rural America; enhance protection and safety of the Nation's agriculture and food supply; improve the Nation's nutrition and health; and protect and enhance the Nation's natural resource base and environment.

Agricultural production and marketing play a crucial role in the success and growth of the Nation's economy. The programs in the Agricultural Production and Value-Added Processing program cluster support fundamental and mission-linked research and integrated projects to address current and future challenges to food, feed, and fiber production, post-harvest processing, and competitiveness of U.S. agricultural in domestic and international markets. The programs also support the science-based knowledge and technology development that will lead to new and improved uses for agricultural and forestry biomass in bioenergy and industrial applications. Research supported by Agricultural Production programs forms the scientific knowledge base needed to use the increasing amounts of genomics data, tools, and resources for food, feed, fiber, and fuel production. Projects supported by the programs apply cutting edge technologies and tools, such as nanotechnology, genomics, proteomics, and metabolic engineering, to ensure that agricultural production in the U.S. remains competitive, innovative, and sustainable.

Programs in this cluster range from fundamental research on plant and animal biology to applied research on product development, improvement, and agricultural markets and trade, thus linking basic research to application, policy, and practice. Education and extension projects will enable transfer of knowledge from researchers to producers, consumers, industry, and other stakeholders. Projects supported by these programs will provide vital science-based knowledge, education, and extension to ensure future growth and development of agricultural production and value-added processes, as well as competitiveness of U.S. agriculture. The knowledge, education, and extension will, in turn, increase economic opportunities for agricultural producers and provide agricultural products with enhanced value and lower cost for consumers.

In FY 2008, the NRI invites applications in the following programs related to Agricultural Production and Value-Added Processing:

41.0 Animal Reproduction

42.0 Animal Growth and Nutrient Utilization

56.0 Plant Biology
- 56.0 Plant Biology (A): Gene Function and Regulation
- 56.0 Plant Biology (B): Environmental Stress
- 56.0 Plant Biology (C): Biochemistry
- 56.0 Plant Biology (D): Growth and Development
- 56.0 Plant Biology (E): Plant Breeding and Education

61.0 Agribusiness Markets and Trade

71.2 Biobased Products and Bioenergy Production Research

75.0 Nanoscale Science and Engineering for Agriculture and Food Systems

Agricultural Production and Value-Added Processing Program Descriptions

41.0 Animal Reproduction

National Program Leader – Dr. Mark Mirando (202-401-4336 or mmirando@csrees.usda.gov)
Total Program Funds – approximately $4.5 million, with up to $900,000 for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $350,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $450,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – November 15, 2007 (5:00 P.M., ET)

Background
Reducing infertility and improving fertility in breeding populations of agriculturally important animals, including aquacultured species, is of major importance for efficient animal production. In several species, fertility has declined significantly over the past several decades. New knowledge is needed to improve fertility and facilitate implementation of integrated animal production systems that will contribute to sustainability of the animal production unit. Approaches to managing animal reproduction also are key to future application of biotechnologies. Therefore, the objective of this program is to increase the knowledge base for reproductive biology of agriculturally important animals with the goal of reducing infertility and improving overall reproductive management in animal production systems.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to improve fertility and decrease infertility; develop improved methods for sterilization and production of monosex populations of animals; and improve reconstitution of germplasm from preserved sources, including cryopreserved gametes and embryos.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Gonadal function, including production, function, and preservation of gametes.

2. The hypothalamic-pituitary axis.

3. Embryonic and fetal development, including interaction between the conceptus and its uterine environment.

Other Key Information for Research Projects

- All model systems, especially the use of laboratory animals, cell cultures, etc., must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program no longer accepts applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications that focus on uterine defense mechanisms (e.g. non-disease specific immunology) should be submitted to the Animal Protection and Biosecurity program (44.0). Applications addressing the effects of disease, animal health, or alterations in the immune system on reproduction should not be submitted to this program. Applications that involve transcriptional profiling or sequencing of genes involved in reproduction must include physiological or functional studies at the cellular, systemic, or whole animal level.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Development, delivery, and implementation of approaches or management practices to regulate fertility through manipulation or management of gonadal function, the hypothalamic-pituitary axis, and/or embryonic and fetal development.

Other Key Information for Integrated Projects

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Applications that focus on uterine defense mechanisms, e.g., non-disease specific immunology, should be submitted to the Animal Protection and Biosecurity program (44.0). Applications addressing the effects of disease, animal health, or alterations in the immune system on reproduction should not be submitted to this program. Applications that involve transcriptional profiling or sequencing of genes involved in reproduction must include physiological or functional studies at the cellular, systemic, or whole animal level.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

42.0 Animal Growth and Nutrient Utilization

National Program Leader – Dr. Mark Mirando (202-401-4336 or mmirando@csrees.usda.gov)
Total Program Funds – approximately $4.5 million, with up to $900,000 for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $350,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $450,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
Suboptimal nutrition and growth are limiting factors in animal productivity. New information regarding these processes in agriculturally important animals, including aquaculture and aquacultured species, is lacking. The primary objective of the program is to increase our understanding of the biological mechanisms underlying animal growth, development of skeletal muscle, lactation, and nutrient digestion and metabolism. New knowledge for contemporary and future agricultural systems is needed to improve animal production and control muscling, growth, metabolism, and mammary function. Novel research is also needed to identify biological mechanisms for improving dietary nutrient availability, directing nutrient partitioning toward more protein and less fat, and minimizing excretion of nutrients as waste products.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to improve quality and efficiency of meat, milk, and egg production; improve animal utilization of nutrients; and reduce output of nutrients into the environment as animal waste products.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Improve quality and efficiency of meat, milk, and egg production.

2. Control of nutrient intake, digestion, absorption, and availability to improve nutrient utilization and minimize excretion of nutrients as waste products.

Other Key Information for Research Projects

- All model systems, especially the use of laboratory animals, cell cultures, etc., must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications that involve transcriptional profiling or sequencing of genes involved in animal growth, lactation, or nutrient utilization must also include physiological or functional studies at the cellular, systemic, or whole-animal level.

- Applications concerning the developmental biology or nutritional regulation of the immune system should be submitted to the Animal Protection and Biosecurity (44.0A): Animal Disease program element. Applications addressing developmental biology of the reproductive system, including embryonic, gonadal, and placental development, and applications dealing with nutritional regulation of reproduction, should be submitted to the Animal Reproduction program (41.0). Applications focusing on the effects of diseases or alterations in the immune system on animal growth, lactation or nutrient utilization, or those that emphasize nutritional regulation of animal health or immune function, should not be submitted to this program. Applications seeking to create functional foods (e.g. to increase the amount of omega-3 fatty acids, conjugated linoleic acids, or nutritional components in meat, milk, or eggs) should not be submitted to this program.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Application and translation of knowledge, discoveries, and technologies in animal growth to improve quality and efficiency of meat, milk, and egg production, thereby improving animal production and increasing beneficial contributions to the environment.

2. Application and translation of knowledge, discoveries, and technologies in animal nutrient utilization to control nutrient intake, digestion, absorption, and availability, thereby improving animal production and increasing beneficial contributions to the environment.

Other Key Information for Integrated Projects

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Applications that involve transcriptional profiling or sequencing of genes involved in animal growth, lactation, or nutrient utilization must also include physiological or functional studies at the cellular, systemic, or whole-animal level.

- Applications concerning the developmental biology or nutritional regulation of the immune system should be submitted to the Animal Protection and Biosecurity (44.0A): Animal Disease program element. Applications addressing developmental biology of the reproductive system, including embryonic, gonadal, and placental development, and applications dealing with nutritional regulation of reproduction, should be submitted to the Animal Reproduction program (41.0). Applications focusing on the effects of diseases or alterations in the immune system on animal growth, lactation or nutrient utilization, or those that emphasize nutritional regulation of animal health or immune function, should not be submitted to this program. Applications seeking to create functional foods (e.g. to increase the amount of omega-3 fatty acids, conjugated linoleic acids, or nutritional components in meat, milk, or eggs) should not be submitted to this program.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology

National Program Leaders –
Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov)
Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov)
Total Program Funds – approximately $16.6 million, with up to $1.35 million for integrated projects
Proposed Budget Requests – This program contains five elements. See each program element for additional budgetary information.
Plant Biology (A): Gene Function and Regulation
Plant Biology (B): Environmental Stress
Plant Biology (C): Biochemistry
Plant Biology (D): Growth and Development
Plant Biology (E): Plant Breeding and Education
Letter of Intent – Required for each program element. See the **Other Key Information** section of each program element for additional details.
Application Deadline – See each program element for additional details.

Overview
This program supports projects that will provide fundamental knowledge and training for improvement and sustainability of agricultural plant and forestry production. Knowledge of plant biology from the molecular to the systems level provides the foundation for development of plants with increased productivity, fitness, and use. Such fundamental understanding of plant biology will allow scientists to make use of the increasing wealth of genomics data and tools and to develop new varieties of agricultural plants through biotechnology and plant breeding approaches.

The science-based knowledge and education contributed by this program can lead to increased economic opportunities for producers and consumers by reducing production costs, improving quality, and increasing value of agricultural plant products. This knowledge will allow U.S. agriculture to face critical needs in the areas of bioenergy, climate change, loss of agricultural land, and increasing global competition.

In FY 2008, the program elements Plant Biology (A): Gene Function and Regulation; Plant Biology (B): Environmental Stress; Plant Biology (C): Biochemistry; and Plant Biology (D): Growth and Development are soliciting research projects only. The program element Plant Biology (E): Plant Breeding and Education is soliciting integrated projects only. Please see specific program elements below for submission details and element-specific instructions.

56.0 Plant Biology (A): Gene Function and Regulation
National Program Leader – Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov)
Total Program Funds – approximately $3.45 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due October 9, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
The plant research community is poised to apply recent advances in plant genomics to traits of economic value in important agricultural species. For this application to occur, the basic genetic processes and mechanisms must be well understood. The goal of this program element is to supply such fundamental knowledge to support the development of genetically superior varieties of crop and forest species that are more cost-effective to grow and will provide greater profit for farmers in the ever more competitive global market.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are to obtain a detailed understanding of the function of agriculturally important genes and the regulation of gene expression in agricultural plants to better use these genes for improved crop and forest production and quality.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Functional analyses of agriculturally important genes in plants. Studies of plant disease/pest resistance genes are appropriate for this program but are limited in FY 2008 to studies focusing on genes conferring resistance to diseases caused by fungi, oomycetes, bacteria, or viruses. Studies on genes conferring resistance to arthropod or nematode pests are not solicited this year. Studies may also include the development of improved mutational and gene silencing approaches.

2. Research on regulatory mechanisms of gene expression. Research is encouraged that aims at understanding gene regulatory networks at the systems level.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
  - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
  - The letter of intent is limited to two pages.
    - On Page 1 include a cover letter with the following information:
      - the name of the lead project director;
      - the names of collaborating investigators; and
      - the program priority addressed by the project.
    - On Page 2 include
      - a descriptive title; and
      - a brief statement of approaches and objectives
  - Attach the PDF letter of intent to an email addressed to Dr. Liang-Shiou Lin (llin@csrees.usda.gov) with the subject heading '*Letter of Intent Program 56.0A_PD's Last Name*'.
  - An acknowledgement receipt will be sent indicating the letter was received.
  - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
  - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
  - Submission of more than one letter of intent is discouraged.

- Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
- Only invited full applications will be reviewed by the panel.

- For the plant disease/pest resistance aspect of Research Priority 1, the program will focus on the following groups on a rotational basis: arthropods/nematodes, fungi/oomycetes, and bacteria/viruses. The anticipated priority rotation schedule is:
  FY 2009: bacteria/viruses and arthropods/nematodes
  FY 2010: arthropods/nematodes and fungi/oomycetes

- Use of Model Species - Studies of non-agricultural model systems may still be submitted to the program if the knowledge gained is utilized for study of plants of economic or societal importance in the submitted project and such study is a significant and integral component within the experimental design. This program will no longer accept projects solely using non-agricultural model species. Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (B): Environmental Stress
National Program Leader – Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov)
Total Program Funds – approximately $3.4 million
Proposed Budget Requests –
- Proposed research project budget requests must not exceed $350,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due October 9, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
The future of agricultural productivity and sustainability depends on the ability of agricultural and forestry plants to grow and be productive in response to a changing environment, for example in light of short-term challenges, such as flooding, and long-term challenges, such as global climate change, sustained drought, and loss of arable land. This program element supports fundamental research projects to improve plant tolerance and resistance to environmental stress. Research, ranging from genomics to physiology, will provide the basic knowledge to devise new or improved strategies for decreasing the impact of environmental stress on agricultural and forest productivity and sustainability.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: to generate fundamental knowledge regarding the genetic, genomic, molecular, physiological, ecophysiological, and biochemical components involved in plant abiotic stress response; to use fundamental knowledge to develop approaches and tools to aid agricultural plant productivity in response to reduced inputs or increased environmental stresses; and to develop, through biotechnology and/or breeding, new plant lines or populations for improved stress-resistance or tolerance in agricultural plants.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities. Research should identify and/or characterize genes, proteins, processes, and/or networks that contribute to abiotic stress tolerance for the program priorities below. Applications must focus on characterization and understanding of the mechanism(s) used by particular plant species in adaptation to or tolerance of specific environmental condition(s). Such research should be hypothesis-driven and may include molecular, physiological, biochemical, and/or cell biological approaches.

1. Water stress, including drought, salt, and flooding stress.
2. Global change stress, including increased carbon dioxide, ozone.
3. Temperature stress.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Gail McLean (gmclean@csrees.usda.gov) with the subject heading '*Letter of Intent Program 56.0B_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Starting in FY 2009, proposals in the priority areas of Global Change, Nutrient Stress, and Temperature Stress will be solicited on a rotating basis. It is anticipated that proposals on Water Stress will continue to be solicited each year. The anticipated priority rotation schedule is:

  FY 2009: Global Change and Nutrient Stress
  FY 2010: Nutrient Stress and Temperature Stress
  FY 2011: Temperature Stress and Global Change

- All applications must demonstrate a clear link to a realistic environmental problem and use realistic treatments and measurement of plant stress status and environmental conditions. Applications where the proposed research integrates molecular biology methods with physiological or ecophysiological approaches will be most competitive.

- Research projects should be hypothesis-driven. Applications combining hypothesis-driven research and plant breeding techniques to develop products (germplasm) beneficial to the community are appropriate for this program element. Projects which develop stress-tolerant varieties without proposing research to characterize plant stress response mechanisms are not appropriate for the program. Phytoremediation and adaptation to biotic stresses, such as herbivory or pests, should not be submitted to this program. For applications containing ecosystem level studies, applicants should consider submission to the Managed

Ecosystems program (23.1). For functional analyses of agriculturally important genes not directly related to abiotic plant stress mechanisms, applicants should consider submission to the Plant Biology (A): Gene Function and Regulation program element.

- Use of Model Species - Studies of non-agricultural model systems may still be submitted to the program if the knowledge gained is utilized for study of plants of economic or societal importance in the submitted project and such study is a significant and integral component within the experimental design. This program will no longer accept projects solely using non-agricultural model species. Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application.
- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (C): Biochemistry
National Program Leader – Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov)
Total Program Funds – approximately $4.2 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
Identification and characterization of biochemical processes and pathways in the cell, as well as the genes and proteins involved in biochemical processes and pathways, will facilitate development of agricultural and forestry plants with improved or optimized performance. The lack of knowledge about a biochemical pathway or process often limits the application of genomic and genetic information in improving agricultural plant and forest productivity, quality, and sustainability. The goal of this program element is to provide basic knowledge about biochemical processes, pathways, and interactions in agriculturally and economically important plants and related organisms. Fundamental knowledge in biochemistry, combined with genomics and other crop improvement techniques, will lead to practical applications, such as enhancing the nutritional value of plant-based foods, increasing the productivity and fitness of agricultural plants and trees, better utilizing trees and agricultural plants for sustainable production of bioenergy, and developing agricultural plants as bioreactors to produce important industrial compounds.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: to contribute fundamental knowledge of biochemical pathways, processes, and mechanisms for potential utilization of genomic sequences in agricultural plants; to use knowledge in plant biochemistry to increase plant production, efficiency, and/or protection, to enhance nutrient content, utilization, and/or uptake and to improve or develop new plant-based products; to create improved agricultural plant lines or populations through use of basic biochemical knowledge and biotechnology; and to develop at least one reference agricultural species for biochemical studies.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.
For the program priorities listed, research should be hypothesis-driven and either focus on characterization of a biochemical process or pathway important for plant agricultural production systems or address a significant problem in agricultural plant biology using a predominantly biochemical approach. Use of small-scale proteomics or metabolomics is acceptable as part of a hypothesis-driven project to gain insight into biological systems.

1. Primary and secondary metabolism, with particular emphasis on improving plant productivity, fitness, or quality.

2. Plant cell wall structure, formation, and modification, such as lignin, cellulose, or hemicellulose synthesis and modification.
3. Photosynthesis and respiration with particular emphasis on increasing photosynthetic efficiency.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Gail McLean (gmclean@csrees.usda.gov) with the subject heading '*Letter of Intent Program 56.0C_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Starting in FY 2009, proposals in the priority areas of Cell Walls, Photosynthesis/Respiration, and Nitrogen Fixation will be solicited on a rotating basis. It is anticipated that proposals on Primary and Secondary Metabolism will continue to be solicited each year. The anticipated priority rotation schedule is:
  FY 2009: Plant Cell Wall and Nitrogen Fixation
  FY 2010: Nitrogen Fixation and Photosynthesis/Respiration
  FY 2011: Photosynthesis/Respiration and Plant Cell Wall

- Use of Model Species: Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application. Researchers are strongly encouraged to conduct research directly in a crop or forest species important to agriculture. Use of non-agricultural model systems is acceptable if tools are not yet available in the agricultural species of interest. **However, the investigator must clearly indicate** (1) how such non-agricultural model studies are relevant to agriculture and food systems or forest species, (2) the strategy for transferring the knowledge to these species for agricultural or forestry benefit, and (3) the potential timeframe for such transfer.

- Applications on phytoremediation and the biochemistry of pest management should not be submitted to this program. Applications that focus on plant environmental response and stress should consider submission to Plant Biology (B): Environmental Stress program element. Applications that focus on plant cell biology, such as studies on cytoskeleton, membrane transport, signal transduction, and macromolecular trafficking that are critical for plant development, should consider submission to the Plant Biology (D): Growth and Development program element unless the emphasis is on biochemistry, which will be supported by this program element. For functional analyses of agriculturally important genes related to plant disease, applicants should consider submission to Plant Biology (A): Gene Function and Regulation program element. For projects focused on metabolic engineering, the purposeful alteration of metabolic pathways to

understand and use cellular pathways for chemical transformation, energy transduction, and supramolecular assembly, applicants may want to consider submission to the Interagency Metabolic Engineering program (see http://www.metabolicengineering.gov).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (D): Growth and Development
National Program Leader – Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov)
Total Program Funds – approximately $4.2 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 26, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
The plant research community is poised to apply recent advances in plant genomics to traits of economic value in important agricultural species. For this application to occur, the fundamental knowledge on plant growth and development must be well understood. The goal of this program element is to provide such knowledge over various phases of the plant life cycle to improve crop plants through modification of plant growth patterns or developmental processes. This will provide greater profit and less risk for U.S. farmers in the ever more competitive global market.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: to develop crop models for studying plant developmental processes; to provide detailed understanding of signal transduction mechanisms, such as hormones, light, gravity, etc., in agricultural plants in order to improve their performance; and to enhance our ability to alter developmental processes of agricultural plants to improve plant characteristics.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Developmental pathways leading to the formation of vegetative (particularly roots) or reproductive structures, including the development of gene profiling, genetic, and proteomic tools for these studies.

2. Hormonal regulation of growth and development, including studies of "cross talk" between different hormones or between hormones and other signals. Use of metabolomic tools for these studies is encouraged.

3. Characterization of cellular structures and processes that are crucial for plant development. Proposals that integrate cell biology with physiology are expected to be more competitive. In FY 2008, these studies are limited to cytoskeleton and membrane transport processes.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 26, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and

        - the program priority addressed by the project.
    - On Page 2 include
        - a descriptive title; and
        - a brief statement of approaches and objectives
  - Attach the PDF letter of intent to an email addressed to Dr. Liang-Shiou Lin (llin@csrees.usda.gov) with the subject heading '*Letter of Intent Program 56.0D_PD's Last Name'*.
  - An acknowledgement receipt will be sent indicating the letter was received.
  - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
  - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
  - Submission of more than one letter of intent is discouraged.
  - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 10, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
  - Only invited full applications will be reviewed by the panel.

- Research Priority 3 will focus on cytoskeleton, membrane transport, and macromolecular trafficking on a rotational basis. Investigators working on enzyme characterization or biochemical aspects of these studies should consult with the National Program Leader for the Plant Biology (C): Biochemistry program. The anticipated priority rotation schedule is:
  FY 2009: membrane transport and macromolecular trafficking
  FY 2010: macromolecular trafficking and cytoskeleton

- Use of Model Species - Studies of non-agricultural model systems may still be submitted to the program if the knowledge gained is utilized for study of plants of economic or societal importance in the submitted project and such study is a significant and integral component within the experimental design. This program will no longer accept projects solely using non-agricultural model species. Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (E): Plant Breeding and Education
National Program Leaders –
Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov)
Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov)
Total Program Funds – approximately $1.35 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs)**.**
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due October 9, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
Plant breeding provides the genetic resources and diversity needed for agricultural plant and forestry production to face challenges, such as global change, increasing population size, decreasing land availability and quality, and

sustainable production of bioenergy and biobased products. Whether through traditional approaches or combined with biotechnology, plant breeding can enable development of new plant and forestry varieties with desired traits, including improved pest and plant disease resistance, enhanced flavor and nutritional content, increased fecundity and productivity, enhanced environmental stress tolerance, and new, alternative uses. These new varieties can provide producers with increased economic opportunities and consumers with affordable food, fiber, fuel, and other products with new qualities. Education activities in plant breeding will aid in the transfer of science-based knowledge to agricultural producers by providing necessary expertise for plant biotechnology and breeding approaches and by training future generations of plant breeders. The goal of this program element is to support integrated research and education projects to enhance germplasm and advance training in plant breeding in agriculturally and economically important plant and forestry species.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: to increase the number of students and scientists trained in plant breeding and in careers requiring plant breeding expertise; and to improve transfer of science-based knowledge to producers and consumers through breeding or breeding combined with biotechnology.

FY 2008 Priority for Integrated Projects – Applicants must address at least one of the following priorities.

1. Education and training in an academic setting to build expertise in plant breeding combined with research focusing on germplasm enhancement for abiotic environmental stress tolerance, with particular emphasis on drought tolerance.

2. Education and training in an academic setting to build expertise in plant breeding combined with research focusing on germplasm enhancement for improved nutrient uptake and/or utilization, with particular emphasis on nitrogen.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one-inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to **both** Dr. Liang-Shiou Lin (llin@csrees.usda.gov) and Dr. Gail McLean (gmclean@csrees.usda.gov) with the subject heading '*Letter of Intent Program 56.0E_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Applicants are encouraged to utilize germplasm from the National Plant Germplasm System (NPGS). Applications using specialty crops are encouraged.

- Integrated projects for this program element should include mutually dependent research and education objectives. These include: a) hypothesis-driven research to fill knowledge gaps that are critical to the development of practices and programs to address the problem area; and b) educational deliverables (e.g.

interdisciplinary curricula and/or experiential learning for graduate and undergraduate students) that will train the next generation of scientists and educators who will work in the problem area. Projects should provide a plan for creating a stakeholder advisory board (if not already in place) and include the types of stakeholders who are expected to be involved and how their input would be used. Projects must also include a management plan (developed with input from stakeholder advisory groups) that leads to measurable improvements in the problem area. This management plan should provide information on how the team members will communicate including a schedule for communication.

- The education component of an integrated application must go beyond the level of laboratory training for graduate students or postdoctoral researchers supported by the grant. Examples of education activities in agricultural plant breeding and germplasm enhancement include curriculum and/or degree program development, multi-college/university approaches to regional or interstate curriculum development, faculty sharing, and joint degrees. Internships placing graduate or undergraduate students in industry, academic, or government settings for experiential learning in plant breeding technology are encouraged. The education component is expected to describe institutional resources and must clearly indicate how and why the proposed new curriculum or degree will complement, enhance, or replace any existing curriculum or programs at the institution. Projects should also include plans for assessment and performance outcome measurement, for continuation or expansion beyond the period of USDA support and potentially for tracking of participant accomplishments after course completion. The research component of an integrated application for this program element is not limited to biological problems and may include comprehensive studies to evaluate institutional capacity building and efficacy of established plant breeding education programs.

- Integrated projects that identify and recruit undergraduate students for careers in plant breeding and for pipelining into graduate training in plant breeding are particularly encouraged.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

61.0 Agribusiness Markets and Trade

National Program Leader – Dr. S. (Suresh) Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov)
Total Program Funds – anticipated funding at approximately $ 5.1 million
Proposed Budget Requests – **Not accepting applications for FY 2008**
Letter of Intent – Not required for this program.
Application Deadline – Agribusiness Markets and Trade will not be offered in FY 2008. This program is offered in alternate years and will be accepting applications again in FY 2009.

Background
Success of the U.S. economy in general, and agribusiness and rural communities in particular, is increasingly dependent on maintaining and expanding domestic and international markets. It is also dependent on the development of new products, production practices, and business and marketing tools and information that enhance efficiency, equity, and the competitiveness of the producer. The Agribusiness Markets and Trade program is designed to maintain and expand domestic and international markets and to identify public policies and private strategies that may be employed to enhance efficiency, equity, and the competitiveness of the U.S. agribusiness sector.

Industrialization, increased concentration and the trend towards industrial clusters in agriculture, has caused concern about the long-run structure and viability of the agricultural sector. To maintain and enhance the efficiency and equity of the U.S. agribusiness sector, new science based information is continuously needed, especially on the structure, conduct, and performance of firms in different industries; effects of integration on producers, prices, etc; and the impacts of food chain clusters on independent producers, markets, etc. To maintain and expand international market opportunities for U.S. agribusiness, more research is needed on rapid changes in consumer demand for agricultural products, the impacts of expanding agricultural markets on domestic producers and consumers, the benefits and costs of regulation, and alternative market solutions; the influence of existing and new policy and technology, etc. The competitiveness of the U.S. agribusiness sector is determined by new product development and placement of these products in the value chain. Therefore, to enhance competitiveness, the agribusiness sector needs research based information on marketing new products, including packaging, labeling, etc; on product differentiation, including characteristics, production process, geographic origin, etc; impacts of changing demand patterns for differentiated products, etc.

The Agribusiness Markets and Trade program seeks to achieve three objectives during the next ten years: (1) provide knowledge to enhance economic efficiency and equity in U.S. agribusiness sector; (2) support research that builds international market opportunities; and (3) provide economic analysis to assist with new product development and insertion in the value chain.

FY 2009 Priority for Research

1. Enhance understanding of the changes in agribusiness structure and conduct, as well as its effectiveness in the development of markets at home and abroad.

2. Provide knowledge to increase market access and reduce trade impediments for major agricultural products.

3. Develop new models and theories to enhance understanding of changes in domestic and foreign consumer tastes and preferences.

71.2 Biobased Products and Bioenergy Production Research

National Program Leader – Dr. Chavonda Jacobs-Young (202-401-6188 or cjacobs@csrees.usda.gov)
Total Program Funds – approximately $5.4 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $500,000 for project period of 3-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent Deadline – November 2, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – January 17, 2008 (5:00P.M., ET)

Background
The Biobased Products and Bioenergy Production Research program supports fulfillment of the Energy Policy Act of 2005(P.L. 109-58) to promote dependable, affordable, and environmentally sound production and distribution of energy for America's future, available at http://www.epa.gov/oust/fedlaws/publ_109-058.pdf . Fulfillment of the Act also includes promoting research and development leading to the production of biobased industrial products. The program, through improving the utilization of forestry residuals, supports the Healthy Forests Restoration Act of 2003 (P.L. 108-148) that seeks to reduce forest wildfires through the creation of healthy forests by the thinning of undergrowth and trees in nearly 20 million acres of federal lands, available at http://www.healthyforests.gov/index.html .

Program activities will expand science-based knowledge and technologies to support the efficient, economical, and environmentally friendly conversion of biomass, more specifically agricultural and forestry residuals, into value-added industrial products and biofuels.
The long term goals (10-years) for the program include increasing the production of fuels, chemicals, and materials from biomass; increasing the inventory of biobased products for replacement of petroleum based products; and reducing the costs associated with the conversion of biomass to fuels and industrial products by developing biocatalysts that can convert low cost agricultural and forestry feedstocks.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.
The program will support research to advance the biological conversion of post-harvest lignocellulosic biomass to value-added industrial products and fuels. Specific priorities for FY 2008 include:

1. Improvement/Development of cost effective biocatalysts. The program is specifically seeking applications that produce biocatalysts more resistant to inhibitors, capable of degrading multiple sugar types, and capable of increasing product yield in the biological conversion of agricultural and forestry lignocellulosic biomass to value-added industrial products and fuels.

2. Improved production and processing technologies to facilitate the biological conversion of agricultural and forestry lignocellulosic biomass to aid in the production of high-value industrial biobased products and fuels. The program is seeking applications that specifically address the long term goal of simultaneous saccharification and fermentation and other conversion steps limiting the technical and economic efficiency of the biological production of fuels and industrial biobased products from agricultural and forestry residuals.

3. Novel, cost effective, and affordable agriculturally-based co-products and industrial biobased products that are direct substitutes for traditionally petroleum based products. Products must be innovative and demonstrate the potential for economic competitiveness within the next 10 years.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 2, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Chavonda Jacobs-Young (cjacobs@csrees.usda.gov) with the subject heading '*Letter of Intent Program 71.2_PD's Last Name*'.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **November 21, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Applications that focus on plant biochemistry should be submitted to the Plant Biology (C): Biochemistry program. Applications focused on plant genetics should be submitted to the Plant Biology (A): Gene Function and Regulation program. Animal feed, fertilizer, bioremediation, thermo-chemical processes (i.e. pyrolysis, gasification, syngas production or conversion), algae, market analysis, and economic analysis applications should not be submitted to this program.

- Engine performance testing and emissions characterization will not be supported.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

75.0 Nanoscale Science and Engineering for Agriculture and Food Systems

National Program Leader – Dr. Hongda Chen (202-401-6497 or hchen@csrees.usda.gov)
Total Program Funds – approximately $5.0 million
Proposed Budget Requests –

- Proposed research project budget requests with emphasis on high risk/high return "proof of concept" studies must not exceed $100,000 (including indirect costs).
- Proposed research project requests must not exceed $300,000 for project period of 2-4 years (including indirect costs) for single investigator led projects.
- Proposed standard research project budget requests must not exceed $500,000 for project period of 3-4 years (including indirect costs) for multidisciplinary projects.
- NEW: Up to three projects at no more than $200,000 each for project period of 2-4 years (including indirect costs) for addressing societal issues as defined in the Priorities for Research section below.
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – January 17, 2008 (5:00 P.M., ET)

Background
Nanoscale science, engineering, and technology, herein referred to as nanotechnology for brevity, is the fundamental understanding and technological advances arising from the exploitation of new physical, chemical, and biological properties of matter at the length of scale of approximately 1 to 100 nanometers. Exciting novel structures, phenomena, and processes have been observed at the nanoscale in recent years and new experimental, theoretical, and simulation tools have been developed for investigating them. Nanotechnology, as a new enabling technology, has the potential to revolutionize agriculture and food systems. In a concerted effort with the National Nanotechnology Initiative (NNI), this interagency program spearheads nanoscale science and engineering research relevant to agriculture and food systems.

To meet the identified needs of agriculture, the ultimate goal of this program is to provide knowledge, expertise, and highly qualified R&D human capital for nanoscale science, engineering, and technology for food and agricultural systems. The specific long term (10 year) goals are to build a rich set of knowledge matrices to effectively aid the design of nano-based devices and systems, which are highly sensitive and specific for monitoring, detection, and intervention of food quality, safety, and biosecurity; to develop a mature knowledge base of nanoscale processing, product formulation, and shelf-stability of food with enhanced nutrition value as a part of individualized health management (IHM) practices; and to develop the capability to integrate nano-based product identification and tracking technologies compatible with the contemporary IT and other auxiliary technologies to build functional devices and systems to aid knowledge management throughout agriculture and food production to the consumption chain.

Responsible development and deployment of nanotechnology is one of the four principal goals of the 2004 NNI Strategic Plan. The broad societal dimensions of nanotechnology must be proactively addressed to assure a societally acceptable and public supported course for developing new nanotechnologies and novel products. Public engagement, namely providing information to and seeking input from the public, will allow the Government to make well-informed decisions and build trust among all stakeholders. Public perception and acceptance of nanotechnology and new products are especially critical in the realization of societal benefits of nanotechnology research and development for agriculture and food systems. Social science research, including economics, law, ethics, sociology, policy and governance, communications and others, will provide useful insight of the societal dimensions of developing nanotechnology.

FY2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Nanoscale recognition, reception, and transmission mechanisms and novel materials for developing nanobased sensors specifically for targets important to food safety and agriculture biosecurity.

2. Novel nanoscale processes, materials, and systems with improved delivery efficacy, controlled release, modification of sensory attributes, and protection of micronutrients and functional ingredients suitable for food matrices.

3. Understanding nanoscale phenomena and processes to support the development of nano-based technologies for food and agricultural product quality monitoring, identity tracking, and preservation.

4. NEW: Assessment and analysis of perceptions and acceptance of nanotechnology and nano-based products by the general public, agriculture, and food stakeholders using appropriate social science tools.

Other Key Information

- Applications for studying the public perceptions and acceptance of nanotechnology for agriculture and food systems are required to link with the NRI or other NNI agency funded research projects relevant to agriculture and food production and processes to foster interdisciplinary dialogues and collaboration, as well as to assure high relevance. To view the information of the NRI funded nanotechnology research project, please see the webpage http://cris.csrees.usda.gov/cgi-bin/starfinder/0?path=nrinselink.txt&id=anon&pass=&search=CG=*-35603-*%20NOT%20PS=TERM*&format=WEBTITLESG.

- Applications dealing with broad societal impacts of nanotechnology are encouraged to submit to the NSF led cross-disciplinary research programs.

- Applications dealing with safety, health, and environmental implications, both beneficial and risk oriented, should be directed to the NNI interagency solicitation (http://nano.gov/).

- Applications seeking support to develop educational opportunities, such as curriculum development and graduate fellowships, should consult the program staff of CSREES Science and Education Resources Development (SERD). National Science Foundation has provided strong supports through several programs, including the National Informal Science Education (NISE) Network and the National Center for Learning and Teaching in Nanoscale Science and Engineering (http://nano.gov/).

- Applications seeking support to bridge benchtop discovery to commercialization should consult the CSREES National Program Leaders of the Small Business Innovation Research (SBIR) program for various funding opportunities. http://www.csrees.usda.gov/funding/sbir/sbir.html.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

Nutrition, Food Safety and Quality Cluster Overview

The Nutrition, Food Safety and Quality program cluster addresses CSREES' strategic goals to improve the Nation's nutrition and health, to enhance protection and safety of the Nation's agriculture and food supply and to enhance economic opportunities for agricultural producers.

The maintenance of human health is significantly affected by the quantity and types of food consumed and foods that are contaminated with disease-causing microorganisms or toxins. Nutrition, obesity prevention, and food safety are of paramount importance to the producer, processor, distributor, and consumer. The overall goals of the Nutrition, Food Safety and Quality program cluster are to:

1. Improve our understanding of the behavioral and environmental factors that influence obesity and lead to the development and evaluation of effective interventions for obesity prevention.

2. Contribute to our knowledge of the requirements and bioavailability of food components and factors, including food processing technologies and interrelationships among dietary components that impact optimal human nutrition or food quality.

3. Increase our understanding of disease-causing pathogens and toxins, the risk factors that influence food-borne organisms and food safety, and the risk factors that lead to the development and implementation of mitigation or control strategies.

Data generated from these studies will be used for updating dietary recommendations, formulating National nutrition and food safety policy, and stimulating new product developments by the food industry.

In FY 2008 the NRI invites applications in the following cluster of programs related to Nutrition, Food Safety and Quality:

31.0 Bioactive Food Components for Optimal Health

31.5 Human Nutrition and Obesity

32.0 Food Safety and Epidemiology

71.1 Improving Food Quality and Value

31.0 Bioactive Food Components for Optimal Health

National Program Leader – Dr. Etta Saltos (202-401-5178 or esaltos@csrees.usda.gov)
Total Program Funds – approximately $4.6 million, with up to $1.5 million for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $750,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 5, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – January 17, 2008 (5:00 P.M., ET)

Background
The consumption of a nutritious diet is important for maintaining long-term health and decreasing the risk for chronic disease. The primary objective of this program is to support research to improve our understanding of the role of foods and their biologically active components in promoting health throughout the life cycle, including pregnancy, early development, and aging. Bioactive food components are constituents in foods, other than those needed to meet basic human nutritional requirements that are responsible for changes in health status. This program also continues to support novel research regarding the function of nutrients. Program objectives are relevant to the research recommendations outlined in the Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2005.

To meet these identified needs of agriculture, the long-term (10-year) goal of the program is to provide evidence concerning health effects of bioactive food components that can be used by scientific organizations in setting dietary reference intakes and tolerable upper limits for such components (e.g. omega-3 fatty acids, conjugated linoleic acid, soy phytoestrogens, and resveratrol). The program will coordinate with other NRI programs in supporting the development of novel and health-enhancing foods.

FY 2008 Priority for Research Projects – Applicants must address at least one of the following priorities.

1. Mechanistic studies of the bioavailability, function, efficacy, and safety of bioactive dietary components at levels that would be expected to be consumed in the diet.

2. Interrelationships among bioactive dietary components and/or nutrients in promoting health.

3. Novel studies of the functions and mechanisms of regulation of vitamins and minerals.

Other Key Information for Research Projects

- A letter of intent is required for this program. The letter of intent deadline is **November 5, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives

- Attach the PDF letter of intent to an email addressed to Dr. Etta Saltos (esaltos@csrees.usda.gov) with the subject heading '*Letter of Intent Program 31.0_PD's Last Name'*.
- An acknowledgement receipt will be sent indicating the letter was received.
- A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
- Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
- Submission of more than one letter of intent is discouraged.
- Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **November 21, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
- Only invited full applications will be reviewed by the panel

- Projects to develop biomarkers to measure human health outcomes, projects using dose-response methodology, or projects that use agriculturally important domestic species as models for human health outcomes are encouraged.

- Applications dealing with food processing techniques should consider submission to the Improving Food Quality and Value program (71.1) unless they are clearly oriented toward dietary effects on optimal human health.

- Support will not be provided for research on the development of dietary supplements, research on dietary therapies for metabolic disorders, infectious diseases, cancer, and alcohol-related disorders, or for the establishment, expansion, or maintenance of dietary databases**.**

- Surveys of the nutritional status of population groups are not acceptable for this program, but may qualify for submission to the Human Nutrition and Obesity program (31.5).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priority for Integrated Projects – Applicants must address at least one of the following priorities.

1. *This is a shared priority of Programs 31.0 and 71.1.* Identification, processing, and tailoring of functional foods to promote energy balance, with an emphasis on efficacy and safety. Integrated projects should include a whole foods approach to developing functional foods that promote energy balance and optimal health.
    a. Applicants integrating extension with other components should document evidence for stakeholder involvement in the development and implementation of the project. Stakeholders may include consumers or representatives from industry.
    b. Applicants are strongly encouraged to seek collaboration with industry.
    c. Where applicable, use of populations at high-risk for developing obesity in studies is strongly encouraged.
    d. Projects should include expertise in multiple disciplines, including nutrition and food science.
    e. Projects that incorporate interdisciplinary training of graduate students and postdoctoral researchers in nutrition, food science, and related disciplines are strongly encouraged.

Other Key Information for Integrated Projects

- A letter of intent is required for this program. The letter of intent deadline is **November 5, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Etta Saltos (estaltos@csrees.usda.gov) with the subject heading '*Letter of Intent Program 31.0_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **November 21, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Surveys of the nutritional status of population groups are not acceptable for this program, but may qualify for submission to the Human Nutrition and Obesity program (31.5).

- Applications that do not address the stated integrated program priority will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

31.5 Human Nutrition and Obesity

National Program Leaders –
Dr. Etta Saltos (202-401-5178 or esaltos@csrees.usda.gov)
Dr. Susan Welsh (202-720-5544 or swelsh@csrees.usda.gov)
Total Program Funds – approximately $10.5 million, with up to $9.5 million for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $1.5 million for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests over $1 million are expected to be multi-investigator or multi-institutional (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
This crosscutting program addresses the complex problem of obesity prevention. Projects funded by this program should lead to a better understanding of the behavioral and environmental factors that influence obesity and to the development and evaluation of effective interventions to prevent obesity. Obesity is the number one nutritional problem in America. Food is an integral part of the process that leads to obesity and USDA has a unique responsibility for the food system in the United States.

To meet the identified needs of agriculture, the long-term (10-year) goals for this program include identifying the behavioral and environmental factors that influence obesity to develop effective obesity prevention strategies; developing valid behavioral and environmental instruments for measuring progress in obesity prevention efforts; and promoting effective strategies for preventing overweight and obesity. The ultimate goal of the program is to stem the rising tide of obesity.

The milestones toward reaching these long-term goals include developing theories on how behavioral and environmental factors influence obesity; testing validity of behavioral and environmental measures for evaluating progress in obesity prevention efforts; and testing the effectiveness of strategies for preventing overweight and obesity.

FY 2008 Priority for Integrated Projects – Applicants must address at least one of the following priorities.

1. Improve understanding of the behavioral and environmental factors that influence obesity and use this new information to develop effective intervention strategies for preventing overweight and obesity and/or develop educational programs to help prepare the next generation of researchers and educators to address the complex problems of obesity. See Other Key Information – Research and Integrated Projects below for examples of priority focus areas.

2. Develop and implement behavioral and environmental instruments to measure progress in obesity prevention efforts. This activity may necessitate the development of new instruments or the modification and validation of existing ones related to food, physical activity, and environmental factors.

Other Key Information for Integrated Projects

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Complex projects involving multiple institutions or functions should include a management plan that demonstrates that the project will be carried out efficiently.

- Because food is an integral part of the development of obesity, all projects should address some aspect of food from production to consumption. Because obesity is such a multifaceted problem, it is expected that the project team will have appropriate training and experience in multiple disciplines, especially nutrition.

- Potential study areas for factors influencing obesity may include social and psychological factors, the role of lifestyle, including physical activity, as well as the influence of family, peers, and community, the influence of the physical environment, economic factors, and agricultural and public policy issues.

- Priority will be given to projects involving population groups at risk for obesity, such as children, racial and ethnic minorities, and those with limited resources, such as those served by USDA's Expanded Food and Nutrition Education program, Cooperative Extension, and nutrition assistance programs. The rationale for the selection of a particular population group, community, or market segment for study or intervention should be documented.

- Graduate student participation in projects is encouraged.

- Applications that focus on the use of functional foods to prevent obesity should consider submission to the Bioactive Food Components for Optimal Health program (31.0). Applications that focus on food processing or production related to energy balance should consider submission to the Improving Food Quality and Value program (71.1). Applications that focus primarily on medical therapies for disease should not be submitted to this program.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priority for Research Projects – Applicants must address at least one of the following priorities.

1. Improve understanding of the behavioral and environmental factors that influence obesity. See Other Key Information for examples of priority focus areas.

2. Epidemiological studies related to these priorities may involve secondary analyses of large national databases.

Other Key Information for Research Projects

- Because food is an integral part of the development of obesity, all projects should address some aspect of food from production to consumption. Because obesity is such a multifaceted problem, it is expected that the project team will have appropriate training and experience in multiple disciplines, especially nutrition.

- Potential study areas for factors influencing obesity may include social and psychological factors, the role of lifestyle, including physical activity, as well as the influence of family, peers, and community, the influence of the physical environment, economic factors, and agricultural and public policy issues.

- Priority will be given to projects involving population groups at risk for obesity, such as children, racial and ethnic minorities, and those with limited resources, such as those served by USDA's Expanded Food and Nutrition Education program, Cooperative Extension, and nutrition assistance programs. The rationale for the selection of a particular population group, community, market segment, or intervention group should be documented.

- Graduate student participation in projects is encouraged.

- Applications that focus on metabolism or on the use of functional foods to prevent obesity should consider submission to the Bioactive Food Components for Optimal Health program (31.0). Applications that focus on food processing or production related to energy balance should consider submission to the Improving Food Quality and Value program (71.1). Applications that focus primarily on medical therapies for disease should not be submitted to this program.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

32.0 Food Safety and Epidemiology

National Program Leaders –
Dr. Chris Wozniak (202-401-6020 or cwozniak@csrees.usda.gov)
Dr. Mary E. Torrence (202-401-6357 or mtorrence@csrees.usda.gov)
Total Program Funds – approximately $10.2 million
Proposed Budget Requests – This program contains two elements. See each program element for additional budgetary information.
Food Safety and Epidemiology (A): Biological Approaches for Food Safety
Food Safety and Epidemiology (B): Epidemiological Approaches for Food Safety
Letter of Intent – Not required for this program.
Application Deadline – See each program element for additional details.

Overview
The area of food safety remains a high National priority. This is especially true given recent concerns with bioterrorism and food-borne outbreaks in produce, seafood, and other foods. Food safety research is necessary to fill data gaps and reduce the incidence of food-borne disease on the health care system. Research is needed to understand the emergence, persistence, and transmission of food-borne organisms, as well as to develop better interventions and control and prevention strategies along the entire food safety continuum. Food production is a highly complex set of systems that spans microbial, chemical, and physical hazards. Therefore, improved food safety is a shared responsibility.

The complex nature of food safety necessitates multi-disciplinary solutions. Integration of microbiology, epidemiology, animal science, plant pathology, veterinary medicine, food science, virology, and many other disciplines are vital for the success of research and educational outcomes. The goal of this program is to fund research efforts that provide an increased knowledge of food-borne organisms and disease, and reduce food-borne illness.

32.0 Food Safety and Epidemiology (A): Biological Approaches for Food Safety
National Program Leader – Dr. Chris Wozniak (202-401-6020 or cwozniak@csrees.usda.gov)
Total Program Funds – approximately $5.2 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background

One of the main objectives of this program is to fund research efforts that result in a demonstrable reduction in food-borne illness. This program supports hypothesis driven research that seeks to increase our knowledge of microbial ecology with regard to the routes of contamination of food; this includes on-farm investigations, post-harvest incidence, processing, and distribution of food. Aspects of microbial ecology that provide for avenues of intervention and mitigation of food-borne illnesses or toxicities are also relevant to this program.

The long-term (10-year) goals of this program are to reduce the number of food-borne illnesses in the U.S. and provide for the safe and economic regulation of food safety issues. A primary function of this program is to provide data and information to risk assessors investigating emerging and ongoing food safety problems. In this regard, areas of focus will be assessed year to year to re-examine priorities and adjust the emphasis in response to emerging issues, as appropriate.

FY 2008 Priorities for Research – Applicants must address at least one of the following priorities.

1. Human enteric viruses, *Vibrio* spp., *Salmonella spp.*, Listeria, or microbial toxins associated with seafood: Proposed studies need to address imposition of mitigation measures aimed at reducing the incidence of human enteric viruses *Vibrio spp*., *Salmonella spp.*, and microbial toxins in shellfish, finfish, and derived products. Focus on harvesting methods, post-harvest storage, or processing technologies should include practical methods to reduce pathogen load.

2. Human enteric viruses, *E. coli*, *Salmonella spp.*, Listeria, or microbial toxins on fresh fruits, nuts, and vegetables: Proposed studies need to address mitigation measures aimed at reducing colonization by these pathogens or cross contamination during packaging and processing of fresh produce, including fruits, nuts, vegetables, and sprouts, which undergo minimal processing post-harvest; multiplication on or within produce; or sensor/detection methodologies linked to practical mitigation measures. Studies elucidating the source and persistence of pathogens in the environment, as they relate to fresh produce and production of toxins, are included.

3. *Salmonella spp.* or *Campylobacter spp.* in poultry and swine: Proposed studies need to address the pathogen load of *Salmonella spp.* or *Campylobacter spp.* on farm and the methods of transmission to poultry and swine; effective mitigation measures during processing and distribution; or genetics of strain development for antibiotic resistance as it relates to enhanced colonization or pathogen load and other virulence determinants.

Other Key Information

- Fresh fruits, nuts, and vegetables include those sold without processing and fresh-cut: fresh fruits and vegetables for human consumption that have been peeled, sliced, chopped, shredded, cored, trimmed, or mashed, with or without washing, prior to being packaged (e.g. pre-cut, packaged, ready-to-eat salad mixes). Studies directed at irrigation, water re-use, and related hydrological issues as they pertain to food safety should consider submission to the Water and Watersheds program (26.0). Proposed studies that focus on worker hygiene as it relates to produce contamination or contain an integrated approach involving extension or educational components should consider submission to the Integrated Research, Education, and Extension Competitive Grants Program National Integrated Food Safety Initiative for submission of applications (http://www.csrees.usda.gov/funding/rfas/food_safety.html).

- Surveillance as a principal objective is not suitable for this program. Research to quantify or monitor the incidence of organisms or toxins responsible for food-borne illness must also seek to ascertain other aspects of virulence, pathogenicity, biochemistry of toxin production, ecology, or genetics in addition to the enumeration of incidence, pathogen load, or frequency.

- Research proposed to examine antibiotic resistance mechanisms must include a direct connection to food safety. Studies which focus on an examination of molecular mechanisms or incidence of antibiotic resistance within populations will not be considered for funding unless they consider aspects of antibiotic resistance associated with increased probability of food-borne illness (e.g. colonization potential, increased pathogen load, persistence, and viability). Antibiotic resistance as it relates to therapeutic treatment of humans or the etiology of pathogenesis will not be considered within this program.

- Applications that contain hypothesis driven research targeting improved or novel detection methods for the designated microorganisms will be considered for funding; however, they must be of direct value in mitigating, reducing, or managing the offending agent or disease causing entity or in providing a greater understanding of the routes of food contamination, environmental persistence, and the biology of the offending agent. Research aimed solely at development of a detection methodology will not be considered for review. Applicants are encouraged to speak with the National Program Leader before submission of applications regarding detection methodologies. Coordinating the proposed study with the appropriate industry is highly recommended.

- Applications may be structured from a pre-harvest or post-harvest approach as appropriate. Economic or model-based analyses of these priority areas will also be considered for review, especially if they address issues of regulatory burden and impacts on trade.

- Applications dealing with food processing techniques or the utilization and production of foods designed to improve food quality should consider submission to the Improving Food Quality and Value program (71.1). Food safety applications examining the epidemiological aspects of microbes associated with food-borne illness should consider submission to the Epidemiological Approaches for Food Safety program (32.0 B).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

32.0 Food Safety and Epidemiology (B): Epidemiological Approaches for Food Safety
National Program Leader – Dr. Mary E. Torrence (202-401-6357 or mtorrence@csrees.usda.gov)
Total Program Funds – approximately $5 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $1 million for project period of 3-4 years (including indirect costs).
- Requests exceeding the budgetary guideline above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – December 19, 2007 (5:00 pm, ET)

Background
Epidemiological studies are necessary to develop an understanding of the factors involved in food safety and provide the science-based data for policy decisions. Epidemiological studies of pre- and post-harvest areas are vital to identify and characterize pathogenic organisms, including their sources and reservoirs, and to understand the transmission of the pathogen along the entire continuum. These goals may be achieved using several different epidemiological research methodologies. Environmental and ecological data are needed to increase our understanding of disease-causing microorganisms, their products, and naturally occurring contaminants in meats, poultry, seafood, and fresh fruits and vegetables. Understanding the distribution and determinants of disease and health-related events in a population may be used for prevention and control. Projects should focus on interactions among the environment, agriculture, and human populations with the goal of decreasing food-borne disease, as well as antimicrobial resistance.
The long term goals (10-year) for this program include enhancing the epidemiologic methods available for the study of food-borne diseases and other public health issues, advancing the understanding of the epidemiology of food-borne disease and the food system on a continuum, and providing more recommendations for specific intervention strategies/prevention and control programs for food-borne disease and antimicrobial resistance.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Development of novel epidemiologic approaches (with or without a microbial component) that will provide the ability to evaluate the impact of intervention or management strategies on microbial contamination or food safety. These may include epidemiological methods that will facilitate the understanding of quantitative data on pathogen load within the farm-to-fork continuum and facilitate the linking of pre-harvest and post-harvest food safety outcomes to public health outcomes.

2. Innovative studies which seek to quantify the effectiveness of new or existing interventions or management strategies in reducing pathogen loads across farm-to-fork.

3. Innovative studies which seek to identify new risk factors or quantitative evaluation of existing risk factors that may affect prevalence, transmission, or persistence of food-borne organisms across the farm-to-fork continuum.

Other Key Information

- Near term goals that will help fulfill the long term goals include: 1) emphasizing new innovative epidemiologic and statistical methodology; 2) emphasizing more intervention studies and discouraging simple prevalence studies; and 3) emphasizing potential projects/methodologies for emerging issues in food safety and public health, including food biosecurity and antimicrobial resistance. One parallel activity will be to encourage the food safety Coordinated Agricultural Project (CAP) to fund high risk pilot research that can be used as preliminary data for epidemiologic applications and to encourage research and methods for dealing with emerging issues, specifically food biosecurity.

- Proposals should involve collaboration with institutions, organizations, and communities of interest. Strong partnerships are encouraged, such as those that form consortiums or collaborative networks. Innovative multidisciplinary collaborations and partnerships are those designed to build solutions to understanding the interrelationships of the various factors that affect the safety of our food supply. Applications that combine the knowledge of multiple disciplines (i.e. veterinarians, food microbiologists, epidemiologists, public health specialists, or other scientific disciplines) are encouraged to develop the comprehensive understanding needed to solve complex problems.

- Applications must have a primary central focus on population-based epidemiological studies. The applications must have an epidemiologist as an active participant of the study, such as a co-investigator.

- Population-based studies that provide data for identified data gaps from risk assessments or provide epidemiologic data for on-going risk assessments will be considered.

- Applications focusing on method developments should be submitted to the Biological Approaches for Food Safety program (32.0 A). Applications concentrating on laboratory methods or techniques prevalence studies or studies that have already been done, pure risk assessment methodologies or modeling studies, and surveillance studies without additional components are **NOT** eligible.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

71.1 Improving Food Quality and Value

National Program Leaders –
Dr. Ram Rao at (202-401-6010 or rrao@csrees.usda.gov)
Dr. Hongda Chen at (202-401-6497 or hchen@csrees.usda.gov)
Total Program Funds – approximately $6.5 million, with up to $1.5 million for integrated projects
Proposed Budget Requests –

- Proposed research budget requests must not exceed $300,000 for project period of 2-4 years (including indirect costs) for single investigator led projects.
- Proposed research budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs) for multidisciplinary and multiple researchers or multi-institution projects.
- Proposed integrated project budget requests must not exceed $750,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 5, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – January 17, 2008 (5:00 P.M., ET)

Background
Improving food quality and value is driven by the application of physical, chemical, and biological principles and is essential in meeting the needs of the consumer, as well as enhancing competitiveness in global markets.

The long term goals (10-year) of this program are to formulate ingredients based on the knowledge of chemical and physical interactions for better functionality of foods; develop new and improved technologies to produce better foods; and produce foods to promote optimum health of individual citizens.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Basic mechanisms involved in the interaction of micro- and macro-molecules in the food matrix (e.g. protein-polysaccharide interaction) in controlling structure, texture, stability, and flavor delivery in foods. This includes (a) the fundamental understanding of the mechanism of interaction of proteins, polysaccharides, and lipids in foods (e.g. covalent, ionic, hydrophilic, and hydrophobic structures and kinetics) and (b) factors influencing the complexation and segregation of these macromolecules (e.g. processing environment, storage conditions, other food ingredients), and the resultant quality of foods (such as predictive modeling and food product quality).

2. Advanced and innovative processing, engineering, and technologies that enhance food quality attributes and development and application of analytical characterization techniques of physical, chemical, biological, and sensory natures.

3. Chemistry and fates of proven bioactive compounds in foods and food ingredients during processing, packaging, storage, distribution, and delivery.

Other Key Information for Research Projects

- A letter of intent is required for this program. The letter of intent deadline is **November 5, 2007, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below. Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director and institutional affiliation;
            - the names of collaborating investigators and institutional affiliation; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Ram Rao at rrao@csrees.usda.gov with the subject heading '*Letter of Intent Program 71.1_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **November 21, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Improving Food Quality and Value program funds applications in the post harvest area.

- Multi-disciplinary approaches are highly encouraged.

- Applications addressing combined and inseparable quality and safety objectives will be entertained in this program. However, applications dealing primarily with issues of food safety should consider submission to the Food Safety and Epidemiology program (32.0). Applications dealing with bioavailability, metabolism, and mechanism of action of bioactive food components should be sent to the Bioactive Food Components for Optimal Health program (31.0).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Advanced and innovative processing engineering and technologies that enhance food quality attributes, development, and application of analytical characterization techniques of physical, chemical, biological, and sensory natures.

2. *This priority is shared among Programs 31.0 and 71.1.* Identification, processing, and tailoring of functional foods to promote energy balance, with an emphasis on efficacy and safety. Integrated projects should include a whole foods approach to developing functional foods that promote energy balance and optimal health.
    a. Applicants integrating extension with other components should document evidence for stakeholder involvement in the development and implementation of the project. Stakeholders may include consumers or representatives from industry.
    b. Applicants are strongly encouraged to seek collaboration with industry.
    c. Where applicable, use of populations at high risk for developing obesity in studies is strongly encouraged.
    d. Projects should include expertise in multiple disciplines, including nutrition and food science.
    e. Projects that incorporate interdisciplinary training of graduate students and postdoctoral researchers in nutrition, food science, and related disciplines are strongly encouraged.

Other Key Information for Integrated Projects

- A letter of intent is required for this program. The letter of intent deadline is **November 5, 2007, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below. Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Ram Rao at rrao@csrees.usda.gov with the subject heading '*Letter of Intent Program 71.1_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **November 21, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Collaboration with the industry is strongly encouraged. Where appropriate, involvement of the industry is required from concept to completion of the project.
- Improving Food Quality and Value program funds applications in the post-harvest area.

- Multi-disciplinary approaches are highly encouraged.

- Applications addressing combined and inseparable quality and safety objectives will be entertained in this program. However, applications dealing primarily with issues of food safety should consider submission to the Integrated Research, Education, and Extension Competitive Grants Program National Integrated Food Safety Initiative program (http://www.csrees.usda.gov/funding/rfas/food_safety.html).

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

Agroecosystems and Rural Prosperity Cluster Overview

The Agroecosystems and Rural Prosperity program cluster primarily addresses CSREES' strategic goals to protect and enhance the Nation's natural resource base and environment and to support increased economic opportunities and improved quality of life in rural America. It also supports CSREES' strategic goal of enhancing protection and safety of the Nation's agriculture and food supply.

Agroecosystems are inherently complex, being composed of agricultural, natural, and social systems. The fundamental concept behind this cluster of programs is the application of ecological, economic, and sociological principles to agricultural and community systems. The concept of agroecosystems can be applied within agriculture, rangeland, forested, or community systems at a range of spatial scales including the field, family, the farm level enterprise, the landscape, watershed, institution, or community. Agricultural and community systems, as managed systems involving human interactions and use of inputs, are influenced by and, in turn, influence the natural systems surrounding them.

Human well-being is inextricably linked to the sustainable use and management of agroecosystems. The fundamental purpose of agriculture is to manage ecological structures, functions, and processes to favor human needs. The concept of sustainable agroecosystem management allows for achieving the traditional agricultural goal of production while balancing the goals of conservation and protection of natural resources, mitigation of environmental impacts, maintenance of ecosystem services, and rural community viability. One benefit of the agroecological approach is that it accommodates a broad range of performance criteria in addition to increased production, such as ecological goods and services, sustainability, food security, economic viability, resource conservation, social equity, and community vitality. These criteria provide focus for the various programs.

The overall goal of the Agroecosystems and Rural Prosperity program cluster is to support research and integrated projects that will address the design or function of productive agriculture and rural communities that sustains yields and rural prosperity while minimizing the negative environmental impacts of agricultural practices and technologies on surrounding natural ecosystems. Addressing the degree to which agriculture and rural communities are sustainable is a critically important goal relevant to all USDA mission areas.

In FY 2008, the NRI invites applications in the following cluster of programs related to Agroecosystems and Rural Prosperity:

23.1 Managed Ecosystems

25.0 Soil Processes

26.0 Water and Watersheds

27.0 Global and Climate Change

28.0 Air Quality

51.9 Biology of Weedy and Invasive Species in Agroecosystems

62.0 Rural Development

66.0 Agricultural Prosperity of Small and Medium-Sized Farms

Agroecosystems and Rural Prosperity Program Descriptions

23.1 Managed Ecosystems

National Program Leader – Dr. Diana Jerkins (202-401-6996 or djerkins@csrees.usda.gov)
Total Program Funds – approximately $4 million, with $1.5 million for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budgets requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due October 9, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – December 19, 2007 (5:00 P.M., ET)

Background
The goals of the Managed Ecosystems program are to protect and enhance the natural resource base and environment through the appropriate use and management of agricultural ecological production systems; enhance economic opportunities by increasing productivity and ecosystem services; and improve the quality of life in rural America through improved environmental quality.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: to develop, quantify, and verify predictive, multifunctional agroecosystem management systems and conduct experimental studies that will concurrently optimize resource use efficiency while increasing product and environmental quality; and develop indicators for land resource use assessment and quantify agroecosystem changes. Over the long term, projects will involve the design and verification of managed ecosystems, dissemination use of, and education about innovative management strategies.

This program will take a systems approach. Systems research is multidisciplinary and focuses on the interrelationship between management practices and response to biological, physical, economic, and social processes. A systems approach will be able to demonstrate agricultural sustainability and identify points of sensitivity and synergy between system components. Managed ecosystems that will be designed and evaluated must be multi-functional (i.e. provide agricultural product and other ecosystem services) and lead to increased sustainability (system balance) over time.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Multifunctional agricultural production management systems – Create, quantify, and verify adaptive management systems that *concurrently* provide for both agricultural products (e.g. food, fiber, fuel), and other ecosystem services. Management recommendations must be multifunctional and lead to improved (1) productivity of multiple ecosystem services and (2) environmental quality of multiple, linked natural resource components. Systems are encouraged to include economic valuation of market and non-market ecosystem services. Models developed should be predictive to allow for changes in the system over time as system functions respond/adapt to management practices and external drivers.

2. Monitoring systems quality – Develop interdisciplinary approaches and processes to monitor agroecosystems to quantify improvements in production quality and environmental quality or ecosystem changes due to implementation of multifunctional management systems and strategies. Creation of monitoring technologies may be part of the monitoring process and should be verified as part of an applied research project. Creation of monitoring technologies exclusively will not be funded through this program, but should consider submission to the Small Business Innovation Research (SBIR) Competitive Grants Program.

Other Key Information for Research Projects

- A letter of intent is required for **all** applications submitted to this program, including **standard research, strengthening, conference, and new investigator applications.** The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below. Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Diana Jerkins (djerkins@csrees.usda.gov) with the subject heading '*Letter of Intent Program 23.1_PD's Last Name*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Applications must address agricultural production systems. Development of management strategies should be limited to the following areas: 1) crop, 2) range/prairie, 3) forest, and 4) grazing and grassland. These systems may be at the rural level or urban agricultural interface. Animal systems may be incorporated as part of the listed four agriculture production systems. Projects may also have systems integration by combining systems, for example crop/range/livestock.

- If the project involves model development, the model should conceptualize either new or improve existing models. The project must include field testing for verification of the model.

- Specifically identify the types of ecosystem services being analyzed.

- In order to better understand the interrelationship between agroecosystem functions, management systems being investigated must include multiple ecosystem services that are considered stacked or bundled.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priority for Integrated Projects – Applicants must address the following priority.

1. Development and use of multifunctional agricultural production management strategies (see description in managed ecosystem research priority 1) with emphasis on information dissemination and training on management methods, as well as development of curricula on systems research procedures and/or ecological systems functions.

Other Key Information for Integrated Projects

- A letter of intent is required for this program**.** The letter of intent deadline is **October 9, 2007, by 5:00 P.M., Eastern Time**. Please use the formatting guidelines below. Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Diana Jerkins (djerkins@csrees.usda.gov) with the subject heading '*Letter of Intent Program 23.1_PD's Last Name*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **October 19, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Extension and educational efforts should lead to the:
    - Creation of strategies for the adoption of multifunctional agricultural production systems.
    - Development of programs to train producers about the use and value of new systems and how ecosystems function.
    - Incorporation of curriculum on systems management and ecosystem services in K-12 and/or university level education.
    - Creation of methods for tracking the adoption rates of new systems by producers and educational outcomes of students.
    - Offering of training and support to develop environmental stewardship skills and expertise as part of production management.
    - Development of creative education and extension models to increase ecological and sustainable agriculture literacy and adoption within the university, agricultural, and larger communities.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- If the integrated project involves education, the approach should utilize integrative, multidisciplinary managed ecosystem thematic areas for: curricula design, development, and implementation; the identified degree level (i.e. baccalaureate, masters, or doctoral); and/or experiential learning opportunities for undergraduate programs or provide a cutting edge scientific research environment for graduate level training. For additional support of educational opportunities refer to the Higher Education Challenge Grants Program, Higher Education Multicultural Scholars Program, or Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program funding opportunities. To learn more about these programs, visit the website http://www.csrees.usda.gov/fo/funding.cfm.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

25.0 Soil Processes

National Program Leader – Dr. Nancy Cavallaro (202-401-4082 or ncavallaro@csrees.usda.gov)
Total Program Funds – approximately $4.0 million
Proposed Budget Requests –

- Proposed research budget requests must not exceed $400,000 for multi-institution for project period of 2-4 years (including indirect costs).
- Proposed research budget requests must not exceed $325,000 for a single institution for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due November 19, 2007 (5:00 P.M., ET); see the **Other Key Information** section for format and submission instructions.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
Soil is a vital natural resource that not only sustains plant and animal productivity, but also has profound effects on the health and quality of the environment. As such, agriculturally-related sustainability hinges on the interactions among the biological, chemical, and physical properties and processes in this below-ground ecosystem. Research is needed to fill knowledge gaps regarding interactions of the many dynamic soil properties and processes affecting soil quality as it relates to agricultural sustainability and agroecosystem goods and services in order to better manage this critical resource.

Soils play an important role in ecosystem scale processes and biogeochemical cycles at the catchment to regional scales, but it is critical to recognize the spatial and temporal variability of soil properties and processes, many of

which occur only at microsites within the soil. These small-scale interfaces are of central importance to understanding the soil's role in many larger scale biogeochemical cycles and to improving soil management in field, plot, and farm. Soil scientists have the opportunity to significantly improve our understanding of the role soil plays in large scale environmental processes through utilization of ground-based observations and remotely sensed spatial data in concert with advanced tools to analyze microsite-, as well as meso-scale processes in these complex systems. Science-based knowledge is needed that leads to the clarification and understanding of the interactions among soil physical, chemical, and biological processes, their responses to changing conditions, and their impact on agroecosystems. Understanding these complex interactions related to isolated, as well as coupled processes requires an interdisciplinary approach that recognizes the unique matrix of the soil in place. Ultimately, this approach should lead to the development of practical tools, strategies, and predictive models that enhance sustainable agricultural productivity at the farm level, while avoiding or ameliorating detrimental effects on natural resources and environmental health.

The long-term goal (10-year) for this program is to generate science-based knowledge that will lead to the development, adoption, and implementation of practices and tools that will ensure improved soil health and productivity. This means reduced contamination and increased efficiency of resource management and agricultural production, while maintaining soil and ecosystem health. It also will require improved predictive and conceptual models of dynamic soil properties and soil change for reducing negative impacts and feedbacks under changing conditions. Improving soil quality and health will increase productivity and enhance sustainability while protecting and enhancing the Nation's natural resources and environment.

FY2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Interdisciplinary studies involving the interrelationships among soil physical, chemical, and biological characteristics and processes related to soil quality and sustainability, especially regarding water and nutrients in relation to agricultural quality, productivity, and environmental health.

2. Multi-scale research that can help bridge the gap between molecular and microscopic site process studies and field landscape and/or watershed-scale studies relating to soil quality.

3. Development and/or application of new or improved technologies, methodologies, tools, or strategies to enhance our understanding of biological, biogeochemical, and physical processes. In addition, these methods or tools should be used to enhance our understanding of dynamic properties in soils related to agricultural production, as well as soil and environmental health, focusing specifically on water, carbon, and nutrient cycles at multiple scales where appropriate.

Other Key Information

- A letter of intent is required for this program. The letter of intent deadline is **November 19, 2007, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Nancy Cavallaro (ncavallaro@csrees.usda.gov) with the subject heading '*Letter of Intent Program 25.0_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.

- Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
- Submission of more than one letter of intent is discouraged.
- Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 3, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
- Only invited full applications will be reviewed by the panel.
- Multi-disciplinary approaches are encouraged; projects addressing priorities 1 and 2 must be interdisciplinary.

- Applicants must articulate the relevance of their research to agriculture, range, and/or forestry.

- Proposed projects should be interdisciplinary and address relevant biotic and abiotic factors and processes. Projects may be fundamental or applied, but must address physical, chemical, and biological aspects from a point of view of the soil in situ.

- Model systems are appropriate, but must articulate steps needed to validate interpretations for application to the field.

- Fate and transport of selected pathogens will be addressed in the Water and Watersheds program (26.0). Applications addressing water quality combined with extension and education components should consider submission to the CSREES Integrated Research, Education, and Extension Competitive Grants Program National Integrated Water Quality program (http://www.csrees.usda.gov/funding/rfas/water_quality.html).

- Applications addressing soil insect and arthropod pests or soil-borne plant pathogens should consider submission to the CSREES Integrated Research, Education, and Extension program in Pest Management. From the Funding Ops Web page (www.csrees.usda.gov/fo/funding.cfm) select 'Pest Management from the Emphasis Area pull down box and 'Integrated Programs' from the Program Group pull down box.

- Applications addressing interactions of plants and soil microbes should focus on the soil process. Interdisciplinary rhizosphere process studies are appropriate to this program, while studies focused on plant-microbe interactions or root processes within the plants and removed from the influence of the soil, should consider the Microbial Biology (51.8) or Plant Biology (56.0) programs.

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

26.0 Water and Watersheds

National Program Leader – Ms. Mary Ann Rozum (202-401-4533 or mrozum@csrees.usda.gov)
Total Program Funds – approximately $5.3 million
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – January 17, 2008 (5:00 P.M., ET)

Background
The goals of the Water and Watersheds program are to protect and enhance the natural resource base and environment by improving and maintaining healthy watershed habitat and water supply protection; improve the quality of life in rural America through adequate clean water supplies; and protect food safety through clean irrigation and livestock drinking water supplies.

The long-term (10-year) goals for this program are: reduce pathogens, such as bacteria, viruses, and protozoa in waters derived from agricultural and rural watersheds, as well as maintain adequate water supplies for agricultural crop and livestock production and rural use.

FY 2008 Priorities for Research Projects – Applicants must address at least one of the following priorities.

1. Understand the sources, fate, and transport of pathogens, such as bacteria, protozoa, and viruses in soil, surface and ground water, and irrigation systems of agricultural and rural watersheds to reduce zoonotic pathogens in the environment. Special emphasis is considered for *Escherichia coli*, Cryptosporidium, and enteric viruses.

2. Identify, evaluate, and understand producer management behaviors that improve agricultural water conservation in crop, livestock, and poultry production, with an emphasis on a) projects that integrate hydrologic, economic, and policy components; b) social determinants of water use; and c) documented water savings, especially at spatial scales greater than a single field.

Other Key Information

- Applications addressing integrated research, extension, and education for water resources should consider submission to the CSREES Integrated Research, Education, and Extension Competitive Grants Program National Integrated Water Quality program (http://www.csrees.usda.gov/funding/rfas/water_quality.html).

- Applications that do not address at least one of the stated research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

27.0 Global and Climate Change

National Program Leaders –
Dr. Nancy Cavallaro (202-401-4028 or ncavallaro@csrees.usda.gov)
Dr. Louie Tupas (202-401-4926 or ltupas@csrees.usda.gov)
Total Program funds – approximately $1 million per year
Proposed budget requests-

- Proposed budget requests for both research and integrated projects are expected to range between $300,000 and $600,000 for project period of 2-3 years (including indirect costs).

Letter of intent – Not required for this program.
Application Deadline – For FY 2006-2008 funds, this program element is in partnership with the Environmental Protection Agency (EPA) for the priority involving land use change and invasive species, and with the National Aeronautics and Space Administration (NASA) for Carbon Cycle Science priority. Please note that proposals submitted for review for these two themes in this program element must be submitted through EPA or NASA, for the two respective priorities, in accordance with submission instructions outlined in separate program solicitations. The program deadlines were in June, 2007.

Background
The sustainability of agriculture, forest and rangelands depends on understanding the factors that influence climate change, the mechanisms that may enhance or mitigate this change, and its effects on food and fiber production and

natural resources. Program priorities are drawn primarily from the US Climate Change Strategic Plan (http://www.climatescience.gov/Library/stratplan2003/default.htm), and include human dimensions of these issues. Past solicitations have included priorities in the areas of carbon cycle science, land use and land cover change, and invasive species. Within the U.S. Climate Change Science Program (CCSP), CSREES participates in interagency working groups on Carbon Cycle, Water Cycle, Ecosystems, and Land Use and Land Cover Change.

28.0 Air Quality

National Program Leader – Dr. Ray Knighton (202-401-6417 or rknighton@csrees.usda.gov)
Total Program Funds – approximately $5 million, with approximately $3 million for integrated projects

Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $600,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due March 5, 2008 (5:00 P.M., ET) for **integrated projects**; see the **Other Key Information** section for format and submission instructions.

Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background

Agriculture, forest, and range production practices have increasingly become subject to state and federal regulations aimed at protecting air resources. In many instances, data do not exist or are not representative of agricultural industries for the purpose of estimating emissions to the atmosphere of regulated pollutants and greenhouse gases, other than carbon dioxide, from agriculture, as well as public nuisances, such as odors and fugitive dust. In addition, there is a need to develop practices and technologies to assist producers in preventing or mitigating air emissions.

The long-term (10 year) goals of this program are: 1) to develop emission data for agriculture, forest, and range production practices leading to science-based emission reduction targets to improve air quality and protect human and environmental health; 2) to develop effective mitigation strategies and increase adoption of best management practices to reduce agricultural emissions; and 3) to improve understanding of the measurement, production, flux, and fate and transport of odor, gases, and particulate matter (PM) leading to knowledge of the environmental fate of agricultural atmospheric emissions.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Measurement and Monitoring Integrated projects are solicited to improve measurement protocols/instrumentation and remote sensing to measure and characterize particulate matter and gases for within field/facility and edge-of-field/facility boundaries. Emission data for particulates, odors, and gases is of primary concern and is needed for all aspects of production practices and naturally occurring events such as wind and wet/dry deposition to update existing inventories. Projects are especially encouraged that focus on crop production practices. High priority emission sources and corresponding constituents are:
    a. tillage, nutrient management, and pest management, practices that emit PM, ammonia, nitrous oxide, and highly reactive volatile organic compounds (VOCs).
    b. crop harvest and post-harvest practices that emit PM and gases.
    c. controlled burning practices as sources of PM, gases, and smoke.
    d. animal feeding operations as sources of ammonia, PM, VOCs, hydrogen sulfide, methane, odor and odorants.

    For projects addressing emissions from animal feeding operations, measurement and monitoring projects that complement and do not duplicate the National Air Emissions Monitoring Study (NAEMS) are encouraged. Projects that include the same animal species, production practices, geographic regions, and analytes currently in the NAEMS study will not be considered for funding.

The characterization of the physical, chemical, and biological nature of aerosols from agriculture, range, and forest sources is needed. Projects should identify whether they will address fine particulate matter (< 2.5 μm in diameter) or coarse particulate matter (2.5 to 10 μm in diameter). Methods to determine the scale-dependence of spatial and temporal processes and the accuracy of techniques for monitoring and characterizing agriculturally important gases, odors, odorants, and aerosols are also requested.

2. Fate and Transport Integrated projects should examine the fate and transport of emitted particulates and gases with specific emphasis placed on ammonia and nitrous oxide. Improved models are needed to predict movement and dispersion of air pollutants from production practices and management operations. Process-based mechanistic models using mass balance techniques for component processes of the whole enterprise are of specific interest. Projects to better understand the processes controlling wet and dry deposition of reactive nitrogen compounds from agricultural sources are solicited.

3. Mitigation Integrated projects should examine the efficacy of new and existing methods for mitigating emissions of nitrogen and other agricultural air pollutants to the atmosphere and the development of best management practices. Projects are especially encouraged that evaluate the efficacy of conservation practices and other control technologies to reduce particulate and gaseous emissions. To ensure the relevance and adoption of practices, these projects should also analyze economic, behavioral, cultural, or policy barriers to implementing practices that reduce emissions. Evidence of commensurate investigator expertise to address and evaluate the human dimensions of the above mentioned barriers is required.

Other Key Information for Integrated Projects

- A letter of intent is **required** for **integrated projects** in this program. The letter of intent deadline is **March 5, 2008, by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of **integrated** objectives and approaches;
            - list stakeholders/audience and their involvement in the project;
            - a brief statement of the project management plan including stakeholder interactions;
            - anticipated outcomes and impacts;
            - a brief statement of performance metrics; and
            - a brief statement of your project evaluation plan.
    - Attach the PDF letter of intent to an email addressed to Dr. Ray Knighton (rknighton@csrees.usda.gov) with the subject heading *'Letter of Intent Program 28.0_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **March 19, 2008**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel.

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single component area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Applications that do not address at least one of the stated integrated or research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

FY 2008 Priorities for Research – Applicants must address at least one of the following priorities.

1. Characterizing particulate matter and gases and techniques for monitoring and characterizing emissions as outlined in priority 1 under integrated projects.

2. Fate and transport as outlined in priority 2 under integrated projects.

Other Key Information for Research Projects

- Applications that do not address at least one of the stated integrated or research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.9 Biology of Weedy and Invasive Species in Agroecosystems

National Program Leader – Dr. Michael Bowers (202-401-4510 or mbowers@csrees.usda.gov)
Total Program Funds – approximately $4.6 million, with $2.0 million for integrated projects
Proposed Budget Requests –

- Proposed research project budget requests must not exceed $400,000 for project period of 2-4 years (including indirect costs).
- Proposed integrated project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Due **December 6, 2007 (5:00 P.M., ET);** see the **Other Key Information** section for format and submission instructions.
Application Deadline – March 5, 2008 (5:00P.M., ET)

Background
It has been estimated that approximately 50,000 species of plants and animals have been introduced into the United States resulting in more than $100 billion in losses and damage each year. Invasive species threaten biodiversity, habitat quality, and ecosystem function. It is estimated that invasive species have contributed to the decline of 42 percent of the endangered and threatened species in the United States. The National Research Council in its report, *Grand Challenges in Environmental Sciences***,** cited the critical importance of addressing invasive species issues[3]. Non-indigenous weeds alone cost U.S. agriculture $7-27 billion per year. Exotic, invasive species are a particularly prevalent feature of agroecosystems and a major threat to food and fiber production. The Council for Agricultural Science and Technology has emphasized the escalating risk of invasive species to agricultural systems[4]. Increased globalization and climate change will likely increase the introduction, spread, and impact of invasive species.

The long-term (10-year) goal of the program is to provide ecologically and economically rational strategies for management, control, or elimination of weedy or invasive species.

FY 2008 Priority for Research Projects – Applicants must address the following priority.

1. Research that establishes mechanisms determining the abundance and distribution of weedy and invasive species and the individual or collective impact of these species on agroecosystem functionality. Proposed research might investigate how different cultivation and nutrient management regimes/practices, past and current land use, or disturbance, including fire, pests, and grazing, affects the abundance of weedy and invasive species and how these species, in turn, impact the conditions and processes through which agroecosystems provide food, fuel, fiber, and fresh water or by regulating air quality, climate, erosion control, and human diseases. Research that provides an economic accounting of such impacts is encouraged but not required in FY 2008.

FY 2008 Priorities for Integrated Projects – Applicants must address the following priority.

1. Development, delivery, and implementation of ecologically-based, invasive species management programs (e.g. use of cover crops, grazing, tillage, and biocontrol agents) that includes economic decision support tools to evaluate tradeoffs of different management strategies.

[3] National Research Council 2001. *Grand Challenges in Environmental Sciences*. National Academy Press. 106 pp.
[4] Council for Agricultural Science and Technology. 2002. Invasive Pest Species: Impacts on Agricultural Production, Natural Resources, and the Environment. Louisiana State University, Baton Rouge. 18 pp.

Other Key Information for Research and Integrated Projects

- A letter of intent is required for this program. The letter of intent deadline is **December 6, 2007 by 5:00 P.M., Eastern Time**. Format the letter of intent using the criteria below.
    - Format the letter with one inch margins and six lines per inch and font no smaller than 12 point. The letter of intent must be submitted in portable document format (PDF).
    - The letter of intent is limited to two pages.
        - On Page 1 include a cover letter with the following information:
            - the name of the lead project director;
            - the names of collaborating investigators; and
            - the program priority addressed by the project.
        - On Page 2 include
            - a descriptive title; and
            - a brief statement of approaches and objectives
    - Attach the PDF letter of intent to an email addressed to Dr. Michael Bowers (mbowers@csrees.usda.gov) with the subject heading '*Letter of Intent Program 51.9_PD's Last Name'*.
    - An acknowledgement receipt will be sent indicating the letter was received.
    - A letter of intent is not required for conference grant proposals, career enhancement grant proposals, equipment grant proposals, and seed grant proposals.
    - Letters of intent will be reviewed relative to suitability, scope, and needs of the program as delineated in the program description and priorities.
    - Submission of more than one letter of intent is discouraged.
    - Project Directors will receive a response from the National Program Leader inviting or rejecting a full application by **December 20, 2007**. The National Program Leader will not provide feedback regarding content in the letter.
    - Only invited full applications will be reviewed by the panel

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- The program will consider projects (research and integrated) that focus on the biology of weedy and invasive plant and animal species of economic importance to agriculture. Currently, the program does not support research on pathogenic organisms. The projects proposed should have direct and obvious relevance to the elimination, management, or control of invasive species in agroecosystems, including cropping systems, managed forests, or rangeland. Successful applications will establish links between fundamental biological or ecological relationships and invasive species management plans and strategies. Research that proposes to combine organismal biology (genomics, physiology, and cell biology) with ecological processes is encouraged. Collaborative teams of land managers, economists, weed biologists, soil scientists, population biologists, ecologists, physiologists, biogeochemists, and wildlife managers or those with expertise in simulation modeling and GIS are encouraged to apply. Applications that do not meet the above criteria or do not match the priority areas will be returned without review.

- **New Project Opportunity: REE NET -** Beginning in FY 2008 NRI Program 51.9 will accept research and integrated proposals that coordinate networking activities around either the research or integrated program priority. These projects should move the field forward or create new research directions or opportunities through increased coordination, networking and synthesis. Moreover, these projects should: foster communication and promote collaboration among Research, Education, and Extension (REE) faculty with common interests across disciplinary, geographical, and organizational boundaries; establish networks and collaborations between faculty at Tier 1and 2 intuitions, and faculty at small, mid-size, and minority serving institutions (1890s, HSI, 1994); minimize isolation and maximize cooperation so as to eliminate unnecessary duplication of efforts; and coordinate the development of new tools and methods and generate community resources such as databases. Additional considerations include:

    - The size of a group/network will vary depending on the theme and needs of the proposed activity and may be regional, national, or international in scope.

    - Each network will include a diversity of members—from established researchers at tier 1 and 2 schools to new researchers, post-docs, graduate students, and faculty at small, mid-size, and minority serving institutions (1890s, HSI, 1994s).

    - Each project will include clearly define management plan that includes a description of the specific roles and responsibilities of the PD/Coordinator and other members of the group/network. The management plan should include provisions for flexibility to allow the structure of the group to change over time as membership and the network's foci evolve.

    - Awards are expected to be no more than $50,000/yr for three or four years. Although REE-Net activities are expected to involve investigators from multiple sites, a single organization must serve as the submitting organization for each proposal. When the proposed activity involves generation of community resources such as databases, a plan for their timely release and the mechanism of sharing must be in-place. In addition, there must be a plan for the long-term maintenance of such resources. The application must state in the first sentence in the summary that the project is a REE-Net proposal.

- Applications that do not address at least one of the stated integrated or research program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

62.0 Rural Development

National Program Leader – Dr. S. (Suresh) Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov)
Total Program Funds – approximately $ 5.1 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – February 14, 2008 (5:00 P.M., ET)

Background
During the last 30 years, dramatic social, economic, and technological changes have occurred in many rural areas in the United States. Although farming continues to be an important source of income, most of rural America is moving from agrarian to post-agrarian economies. Some communities are facing economic decline and rural exodus, while other regions, especially coastal and mountainous areas, have experienced increased economic growth and new resident influx. However, these changes have not benefited all rural people.

Despite decades of intervention and billions of dollars in public investment, many rural residents have a lower quality of life than many urban residents. Economic development and employment have been hampered by the lack of trained workforce, entrepreneurship skills, public services, and sufficient market size for the provision of some goods and services. Rural poverty remains as one of the most difficult social problems facing legislators and other public policy makers. Some industrial development strategies have adversely affected the environment and the long term sustainability of viable economic development. In addition, population gain driven by migration has increased diversity. The influx of migrant labor and senior citizens, as well as the exodus of educated youth may have exacerbated the economic vitality and increased poverty in some rural communities.

To meet these identified problems and opportunities of rural development, the long-term (10 year) goals for this program is to help develop sustainable rural communities through integrated projects focused on: 1) enhancing economic vitality of rural communities and, in turn, reduce rural poverty; 2) protecting and enhancing economic growth and the natural resource base of rural areas by developing strategies that reduce the competition between economic growth and the environment; and 3) building a diversified workforce to meet the needs of the present and for the future.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Enhance knowledge, evaluate policy options, and implement practical strategies to create employment opportunities and income growth, including appropriate entrepreneurship and small business development strategies.
2. Estimate the costs, benefits, and societal impacts of protecting the environment, using market and non market techniques, and implement practical strategies to enhance ecosystem services while promoting economic development and employment growth.
3. Enhance understanding of and develop innovative strategies to build the rural workforce for the present and for the future, including projects to attract and retain rural youth.

Other Key Information

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- Integrated projects that identify and recruit undergraduate students for pipelining into graduate programs in rural development or related disciplines are particularly encouraged. Such training and experiential learning component must go beyond the level of laboratory or other data collection and analysis projects. Examples of education projects include curriculum and/or degree program development in rural development, multi-college/university/department approaches to mentoring and experiential learning in rural development, faculty sharing, and joint degrees. The education component is expected to describe institutional resources and must clearly indicate how and why the proposed new curriculum or degree will complement, enhance, or replace any existing curriculum or programs at the institution and help promote rural development. Projects should also include plans for assessment and performance outcome measurement for continuation or expansion beyond the period of USDA support and potentially for tracking of participant accomplishments after course completion.

- Interdisciplinary applications focused on the creation of sustainable rural communities by protecting the environment, reducing poverty, and enhancing community economic vitality are strongly encouraged.

- Applications that focus on small and medium-sized farms and not directly related to the larger rural community should be directed to the Agricultural Prosperity for Small and Medium-Sized Farms (66.0) program. Applications not focused on rural community development should not be directed to this program.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

66.0 Agricultural Prosperity for Small and Medium-Sized Farms

National Program Leader –
Dr. S. (Suresh) Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov)
Dr. Diana Jerkins (202-401-6996 or djerkins@csrees.usda.gov)
Total Program Funds – approximately $5 million
Proposed Budget Requests –

- Proposed integrated project budget requests must not exceed $500,000 for project period of 2-4 years (including indirect costs).
- Proposed budget requests over $400,000 are expected to be multi-investigator and/or multi-institutional.
- Requests exceeding the budgetary guidelines above will be returned without review.

Letter of Intent – Not required for this program.
Application Deadline – June 5, 2008 (5:00 P.M., ET)

Background
Small and medium-sized farms are challenged by limited economic opportunities and increasing concerns about environmental quality, as indicated by their low value of agricultural products sold, decreasing share of the food dollar, and the perceived trade-off between agricultural sustainability and economic viability. In recent years, these challenges have been magnified by changes in market conditions caused by tremendous demographic shifts, new global markets and vertical integration, and the increasing competition for farm land for non-agricultural uses. Therefore, the purpose of this program is to foster interdisciplinary projects that enhance interactions between the economic and environmental components important to the long-term viability, competitiveness and efficiency of small and medium-sized farms (including social, biological and other components, if necessary). These include small and medium-sized dairy, livestock, forestry, crop and other commodity operations. While small and medium-sized farms with less than $500,000 in annual sales account for less than 25 percent of the value of all agricultural products sold in the U.S., the long-term viability of these farms is critical to the prosperity of rural people and places as these farms account for approximately 92 percent of all farms in the U.S. Therefore, the program will also foster interdisciplinary studies to enhance income accruing to small and medium-sized farms through value-added activities and in turn, their contribution to rural prosperity.

To meet these identified needs of agriculture, the long-term (10 year) goals for this program are: increase the value of agricultural products sold per farm by small and medium-sized farms through the adoption of environmentally sustainable, economically viable best management practices; increase the share of the food dollar accruing to the small and medium-sized farms and to rural communities by creating on-farm value added activities based on enhanced knowledge of the interactions between changing consumer needs, environmental sustainability and economic profitability; and adopt ecological practices that will enhance the economic value of the land, operated by small and medium-sized farms, in agricultural use.

FY 2008 Priorities for Integrated Projects – Applicants must address at least one of the following priorities.

1. Increasing the productivity and profitability of new and existing small and medium sized farms and ranches through education and extension programs based on new knowledge generated by research on factors that advance the economic and environmental integration of on-farm agricultural production and soil and water conservation practices.

2. Identification and dissemination of information to enhance the net economic, environmental and social benefits to small and medium-sized farms of on- and off-farm agricultural business activities, including impacts of innovative marketing and regional food systems, off-farm employment, migrant labor, etc.

3. Through innovative, research-based education and/or extension programs, enhance the understanding of students, current and future policymakers, farmers and others on how land use change, farm transition, and farm entry issues affect the prosperity of small and medium-sized farms, the ecosystem, and rural prosperity.

Other Key Information

- Integrated project proposals must include at least two of the three components of the agricultural knowledge system (i.e., research, education, and/or extension) with each component represented by one or more objectives within the proposal. Projects must budget sufficient resources to carry out the proposed set of extension, education, and/or research activities, with **no more than two-thirds** of a project's budget being allocated to a single knowledge area. Please see Part II.C.3 for a full listing of integrated project requirements, which should be followed closely to ensure success in the peer review process.

- Please see Part V, B for the criteria that will be used to evaluate integrated proposals. Applicants are also encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated for an example of an integrated proposal and other grant-writing resources.

- Applications for integrated projects must include the elements of a logic model detailing the activities, outputs, and outcomes of the proposed project. This information may be provided as a narrative or formatted into a logic model chart. The logic model planning process is a tool that should be used to develop your project **before** writing your proposal. Two additional pages are allowed for this information. See Part IV.B.1c(10) for details on where to attach this information to your application. More information and resources related to the logic model planning process are provided at http://www.csrees.usda.gov/funding/integrated/integrated_logic_model.html.

- The NRI 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 as 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.

- The Agricultural Prosperity for Small and Medium-Sized Farms program encourages projects that enhance graduate student interactions with teachers in K-12 schools to share their research findings, improve communication and team building skills, enhance curriculum for and enrich learning and interest in agricultural science education among K-12 students (including social sciences), and help strengthen partnerships between institutions of higher education and local school districts. Examples of such projects can be found through NSF's GK-12 program at: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5472&org=NSF

- Applications should be interdisciplinary and focused on the economic profitability and the environmental sustainability of small and medium-sized farms.

- Applications that focus on community development activities not directly related to agriculture should be directed to the Rural Development (62.0) Program. Applications not focused on the profitability and viability of small and medium-sized farms should not be directed to this program.

- Applications that do not address at least one of the stated integrated program priorities will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

PART III—ELIGIBILITY INFORMATION

A. Eligible Applicants

For **research projects**, the eligibility requirements for the NRI are as follows: except where otherwise prohibited by law, State agricultural experiment stations, all colleges and universities, other research institutions and organizations, Federal agencies, national laboratories, private organizations or corporations, and individuals are eligible to apply for and to receive a competitive grant. The Agricultural Research Enhancement Awards (AREA) have some notable differences in eligibility from these requirements. See Part II C, 2 for details.

For **integrated projects**, the eligibility requirements for the NRI are as follows: except where otherwise prohibited by law, State agricultural experiment stations, all colleges and universities, research foundations maintained by colleges or universities, private research organizations with established and demonstrated capacities to perform research or technology transfer, Federal research agencies, and national laboratories are eligible to apply for and receive a competitive grant. The bridge grants have some notable differences in eligibility from these requirements. See Part II, C, 3(b) for details.

Applicants must respond to the program priorities and deadlines found in the FY 2008 RFA. Applications from scientists at non-United States organizations will not be accepted. Award recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project.

B. Request for Determination

If an applicant's institution can be considered a minority-serving institution and wishes to be considered for a bridge grant (as described in Part II, C, 3(b)), but does not work with one or more of the minority groups criteria specified in the Definitions section of this RFA (see Part VIII, H), the applicant must submit to CSREES documentation supporting the request. This documentation must be submitted as part of the requestor's application package and must be received by CSREES 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 may be submitted as a PDF attachment in Field 11 in the Other Attachments portion of the R&R Other Project Information Form. In addition, the following information must be provided in the order specified below:

(a) A description of each minority group that is being submitted for determination;

(b) Data or studies supporting this group's designation as a minority group; and

(c) Data indicating that enrollment of the minority group(s) exceeds 50 percent of the total enrollment at the academic institution, including graduate and undergraduate and full- and part-time students.

C. Cost Sharing or Matching

For research projects, unless otherwise indicated, cost sharing or matching is not required for NRI awards. See Part II, C, 2, (c), (ii) for matching requirements for equipment grants.

For integrated projects, if a grant is for applied research that 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. Electronic Application Package

Applications to NRI programs must be submitted electronically through Grants.gov in response to this RFA.

Prior to assembling an application to the NRI, first contact the organization's **Authorized Organizational Representative (AOR)** to confirm the organization is prepared to submit applications through Grants.gov. See http://www.grants.gov/GetStarted for steps on registering with Grants.gov.

The NRI electronic application package may be accessed through the NRI Funding Opportunity page on the CSREES Web site or the Grants.gov Web site. To access the application package through the NRI Funding Opportunity Web page, go to http://www.csrees.usda.gov/fo/nri. Locate the table at the bottom of the page and select the live link associated with "Funding Opportunity Number". To access the application package via Grants.gov, go to http://www.grants.gov. Select the "Apply for Grants" link on the left-hand side of page. Selecting "Step 1: Download a Grant Application Package," enter the CFDA number 10.206 and select "Download Package." From the search results, select "download" to access the instructions and application. **Grants.gov does not currently support the Windows Vista operating system. The PureEdge software used by Grants.gov for forms may not be compatible with MS Vista.**

The electronic application package contains the "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES 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 electronic assistance is needed, refer to Part III sections 7.1 and 7.2 for contact information. **Please note, if the application instructions in this RFA differ from those in the CSREES Grants.gov Application Guide, the instructions in this RFA should be followed.**

Technical questions pertaining to the electronic submission process, including registration through Grants.gov, the PureEdge Viewer software required to download, complete, and submit electronic applications, or problems related to the Grants.gov website should be directed to Grants.gov staff. They can be reached by phone at 1-800-518-GRANTS or via email at support@grants.gov.

Online resources to help potential applicants with the new electronic application package and submission requirements are available at http://www.grants.gov. Additional online resources are provided by CSREES to help applicants, including tips for preparing an electronic application and electronic submission frequently asked questions at http://www.csrees.usda.gov/funding/electronic.

Closing Date for Applications
Applications must be received by 5:00 PM Eastern Time (ET) on the date detailed in the program description listed in the Program Opportunities (Part II E) section of this RFA and in **TABLE 5 NRI PROGRAM DEADLINE DATES** at the end of the document.

Application Receipt Notices
After an application is submitted, the AOR will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the e-mails. The Grants.gov validation (email #2) may take up to two business days from application submission. Please plan accordingly and submit early. Receipt of e-mail Number 4 by the AOR indicates the application reached CSREES, USDA. To track a submission, use the Submission Receipt Number in e-mail Number 1. The titles of the four e-mails are:

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

Receipt of the four e-mails does not indicate the application has been accepted for review. The AOR and/or PD will be notified in up to two subsequent e-mails if the application has been accepted or declined for program review. If accepted, the application will be assigned a CSREES application number (i.e. 2008-XXXXX). This number should be cited on all future correspondence, see this section part E for additional information.

B. Content and Form of Application Submission

Electronic applications should be prepared according to the document entitled "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov." This guide is part of the corresponding electronic application package, see this section part A. The following is **additional information** needed to prepare an application in response to this RFA. **If any discrepancy between the two documents exists, the information contained in this RFA is overriding.**

1. Integrated and Standard Research Grant Applications

a. General

Use the CSREES Grants.gov Application Guide and the following guidelines to prepare an application. Proper preparation of application will assist reviewers in evaluating the merits of each application in a systematic, consistent fashion:

(1) Attachment Format

CSREES will only accept attachments in the portable document format (PDF). See Part III of the CSREES Grants.gov Application Guide. PDF generating software can be obtained from the Grants.gov Customer Resources Web page (http://www.grants.gov/resources/download_software.jsp). **SUBMITTED PROPOSALS THAT DO NOT MEET THESE REQUIREMENTS FOR PDF ATTACHMENTS ARE AT RISK FOR BEING RETURNED WITHOUT REVIEW. Submitted PDF documents must have one-inch margins, line spacing of no less than six lines per inch, and no font smaller than 12 point. Number each page of the attachment sequentially. Please follow the page limitations for a given attachment in this RFA. Title each attachment in the document header and save each file with name listed below, see this section part B(3).**

(2) Grant Application Package

(a) "*Competition ID*" no information will be auto-populated because CSREES does not utilize this feature. Please leave this field blank.

(b) "*Application Filing Name*" is required. There are no specific guidelines for this field. However, it must be completed and the applicant may enter a name or number they deem appropriate.

(3) In the process of submitting your proposal electronically, you will complete at least seven components of the SF 424 Research and Related (R&R) Application Package:

- SF 424 R&R Cover Sheet
- R&R Other Project Information
- R&R Senior/Key Person Profile
- R&R Personal Data
- R&R Budget
- Supplemental Information Form (including Conflict of Interest)
- NRI Proposal Type Form
- R&R Sub-award, as appropriate

All applications must be submitted through Grants.gov.

b. SF 424 R&R Cover Sheet
Information related to the questions on this form is dealt with in detail in Part V, 2. of the CSREES Grants.gov Application Guide.

(1) *Field 5. Legal Name* – Enter the legal name of the organization to which the award should be made.

(2) *Person to be contacted on matters involving this application* – Enter the information for the contact person related to this application preferred by the institution. It is anticipated that the NRI official program correspondence will be maintained with the AOR or PD depending if the topic is administrative or scientific.

(3) *Field 11. Descriptive Title of Applicant's Project* – The title should be a brief (**140-character-maximum including spaces**), clear, and concise description of the proposed project.

(4) *Field 13. Proposed Project* – For the start date of the project, select a date at least six months after the submission due date for the program. Choose the end date to correspond to the correct duration of the project.

(5) *Field 20. Pre-application* – Do not fill out this portion of the form. The NRI is not accepting pre-applications in fiscal year 2008 in any of the programs. Some programs may require a Letter of Intent. See program descriptions for more details.

c. R&R Other Project Information
Information related to the questions on this form is dealt with in detail in Part V, 3. of the CSREES Grants.gov Application Guide.

For the purpose of this RFA, questions in Field 4 pertain to the National Environmental Policy Act of 1969 (NEPA). Under 7 CFR Part 3407 (CSREES's implementing regulations of NEPA), CSREES must determine whether the proposed activity requires the preparation of an environmental assessment or an environmental impact statement, or whether such activity can be excluded from this requirement on the basis of several categories. Note that even though the applicant considers that a proposed project may or may not fall within a categorical exclusion, CSREES may determine that an environmental assessment or an environmental impact statement is necessary for a proposed project should substantial controversy on environmental grounds exist or if other extraordinary conditions or circumstances are present that may cause such activity to have significant environmental effect. **It is requested that Field 4 be completed in the following manner.**

(1) *Field 4a*. – Check yes.

(2) *Field 4b. If yes, please explain* – Type "See Field 4d below."

(3) *Field 4c. If this project has actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed?* The applicant should review the categorical exclusions in the table on the next page and determine if the proposed project falls within one or more of the exclusions.

Check "Yes" if one of the categorical exclusion listed in the table on the next page applies. Also, check yes if an EA or EIS has been performed. Attach a copy of the EA or EIS, if performed, in Field 11. Other Attachments.

Check "No" if the proposed activity does not fall into one of the categorical exclusions listed in the table below OR if an EA or EIS has not been performed. If "No" is checked, attach an explanation of the potential environmental impacts of the proposed activity in Field 11. Other Attachments. This may require completion of an EA or EIS.

(4) *Field 4d*. If applicable, enter the appropriate Exclusion Code in Field 4d. If an EA or EIS file is attached in "Field 11. Other Attachments," enter "Please see attached."

USDA CSREES NEPA Exclusion Codes Table

Exclusion Code	Description
Department of Agriculture Categorical Exclusions (found at 7 CFR 1b.3 and restated at 7 CFR 3407.6(a)(1)(i) through (vii))	
(a)(1)(i)	Policy development, planning, and implementation which are related to routine activities such as personnel, organizational changes, or similar administrative functions
(a)(1)(ii)	Activities that deal solely with the functions of programs, such as program budget proposals, disbursement, and transfer or reprogramming of funds
(a)(1)(iii)	Inventories, research activities, and studies such as resource inventories and routine data collection when such actions are clearly limited in context and intensity
(a)(1)(iv)	Educational and informational programs and activities
(a)(1)(v)	Civil and criminal law enforcement and investigative activities
(a)(1)(vi)	Activities that are advisory and consultative to other agencies and public and private entities, such as legal counseling and representation
(a)(1)(vii)	Activities related to trade representation and market development activities abroad
CSREES Categorical Exclusions (found at 7 CFR 3407.6(a)(2)(i) through (ii))	
The following categories of research programs or projects of limited size and magnitude or with only short-term effects on the environment:	
(a)(2)(i)(A)	Research conducted within any laboratory, greenhouse, or other contained facility where research practices and safeguards prevent environmental impacts
(a)(2)(i)(B)	Surveys, inventories, and similar studies that have limited context and minimal intensity in terms of changes in the environment
(a)(2)(i)(C)	Testing outside the laboratory, such as in small isolated field plots, which involves the routine use of familiar chemicals or biological materials
(a)(2)(ii)	Routine renovation, rehabilitation, or revitalization of physical facilities, including the acquisition and installation of equipment, where such activity is limited in scope and intensity

(5) *Field 6. 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 'Project Summary'.

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

The Project Summary must indicate which specific FY 2008 Program Priority(ies) the proposed project addresses. Program Priorities are stated within each Program Opportunity description (see Part II, E.). The importance of a concise, informative Project Summary cannot be overemphasized.

(6) *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 18-Page or 7-Page Limit (explained below).** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Integrated, Standard Research, Strengthening Standard Research, Postdoctoral Fellowships, New Investigator, and Conference grant applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. For Research Career Enhancement, Equipment, and Seed Grant Applications, the Project Narrative section may not exceed a total of 7 single- or double-spaced pages, including figures and tables. This page limitation applies regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the

applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

Project Narrative must include all of the following:

(a) *Response to Previous Review* (if applicable). This requirement only applies to "Resubmitted Applications" and "Resubmitted Renewal Applications" as described in Part II, B. PDs must respond to the previous review panel summary on **no more than one page**, titled "RESPONSE TO PREVIOUS REVIEW." If desired, additional comments may be included in the text of the Project Narrative, which is subject to the 18 page limitation for this section. When a Response to Previous Review is included in the Project Narrative, the attachment page limitation is increased to 19 total pages to include the 1-page response. Note, the Project Narrative itself, with or without the Response to Previous Review, must not exceed 18-pages.

(b) *Introduction*. The introduction should include a clear statement of the long-term goal(s) and supporting objectives or research questions of the proposed project. Summarize the body of knowledge or other past activities that substantiate the need for the proposed project. Describe ongoing or recently completed significant activities related to the proposed project including the work of key project personnel. Include preliminary data/information pertinent to the proposed research. All works cited should be referenced (see item (7) Bibliography & Reference Cited of this section).

(c) *Progress Report*. If the application is a renewal of an existing project supported under this program (or its predecessor), include a clearly marked progress report describing results to date from the previous award. The progress report must be contained within the 18-page limit and should contain the following information:

1. A comparison of actual accomplishments with the objectives established for the previous award;
2. The reasons established objectives were not met, if applicable; and
3. A listing of any publications resulting from the award.

Copies of no more than two preprints or reprints may be appended to the application (see item (10)(g) Appendices to Project Narrative of this section). Appendices are not counted toward the 18-page Project Narrative limit.

(d) *Rationale and Significance*.

1. Concisely present the rationale behind the proposed research, extension, or education;
2. The specific relationship of the project's objectives to one or more of the particular program priorities; and
3. The potential long-range improvement in and sustainability of U.S. agriculture and food systems should be shown clearly. These purposes are described under Part I, B., Purpose and Priorities. Any novel ideas or contributions that the proposed project offers should also be discussed in this section.

(e) *Approach.* The activities proposed or problems being addressed must be clearly stated and the approaches being applied clearly described. Specifically, this section must include:

- A description of the activities proposed and the sequence in which the activities are to be performed;
- Methods to be used in carrying out the proposed project, including the feasibility of the methods;
- Expected outcomes;
- Means by which results will be analyzed, assessed, or interpreted;
- How results or products will be used;
- Pitfalls that may be encountered;
- Limitations to proposed procedures;

- 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
- A brief timeline of the proposed project.

(7) *Field 8. Bibliography & References Cited* – **PDF Attachment**. **No Page Limit.** Title the attachment as 'Bibliography & References Cited' in the document header and save file as 'Bibliography & References Cited'.

All work cited in the text, including that of key personnel, should be referenced in this section of the application. All references must:

(a) Be complete;
(b) Include titles and all co-authors;
(c) Conform to an acceptable journal format; and
(d) Be listed in alphabetical order using the last name of the first author or listed by number in the order of citation.

See the example provided Part III, 3.8. of the CSREES Grants.gov Application Guide. References are not considered in the page-limitation for the Project Narrative.

(8) *Field 9. Facilities & Other Resources* – **PDF Attachment. No Page Limit.** Title the attachment as 'Facilities & Other Resources' in the document header and save file as 'Facilities & Other Resources'.

(9) *Field 10. 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).

(10) *Field 11. Other Attachments*

(a) **See item (6) Project Narrative of this section for the Response to Previous Review.** The Response to Previous Review will now be located within the Project Narrative attachment. Do not attach the Response to Previous Review in this section.

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

Clearly describe the roles and responsibilities of the PD, co-PD(s), and/or collaborator(s). Biographical sketches for key personnel should be attached in the R&R Senior/Key Person Profile. 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 this section part B. 1, c., (10)(e) of this document.

(c) *Logic Model* – **PDF Attachment. For Integrated Projects Only. 2-Page Limit**. Title the attachment as 'Logic Model' and save file as 'Logic Model'.

(d) *Management Plan* – **PDF Attachment. For Integrated Projects Only. 3-Page Limit.** Title the attachment as 'Management Plan' and save file as 'Management Plan'.

Because of the complexity of integrated projects, it is important to have a clearly articulated management plan. Include a timeline for attainment of objectives and for production of deliverables, as

well as a strategy to enhance coordination, collaboration, communication, and data sharing and reporting among members of the project team and stakeholder groups.

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

(f) *Results from Prior NRI Support* – **PDF Attachment**. **1-Page Limit per Award.** Title the attachment as 'Results from Prior NRI Support' in the document header and save file as 'Results from Prior NRI Support'.

If the PD or a co-PD has received NRI support in the past five years, information on results from that prior funding is required. This information will be used in the review of the application. For renewal applications, provision of the Progress Report, see Project Narrative, is sufficient and information need not be repeated in this section. For each award, list the CSREES award number, the amount and period of support, the title of the project, a summary of the results of the completed work, the long-term effects of these results, and the publications resulting from the NRI award.

(g) *Appendices to Project Narrative* – **PDF Attachment.** Title the attachment as 'Appendices' in the document header and save file as 'Appendices'.

Appendices are strictly limited to a **maximum of 2** of the following items in any combination:

- Reprints (papers that have been published in peer-reviewed journals); and
- Preprints (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) 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.

(h) *Other Documents (as requested)* - **PDF Attachment.** Title the attachment as indicated in the program description or RFA directions. In the document header and save file with the same title.

d. R&R Senior/Key Person Profile

Information related to the questions on this form is dealt with in detail in Part V, 4. of the CSREES 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 this section part B,1 c. (10)(e) of this document.

(1) *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 'Biographical Sketch'.

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 this section B, 1 g.(3) of this document.

(2) *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 'Current and Pending Support'.

A suggested template for the Current and Pending Support can be found at: http://www.csrees.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, see template. 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.

e. R&R Personal Data
Information related to the questions on this form is dealt with in detail in Part V, 5. of the CSREES Grants.gov Application Guide. Provide a brief summary for a current or pending project that appears similar to the current proposal.

f. R&R Budget
Information related to the questions on this form is dealt with in detail in Part V, 6. of the CSREES Grants.gov Application Guide.

(1) *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. Applicants must complete the mandatory fields on each page of the first budget period and attach the Budget Justification (see item (4) Field K. Budget Justification, of this section) to enable the "Next Period" button to become active.

(2) *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, 7. of the CSREES Grants.gov Application Guide for instructions on completing this form.

(3) *Field H. Indirect Costs* – See Section D in this section of this guide for indirect cost information.

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

All 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 budget. If consulting, collaborative, or subcontractual arrangements are included in the application, these arrangements should be fully explained and justified. The rate of pay for any consultant must be included, if known at the time of application. Please include a cost breakdown for the consultant, including the number of days in service, travel, and per diem, as well as the rate of pay. Letters of consent or collaboration and other evidence should be provided in the Documentation of Collaboration (see item c., (10)(e) of this section) 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.

(5) *Matching*
Equipment grants requiring matching funds must include a letter signed by the institution's authorized organizational representative stating that the necessary non-Federal matching funds will be made available from an institution or other source. If the institution is eligible for the waiver for matching funds, the budget justification must include a letter signed by the institution's authorized organizational representative stating this information (see Table 2 for eligibility).

Applicants submitting an integrated application that the applicant determines does not require matching funds (as specified under Part III, C.) should include a justification in the Budget Justification. CSREES will consider this justification when ascertaining final matching requirements. CSREES retains the right to make final determinations regarding matching requirements.

Applicants submitting an integrated application that does require matching funds (as specified under Part III, C.) should provide written verification of commitments of matching support (including both cash and in-kind contributions) from third parties (non-federal sources) in the Budget Justification file. Written verification means third party cash contributions should include a separate pledge agreement for each donation, signed by the authorized organizational representative of the donor organization and the applicant organization. Each agreement should include: (1) the name, address, and telephone number of the donor; (2) the name of the applicant organization; (3) the title of the project for which the donation is made; (4) the dollar amount of the cash donation; and (5) a statement that the donor will pay the cash contribution during the grant period.

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 the applicable cost principles. Applicants should refer to OMB Circulars A-21, Cost Principles for Educational Institutions, A-87, Cost Principles for State, Local, and Tribal Governments, A-122, Cost Principles for Non-Profit Organizations, and the cost principles in the Federal Acquisition Regulation at 48 CFR 31.2 for further guidance and other requirements relating to matching and allowable costs.

g. <u>Supplemental Information Form</u>
Information related to the questions on this form is dealt with in detail in Part VI, 1. of the CSREES Grants.gov Application Guide.

(1) *Field 1. Funding Opportunity* – Funding Opportunity Name is pre-populated with "National Research Initiative Competitive Grants Program" and "USDA-CSREES-NRI-001030" for Funding Opportunity Number in Field 1.

(2) *Field 2. Program to which you are applying* – Use the chart below to determine the Program Code Name and Program Code to which you are applying. A proposal 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 proposal, please contact the National Program Leader for that program.

Program Code Name	Program Code
Plant Biosecurity	20.2
Managed Ecosystems	23.1
Soil Processes	25.0
Water and Watersheds	26.0
Global and Climate Change	27.0
Air Quality	28.0
Bioactive Food Components for Optimal Health	31.0
Human Nutrition and Obesity	31.5
Food Safety and Epidemiology (A): Biological Approaches for Food Safety	32.0
Food Safety and Epidemiology (B): Epidemiological Approaches for Food Safety	32.0
Animal Reproduction	41.0
Animal Growth and Nutrient Utilization	42.0
Animal Genome (A): Translational Animal Genomics	43.0
Animal Genome (B): Tools and Resources	43.0
Animal Genome (C): Bioinformatics	43.0
Animal Genome (D): Functional Genomics	43.0
Animal Genome (E): Whole Genome Enabled Animal Selection	43.0
Animal Protection and Biosecurity (A): Animal Disease	44.0
Animal Protection and Biosecurity (B): Animal Well-Being	44.0
Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Project (CAP)	44.0
Microbial Genomics (A): Genome Sequencing	51.0
Microbial Genomics (B): Functional Genomics of Microorganisms	51.0
Arthropod and Nematode Biology and Management (A): Organismal and Population Biology	51.2
Arthropod and Nematode Biology and Management (B): Suborganismal Biology	51.2
Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics	51.2
Arthropod and Nematode Biology and Management (D): Protection of Managed Bees CAP	51.2
Microbial Biology (A): Microbial Observatories	51.8
Microbial Biology (B): Microbial Associations with Plants	51.8
Biology of Weedy and Invasive Species in Agroecosystems	51.9
Plant Genome (A): Tools, Resources, and Bioinformatics	52.1

Program Code Name	Program Code
Plant Genome (B): Functional Genomics	52.1
Plant Genome (C): Genome Structure and Organization	52.1
Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)	52.1
Plant Biology (A): Gene Function and Regulation	56.0
Plant Biology (B): Environmental Stress	56.0
Plant Biology (C): Biochemistry	56.0
Plant Biology (D): Growth and Development	56.0
Plant Biology (E): Plant Breeding and Education	56.0
Agribusiness Markets and Trade	61.0
Rural Development	62.0
Agricultural Prosperity for Small and Medium-Sized Farms	66.0
Improving Food Quality and Value	71.1
Biobased Products and Bioenergy Production Research	71.2
Nanoscale Science and Engineering for Agriculture and Food Systems	75.0

(3) **IMPORTANT -** *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

A Conflict of Interest List must be provided for all individuals who have submitted a Biographical Sketch in response to item d., (1) of this section. Collate all Conflict of Interest lists into a single document. The lists can only be submitted as a single PDF attachment.

For all individuals who have submitted a Biographical Sketch, list alphabetically by last name (and with last name first) the full names of individuals and indicate which categorical conflict(s) listed below applies:

(a) All co-authors on publications within the past three years, including pending publications and submissions;
(b) All collaborators on projects within the past three years, including current and planned collaborations;
(c) All thesis or postdoctoral advisees/advisors; and
(d) All persons in your field with whom you have had a consulting/financial arrangement/other conflict-of-interest in the past three years.

Note: Other individuals working in the applicant's specific area are not in conflict with the applicant unless those individuals fall within one of the listed categories. The National Program Leader responsible for the topic area must be informed of any additional conflicts of interest that arise after the application is submitted.

h. NRI Proposal Type Form -
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(1) *Field 1. Proposal Type –*
For Integrated Grant Applications, select "Integrated Project Proposal."
For Standard Research Grant Applications, select "Research Project Proposal" and "Standard Research Project."

2. Research Conference Applications
Submit applications requesting support for conferences to appropriate programs, described in Part II, E., by applicable deadlines. **Potential applicants are strongly advised to consult the appropriate National Program Leader before preparing their conference application.** To submit a Research Conference application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.), noting the following differences:

a. R&R Other Project Information Form

(1) *Field 6. Project Summary/Abstract* – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

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 priority(ies) to which the project applies.

(2) *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 18-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Research Conference Grant Applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limitations have been established to ensure fair and equitable competition.

Describe the conference proposed, including:
(a) A justification for the meeting;
(b) Recent meetings on the same subject with dates and locations;
(c) Names and organizational affiliations of the chair and other members of the organizing committee;
(d) A proposed program (or agenda) for the conference, including a listing of scheduled participants and their institutional affiliations; and
(e) The method of announcement or invitation that will be used.

b. R&R Senior/Key Person Profile

(1) *Attach Biographical Sketch Field* – **PDF Attachment. 2-Page limit (including publications listings) per submitting PD(s).** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

Include a Biographical Sketch for submitting PD(s) with a brief listing of relevant publications.

The Conflict of Interest lists should not be included in the biographical sketch and must be provided as a separate document, see item d. (1) of this section.

c. R&R Budget
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 $10,000 and are not renewable. Conference awards may not include indirect costs. Include an itemized breakdown of all support requested from the NRI in the Budget Justification (Field K. of the R&R Budget).

d. Supplemental Information Form

(1) **IMPORTANT -** *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

Include for all submitting PD(s).

e. NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(1) *Field 1. Proposal Type* – For Research Conference Applications, select "Research Project Proposal" and "Conference."

3. Agricultural Research Enhancement Award (AREA) Applications

a. Postdoctoral Fellowships
See Part II, C., 2(a) and Part III, A. for eligibility requirements.

Submit applications requesting support for postdoctoral fellowships to appropriate research programs, described in Part II, E., by applicable deadlines. An individual may submit an application directly or through the mentor's institution. Postdoctoral applicants must be the sole PD listed on the application. The mentor should not be listed as a co-PD (see item (3)(b) of this section). To submit a Postdoctoral Fellowship application, follow the guidelines for Integrated and Standard Research Grant Applications (see this section B., 1.), noting the following differences:

(1) **SF 424 R&R Cover Sheet**
If the application is submitted through an institution, the SF 424 R&R Cover Sheet must be endorsed by the AOR who possesses the necessary authority to commit the applicant's time and other relevant resources. If an application is to be submitted by an individual, the submitting individual must be the proposing postdoctoral applicant.

(2) **R&R Other Project Information**

(a) *Field 1 and 2. Are Human Subjects Involved?* and *Are Vertebrate Animals Used?* – Postdoctoral fellowship 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 Narrative* (formerly Project Description) – **PDF Attachment. 18-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Postdoctoral Grant Applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

(c) *Field 9. Facilities & Other Resources* – **PDF Attachment.** Title the attachment as 'Facilities & Other Resources' in the document header and save file as 'Facilities & Other Resources'.

Provide documentation that arrangements have been made for the necessary facilities & other resources for conduct of the research.

(d) *Field 10. Equipment* **– PDF Attachment.** Title the attachment as 'Equipment' in the document header and save file as 'Equipment'.

Provide documentation that arrangements have been made for the necessary equipment for conduct of the research.

(e) *Field 11. Other Attachments, Documentation of Collaboration* – **PDF Attachment.** Title the attachment as 'Documentation of Collaboration in the document header and save file as 'Documentation of Collaboration.

Provide documentation that arrangements have been made with an established investigator to serve as mentor. *The letter must provide assurance that the proposed project initiates the postdoctoral student's independent research program. Although the project may fit in the context of the mentor's existing research area, it should not simply be an extension of ongoing projects in the mentor's laboratory.*

Also provide documentation from the host institution's AOR indicating that the host institution concurs with the proposed arrangements. Postdoctoral applicants from Federal laboratories must notify the appropriate regional office.

(3) **R&R Senior/Key Person Profile**

A Senior/Key Person Profile must be completed for the Postdoctoral Fellowship applicant and their corresponding scientific mentor(s).

(a) *Project Role Field* – Select "Post Doctoral" for the Postdoctoral Fellowship applicant. Select "Other (Specify)" for the corresponding scientific mentor(s).

(b) *Other Project Role Category Field* – Enter "Mentor" for corresponding scientific mentor(s).

(c) *Attach Current and Pending Support Field* – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

Current and Pending Support for both the postdoctoral applicant and the scientific mentor(s) (as documentation of on-going work in the mentor's laboratory) must be completed.

(4) **R&R Budget**

The budget is limited to $125,000 and 2 year duration. Funds should be requested primarily for salary support although other expenditures (e.g. supplies, travel, and publication costs) are allowable costs if properly justified. An institutional allowance not exceeding $2,400 per year is allowed. Indirect costs are not allowed. The institutional allowance should be included in Field F., Other Direct Costs, Line 8. of the R&R Budget.

(5) **Supplemental Information Form**

(a) **IMPORTANT -** *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

Conflict of Interest list for both the postdoctoral applicant and the scientific mentor(s) must be completed.

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

(6) **NRI Proposal Type Form**
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(a) *Field 1. Proposal Type* – For Postdoctoral Fellowship Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," and "Postdoctoral Fellowship."

b. New Investigator Awards
See Part II, C., 2(b) and Part III, A. for eligibility requirements.

New investigators should submit research applications to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a New Investigator Award application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.), noting the following differences:

(1) **R&R Other Project Information**

(a) *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 18-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For New Investigator Grant Applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

(2) **Supplemental Information Form**

(a) **IMPORTANT -** *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

(3) **NRI Proposal Type Form**
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(a) *Field 1. Proposal Type* – For New Investigator Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," and "New Investigator."

c. Strengthening Awards

(1) Research Career Enhancement Awards (Sabbatical Awards). See Research Career Enhancement Awards (Sabbatical Awards) in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications from eligible faculty wishing to enhance their research capabilities through sabbatical leaves are encouraged.
Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. Applications should originate through the applicant's home institution. To submit a Research Career Enhancement Awards (Sabbatical Awards) application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.) noting the following differences:

(a) **R&R Other Project Information Form**

- *Field 1 and 2. Are Human Subjects Involved?* and *Are Vertebrate Animals Used? –* 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.

- *Field 6. Project Summary/Abstract* – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

Indicate overall project goals and supporting objectives.

Field 7. Project Narrative (formerly Project Description) – **PDF Attachment. 7-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Research Career Enhancement Grant Applications, the Project Narrative section may not exceed a total of 7 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

Describe the proposed sabbatical, including:

- A general description of the research interests and goals of the applicant in order to provide perspective for the application;
- A description of the research project to be pursued while on the sabbatical leave;
- A statement of how the proposed activities will enhance the scientific research 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.

Field. 11. Other Attachments, Documentation of Collaboration – **PDF Attachment.** Title the attachment as 'Documentation of Collaboration' in the document header and save file as 'Documentation of Collaboration'.

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.

(b) **R&R Senior/Key Person Profile**

A Senior/Key Person Profile must be completed for the Research Career Enhancement Awards (Sabbatical Awards) applicant, the corresponding scientific host(s), and any other personnel whose qualifications merit consideration in the evaluation of the application.

- *Project Role Field* – Select "PD/PI" for the Research Career Enhancement Awards (Sabbatical Awards) applicant. Select "Other" for the corresponding scientific host(s) and any other personnel whose qualification merit consideration in the evaluation of the application.

- *Attach Biographical Sketch Field* – **PDF Attachment.** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

  A Biographical Sketch must be submitted for the Research Career Enhancement Awards (Sabbatical Awards) applicant, the scientific host(s), and any other personnel whose qualifications merit consideration in the evaluation of the application.

  The Conflict of Interest lists should not be included in the biographical sketch and must be provided as a separate document (see item (d) of this section).

- *Attach Current and Pending Support Field* – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

  Current and Pending Support for both the Research Career Enhancement Awards (Sabbatical Awards) applicant and the scientific host(s) (as documentation of on-going work in the mentor's laboratory) must be completed.

(c) **R&R Budget**

Limit to one year's salary and funds for travel and supplies.

(d) **Supplemental Information Form**

IMPORTANT - *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

Conflict of Interest list for the Research Career Enhancement Awards (Sabbatical Awards) applicant, the scientific host(s), and any other personnel whose qualifications merit consideration in the evaluation of the application must be completed.

(e) **NRI Proposal Type Form**
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- *Field 1. Proposal Type* – For Research Career Enhancement Award (Sabbatical Awards) Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Career Enhancement."

(2) Equipment Grants. See Equipment Grants, in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications requesting assistance in purchasing one major piece of equipment must be submitted as Equipment Grant applications. Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. To submit an Equipment Grant application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.), noting the following differences:

(a) **R&R Other Project Information Form**

- *Field 6. Project Summary/Abstract* – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

  Indicate equipment sought and overall project goals for its use.

- *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 7-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

  PLEASE NOTE: For Equipment Grant Applications, the Project Narrative section may not exceed a total of 7 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

  Include general description of the research project(s) for which the equipment will be used, how the equipment will fit into or enhance the research program, and how the equipment will allow the applicant to become competitive for future funding or move into new research areas. Also include a brief description of other similar or complementary equipment available to the PD at the institution and why the requested equipment is necessary.

(b) **R&R Senior/Key Person Profile**
A Senior/Key Person Profile must be completed for the Equipment Grant applicant and other major users of the equipment.

- *Project Role Field* – Select "PD/PI" for the Equipment Grant applicant. Select "Faculty" for the other major users of the equipment.

- *Attach Biographical Sketch Field* – **PDF Attachment.** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

  A Biographical Sketch for both the Equipment Grant applicant and other major users of the equipment must be submitted.

  The Conflict of Interest lists should not be included in the biographical sketch and must be provided as a separate document (see item (d) of this section).

- *Attach Current and Pending Support Field* – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

  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.

(c) **R&R Budget**

Each request shall be limited to one major piece of equipment within the cost range of $10,000-$250,000. 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. 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.

- *Field K. Budget Justification* – **PDF Attachment.** Title the attachment as 'Budget Justification' in the document header and save file as 'Budget Justification'.

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

(d) **Supplemental Information Form**

IMPORTANT - *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

Conflict of Interest list for the Equipment Grant applicant and other major users of the equipment must be completed.

(e) **NRI Proposal Type Form**

Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- *Field 1. Proposal Type* – For Equipment Grant Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Equipment."

(3) Seed Grants. See Seed Grants, in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications from eligible faculty wishing to collect preliminary data should be submitted as Seed Grant applications. Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a Seed Grant application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.), noting the following differences:

(a) **R&R Other Project Information Form**

- *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 7-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Seed Grant Applications, the Project Narrative section may not exceed a total of 7 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

Include all the components of a Standard Research Project application and present enough experimental detail to allow adequate evaluation. In order to be competitive, long-term research goals and a statement describing how this seed grant will allow the applicant to become competitive for future funding should be included.

(b) **R&R Budget**
These awards will be limited to a total of $100,000 (including indirect costs) for two years and are not renewable.

(c) **NRI Proposal Type Form**
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- *Field 1. Proposal Type* – For Seed Grant Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Seed Grant."

(4) Strengthening Standard Research Project Awards. See Strengthening Standard Research Project Awards, in Part II, C, 2(c) for eligibility requirements. Faculty who are eligible for the Strengthening Award Program may wish to apply for a Standard Research Project Award. Applications should be directed to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a Strengthening Standard Research Project Awards application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1.), noting the following differences:

(a) **R&R Other Project Information**

- *Field 7. Project Narrative* (formerly Project Description) – **PDF Attachment. 18-Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

  PLEASE NOTE: For Strengthening Standard Research Project Applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation will be returned without review. The page limit has been established to ensure fair and equitable competition.

(b) **Supplemental Information Form**

IMPORTANT - *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 NRI. The Conflict of Interest List should be provided as a separate PDF attachment and not included in the vitae or resume.

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

A Conflict of Interest List must be provided for all individuals who have submitted a Biographical Sketch in response to item d., (1) of this section.

(c) **NRI Proposal Type Form**
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- *Field 1. Proposal Type* – For Strengthening Standard Research Project Award Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Standard Strengthening."

C. Submission Dates and Time

Electronic applications must be submitted by Grants.gov by COB (5:00 P.M Eastern Time, not local time) on the dates indicated in the TABLE 5 NRI PROGRAM DEADLINE DATES at the end of this RFA. Applications received after applicable deadlines (5:00 P.M Eastern Time, not local time) will be returned without review.

D. Funding Restrictions

For FY 2007, sections 101 (a) and (c) of the Revised Continuing Appropriation Resolutions, 2007 (Pub. L. 110-5), limited indirect costs to 20 percent of the total Federal funds provided under each award. CSREES anticipates that the FY 2008 Appropriations Act will include a similar limitation. Therefore, when preparing budgets (including subcontract budgets), applicants should limit their requests for recovery of indirect costs to the lesser of their institution's official negotiated indirect cost rate or the equivalent of 20 percent of total Federal funds awarded. Another method of calculating the maximum allowable is 25 percent of the total direct costs. Please note that if the 2008 Appropriations Act contains a different indirect cost limitation CSREES will contact each successful applicant to apply the correct rate prior to the award of a grant.

Funds may not be used for the renovation or refurbishment of research spaces (including energy retrofitting); purchase or installations of fixed equipment in such spaces; or planning, repair, rehabilitation, acquisition, or construction of buildings or facilities.

E. Other Submission Requirements

1. Submission and Receipt of Applications

Applications must be submitted electronically via Grants.gov. The applicant should follow the submission requirements noted in "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov" and the additional information provided in this RFA. **Note instructions in this RFA supersede those in the CSREES Grants.gov Application Guide.**

The receipt of all applications will be acknowledged by e-mail (see Section A. of this Part for description of the four e-mails that will acknowledge receipt). Therefore, applicants are strongly encouraged to provide accurate e-mail addresses where designated.

If an applicant has not received within 30 days of the submission an e-mail either providing a CSREES application number (i.e. 2008-XXXXX) or indicating the application was not accepted for review, the applicant must contact the agency contact (see Part VII) immediately and ask for the status of the application. Failure to do so may result in the application not being considered for funding by the peer review panel. Once the application has been assigned an application number, this number should be cited on all future correspondence.

2. Multiple Submissions

See Part III, 5. of "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov." Duplicate, essentially duplicate, or predominantly overlapping applications submitted to one or more program areas within the NRI (including the programs described under Agricultural Research Enhancement Awards) in any one fiscal year **will be returned without review**. In addition, applicants also may not submit to the NRI an application that is considered duplicate, essentially duplicate, or predominantly overlapping with an application submitted to another CSREES 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 be returned to the applicant without review.** 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 as reviewers experts from various areas of specialization within relevant scientific, education, or extension fields; (c) the need to include as reviewers 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 as reviewers 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 age distribution; 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 shall take into account the following factors.

Applications for Research, Including Standard Research, Strengthening Standard Research, Postdoctoral Fellowship, and New Investigator:

1. Scientific Merit of the Application for Research

(a) Novelty, innovation, uniqueness, and originality;

(b) Where model systems are used, ability to transfer knowledge gained from these systems to organisms of importance to U.S. agriculture;

(c) Conceptual adequacy of the research, as applicable;

(d) Clarity and delineation of objectives;

(e) Adequacy of the description of the undertaking and suitability and feasibility of methodology;

(f) Demonstration of feasibility through preliminary data and/or, for postdoctoral fellowships, publication record of the mentor; and

(g) Probability of success of the project is appropriate given the level of scientific originality, and risk-reward balance.

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

(a) Qualifications of applicant (individual or team) to conduct the proposed project, including performance record and potential for future accomplishments (for Postdoctoral Fellowship applications, this applies to the mentor, as well as to the postdoctoral applicant);

(b) Demonstrated awareness of previous and alternative approaches to the problem identified in the application;

(c) Institutional experience and competence in subject area;

(d) Adequacy of available or obtainable support personnel, facilities, and instrumentation; and

(e) 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.

3. Project Relevance

(a) Documentation that the research is directed toward specific priority areas 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.

Applications for a Postdoctoral Fellowship will also be evaluated on the quality of the training environment, including:

(a) Documentation that arrangements have been made with an established investigator to serve as mentor;

(b) Documentation that arrangements have been made for the necessary facilities, space, and materials to conduct the proposed research; and

(c) Potential for the postdoctoral fellow to initiate an independent research program.

For Conference Applications:

1. Relevance of the Proposed Conference to Agriculture and Food Systems in the U.S. and Appropriateness of the Conference in Fostering Scientific Exchange;

2. Qualifications of the Organizing Committee and Appropriateness of Invited Speakers to Topic Areas Being Covered;

3. Uniqueness and Timeliness of the Conference; and

4. Appropriateness of Budget Request.

Applications for Research Career Enhancement Awards, Equipment Grants, and Seed Grants:

1. The Merit of the Proposed Activities or Research Equipment as a Means of Enhancing the Research Capabilities and Competitiveness of the Applicant and/or Institution;

2. The Applicant's Previous Research Experience and Background;

3. The Appropriateness of the Proposed Activities or Research Equipment for the Goals Proposed; and

4. 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.

Applications for Integrated Projects:
These evaluation criteria should be used for the review of all integrated research, education, and extension applications.

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

(a) 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;

(b) Proposed approach, procedures, or methodologies are innovative, original, clearly described, suitable, and feasible;

(c) Expected results or outcomes are clearly stated, measurable, and achievable within the allotted time frame;

(d) Proposed research fills knowledge gaps that are critical to the development of practices and programs to address the stated problem or issue;

(e) Proposed extension leads to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group; and

(f) 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.

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

(a) Roles of key personnel are clearly defined;

(b) 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;

(c) Evidence of institutional capacity and competence in the proposed area of work is provided;

(d) Support personnel, facilities, and instrumentation are sufficient;

(e) 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

(f) 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.

3. Project Relevance

(a) The project addresses a stated program priority.

(b) Project components (research, education, and/or extension)—at least two are required—are fully integrated and necessary to address the problem or issue;

(c) The proposed work addresses identified stakeholder needs;

(d) Stakeholder involvement in project development, implementation, and evaluation is demonstrated, where appropriate;

(e) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;

(f) For extension or education (teaching) activities, curricula and related products will sustain education or extension functions beyond the life of the project; and

(g) 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.

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: http://www.hepinc.com.

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

D. Organizational Management Information

Specific management information relating to an applicant shall be submitted on a one-time basis as part of the responsibility determination prior to the award of a grant identified under this RFA, if such information has not been provided previously under this or another CSREES program. CSREES 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 CSREES 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 CSREES 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 (e.g. parts 3015 and 3019 of 7 CFR). The total period for which a grant is awarded, including all funded and no-cost time extensions, may not exceed 5 years.

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 Administrator has awarded a grant 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 grant number assigned by the Department;

5. Project period, specifying the amount of time the Department intends to support the project without requiring recompetition for funds;

6. Total amount of Departmental financial assistance approved by the Administrator during the project period;

7. Legal authority(ies) under which the grant is awarded;

8. Appropriate Catalog of Federal Domestic Assistance (CFDA) number;

9. Applicable award terms and conditions (see http://www.csrees.usda.gov/business/awards/awardterms.html to view CSREES award terms and conditions);

10. Approved budget plan for categorizing allocable project funds to accomplish the stated purpose of the grant award; and

11. Other information or provisions deemed necessary by CSREES to carry out its respective granting activities or to accomplish the purpose of a particular grant.

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:

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

7 CFR Part 3—USDA debt collection regulations.

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) 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 Government wide Debarment and Suspension (Nonprocurement) and Government wide 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 No. A-110, Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations.

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

7 CFR Part 3407—CSREES procedures to implement the National Environmental Policy Act of 1969, as amended. 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 annual and summary evaluation reports via the CSREES Current Research Information System (CRIS). CRIS is an electronic, Web-based inventory system that facilitates both grantee submissions of project outcomes and public access to information on Federally-funded projects. It can be accessed at http://cris.csrees.usda.gov/.

If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

PART VII—AGENCY CONTACTS

Applicants and other interested parties are encouraged to contact the NRI:
Telephone: (202) 401-5022;
fax, (202) 401-6488;
e-mail, nricgp@csrees.usda.gov .
Specific questions pertaining to technical matters may be directed to the appropriate National Program Leader listed in the directory at the end of the document.

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 PD 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) Changes in Project Period: The project period may be extended by CSREES without additional financial support, for such additional period(s) as the ADO determines may be necessary to complete or fulfill the purposes of an approved project, but in no case shall the total project period exceed five years. Any extension of time shall be conditioned upon prior request by the grantee and approval in writing by the ADO, unless prescribed otherwise in the terms and conditions of a grant.

(f) Changes in Approved Budget: 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 CSREES 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 copy of an application that does not result in a grant will be retained by the Agency for a period of three years. Other copies will be destroyed. 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 the NRI 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.

The NRI 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 the NRI for a period of three years. The remaining copies will be destroyed.

F. Materials Available on the Internet
The following are among the materials available on the NRI page (http://www.csrees.usda.gov/funding/nri/nri.html).

1. NRI 2008 Request for Applications

2. NRI Abstracts of Funded Research and Integrated Projects

3. NRI Annual Reports

G. Electronic Subscription to NRI Announcements
If you would like to receive notifications of all new announcements pertaining to the NRI 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 "10.206" 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 NRI announcements. You do not need to be a registered user of Grants.gov to use this service. You may modify your email subscriptions or unsubscribe at any time.

H. Definitions
For the purpose of this program, the following definitions are applicable:

Administrator means the Administrator of the Cooperative State Research, Education, and Extension Service (CSREES) and any other officer or employee of the Department to whom the authority involved is delegated.

Authorized departmental officer means the Secretary or any employee of the Department who has the authority to issue or modify grant instruments on behalf of the Secretary.

Authorized organizational representative means the president, director, or chief executive officer or other designated official of the applicant organization who has the authority to commit the resources of the organization.

Department or *USDA* means the United States Department of Agriculture.
Education Activity means 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.

Extension Activity means an act or process that delivers science-based knowledge and informal educational programs to people outside of the traditional classroom, enabling them to make more informed practical decisions.

Fundamental research is research that tests scientific hypotheses and provides basic knowledge that enables advances in applied research and from which major conceptual breakthroughs are expected to occur.

Grant means the award by the Secretary of funds to an eligible organization or individual to assist in meeting the costs of conducting, for the benefit of the public, an identified project that is intended and designed to accomplish the purpose of the program as identified in these guidelines.

Grantee means an organization designated in the grant award document as the responsible legal entity to which a grant is awarded.

Integrated means to bring together two or more of the three components of the agricultural knowledge system (research, education, and extension) together around a problem area or issue.

Matching means that portion of allowable project costs not borne by the Federal Government, including the value of in-kind contributions.

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 (see Part III, B.).

Minority-serving institution means an academic institution whose enrollment of a single minority or a combination of minorities, as defined in this section, exceeds fifty percent of the total enrollment, including graduate and undergraduate applied research and full- and part-time students. (Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter). 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).

Mission-Linked Research is research on specifically identified agricultural problems which, through a continuum of efforts, provides information and technology that may be transferred to users and may relate to a product, practice or process.

Multidisciplinary project means research, education and extension projects in which investigators from two or more disciplines are collaborating closely. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.

Peer review means an evaluation of a proposed project for scientific or technical quality and relevance performed by experts with the scientific knowledge and technical skills to conduct the proposed work or to give expert advice on the merits of an application.

Prior approval means written approval evidencing prior consent by an authorized departmental officer, as defined above.

Project means the particular activity within the scope of the program supported by a grant award.

Project director means the single individual designated in the grant application and approved by the Secretary who is responsible for the direction and management of the project.

Project period means the period, as stated in the award document, during which Federal sponsorship begins and ends.

Research activity means a scientific investigation or inquiry which results in the generation of knowledge.

Secretary means the Secretary of Agriculture and any other officer or employee of the Department to whom the authority involved is delegated.

Small and mid-sized institutions **for Integrated Projects** are academic institutions with a current total enrollment of 15,000 or less including graduate and undergraduate and full- and part-time students and that are no higher than the 50^{th} percentile of academic institutions funded by the NRI Program in the past three years and are not within the top 100 Federally funded institutions (See Table 3 at the end of this document for an alphabetical listing of the most successful institutions). Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter. 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).

Small and mid-sized institutions **for Research Projects** are academic institutions with a current total enrollment of 15,000 or less including graduate and undergraduate and full- and part-time students. Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter. 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).

TABLE 1. Most Successful Universities and Colleges Receiving Federal Funds

Use to Determine Eligibility for Strengthening Research Awards - Most Successful Universities and Colleges Receiving Federal Funds for Science and Engineering Research and Development in FY 2003

The following institutions are NOT eligible for equipment grants:

Baylor College of Medicine	University of California Santa Barbara
Boston University	University of Chicago
Brown University	University of Cincinnati
California Institute of Technology	University of Colorado Boulder
Carnegie-Mellon University	University of Colorado Health Sciences Center
Case Western Reserve University	University of Connecticut
Colorado State University	University of Florida
Columbia University	University of Georgia
Cornell University	University of Hawaii Manoa
CUNY Mount Sinai School of Medicine	University of Kentucky
Dartmouth College	University of Illinois Urbana-Champaign
Duke University	University of Illinois Chicago
Emory University	University of Iowa
Florida State University	University of Maryland Baltimore Prof School
Georgetown University	University of Maryland College Park
Georgia Institute of Technology	University of Massachusetts Amherst
Harvard University	University of Massachusetts Medical School Worcester
Indiana University Purdue University at Indianapolis	University of Medicine and Dentistry of New Jersey
Iowa State University	University of Miami
Johns Hopkins University	University of Michigan Ann Arbor
Massachusetts Institute of Technology	University of Minnesota Twin Cities
Medical College of Wisconsin	University of Missouri Columbia
Medical University of South Carolina	University of New Mexico
Michigan State University	University of North Carolina Chapel Hill
New York University	University of Pennsylvania
North Carolina State University	University of Pittsburgh
Northwestern University	University of Rochester
Ohio State University	University of South Florida
Oregon Health Sciences University	University of Southern California
Oregon State University	University of Texas at Austin
Pennsylvania State University	University of Texas Health Science Center Houston
Princeton University	University of Texas Health Science Center San Antonio
Purdue University	University of Texas MD Anderson Cancer Center
Rockefeller University	University of Texas Medical Branch Galveston
Rutgers, The State University of New Jersey	University of Texas SW Medical Center Dallas
Scripps Research Institute	University of Utah
Stanford University	University of Vermont
State University of New York at Stony Brook	University of Virginia
Thomas Jefferson University	University of Washington

Tulane University	University of Wisconsin Madison
University Corporation for Atmospheric Research	Utah State University
University of Alabama Birmingham	Vanderbilt University
University of Arizona	Virginia Commonwealth University
University of California Berkeley	Wake Forest University
University of California Davis	Washington University
University of California Irvine	Wayne State University
University of California Los Angeles	Woods Hole Oceanographic Institute
University of California San Diego	Yale University
University of California San Francisco	Yeshiva University, New York

Based on data from the table 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 2003 of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

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 – Lowest One Third of Universities and Colleges Receiving Federal Funds for Science and Engineering Research and Development in FY 2002[5]

Abilene Christian University	Ms-Al Sea Grant Consortium
Adelphi College	MT State University Northern
Agnes Scott College	Mt. Mercy College
Ak Pacific University	Muhlenberg College
Alamo Community College District All Campuses	Niagara University
Albany College Of Pharmacy	Nj City University
Albany State University	North GA College And State University
Albion College	Northern Mi University
Alderson-Broaddus College	Northland College
Alma College	Northwest Mo State University
American Indian Higher Ed. Consortium	Northwestern College (Orange City, IA)
American River College	Northwestern State University
Andrews University	NY Institute Of Technology All Campuses
Angelo State University	Occidental College
Appalachian State University	Oklahoma City Community College
Ar Tech University	Pacific Lutheran University
Ashland University	Paine College
Assumption College	Pasadena City College
Augustana College (Rock Island, Il)	Paul Smith's College Of Arts And Sciences
Austin College	Philadelphia University
Avila University	Phoenix College
Bank Street College Of Ed.	Pontifical Catholic University PR, The
Beloit College	Prince George's Community College
Bentley College	Radford University
Berry College	Ramapo College Nj
Bethel College And Seminary All Campuses	Regis University
Bethune Cookman College	Rhodes College
Bevill State Community Collegewalker Campus	Richard Stockton College Nj
Birmingham Southern College	Rider University
Bloomsburg University PA	Roanoke College
Bradley University	Rockhurst University
Brenau University	Rocky Mountain College
Butler University	Rogue Community College
Cameron University	Rollins College
Canisius College	Rose-Hulman Institute Of Technology
Cankdeska Cikana Community College	Rust College
Central CT State University	Salisbury University
Central Ga Technical College	San Jacinto College
Chaminade University Honolulu	Savannah State University

Chapman University	Science & Engineering Alliance, InCollege
Chief Dull Knife College	Siena College
City Colleges Chicago All Campuses	Simpson College (Indianola, Ia)
Claremont Mckenna College	Sisseton-Wahpeton Community College
Coe College	Sistema Universitario Ana G. Mendez
Colby College	Sitting Bull College
College Of Menominee Nation	Sojourner-Douglas College
College Of St. Catherine	South Tx Community College
College Of St. Scholastica	Southeast Mo State University
College Of The Holy Cross	Southeastern Ok State University
College Wooster	Southern Ct State University
Columbus State University	Southern IL University
Contra Costa Community College	Southwest FL College
Cooper Union	Southwest Mo State University
Coppin State College	Southwestern Indian Polytechnic Institute
Culture And Arts Development	Springfield College (Springfield, Ma)
Cuny	St. Anselm College
Cuny Medgar Evers College	St. Francis College (Brooklyn, Ny)
Daytona Beach Community College	St. Joseph's College (North Windham, Me)
Delta State University	St. Mary's College CA
Dillard University	St. Mary's University (San Antonio, Tx)
Dowling College	St. Norbert College
Drake University	St. Paul Technical College
D'Youville College	St. Peter's College
Earlham College And Earlham School Of Religion	State University West Ga
Eastern WA University	Stephens College
Eckerd College	Sterling College (Craftbury Common, Vt)
Emerson College	Stillman College
Emporia State University	Suny College Cortland
Estrella Mountain Community College	Suny College Fredonia
Evergreen State College	SUNY College Of Technology Alfred
Fairmont State College	Suny College Oneonta
Five Colleges, InCollege	Suny College Potsdam
FL Gulf Coast University	Suny New Paltz
Francis Marion University	Suny Purchase College
Frederick Community College	Sweet Briar College
Frostburg State University	Talladega College
Ft. Berthold Community College	Taylor University Upland
Ft. Hays State University	Thomas More College
Ft. Lewis College	Trinity College (Harford, Ct)
GA Perimeter College	Trinity College (Washington, Dc)
Gallaudet University	Tri-State University
Gem National Consortium For Graduate Degrees For Minorities In Engineering And Science	Tx A&M International University

Geneva College	Tx A&M University System Health Science Ctr.
Gordon-Conwell Theological Seminary	Uniformed Services University Of The Health Sciences
Goucher College	United Tribes Technical College
Grand Valley State University	Universidad Del Este
Grinnell College	Universidad Del Turabo
Gulf Coast Ed. Initiative Consortium	University Ar Monticello
Gustavus Adolphus College	University Central Ar
Hartwick College	University Central Ok
Haskell Indian Nations University	University Charleston
Hostos Community College Cuny	University Consortium For Geographic Information Science
Il Wesleyan University	University Detroit Mercy
Immaculata University	University Evansville
Indiana University PA All Campuses	University Md University College
Institute Of American Indian And AK Native	University Me Farmington
International American University Pr	University Mt-Western, The
Isim University	University NC Asheville
Jacksonville State University	University New Haven
Jacksonville University	University Of St. Thomas (Houston, Tx)
Jarvis Christian College	University Of The Incarnate World
Judson College (Elgin, Il)	University Of The Sacred Heart
Juniata College	University Of The South
Kettering University	University Puget Sound
Keuka College	University Scranton
Lac Courte Oreilles Ojibwa Community College	University Southern Co
Lake Forest College	University TN Space Institute
Lamar University	University Wi Stevens Point
Lane College	University WI Stout
Lawrence Technological University	University Wi Whitewater
Lawson State Community College	UniversityS. Military Academy
Le Moyne-Owen College	Va Union University
Le Tourneau University	Valdosta State University
Liberty University	Wabash College
Los Angeles Community College	Washington And Lee University
Loyola College	Washington County Technical College
Loyola University Of New Orleans	West Chester University Pa
Lubbock Christian University	West Tx A&M University
Luther College	Western Carolina University
Lynchburg College	Western New England College
Lyon College	Western Wi Technical College
Ma Bay Community College	Westmont College
Macon State College	Wheaton College (Wheaton, Il)
Mary Baldwin College	Whitworth College
Marymount College (Tarrytown, Ny)	Wi Lutheran College

Mcdaniel College	Widener University All Campuses
Mcpherson College	Wilkes University
Medaille College	Willamette University
Medvance Institute	Winona State University
Millsaps College	Winthrop University
MN State Colleges & Universities	Xavier University
MN State University Moorhead	Yavapai College

Based on data from the table, Federal obligations for science and engineering research and development to universities and colleges, ranked by total amount received, by agency: FY 2002 Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

[5] University-administered foundations must contact CSREES' Competitive Programs Unit to determine their eligibility (see contact information on p. 136).

TABLE 3. Most Successful Universities and Colleges Receiving Federal and/or NRI Funds

Use to Determine Eligibility for Bridge Grants-Most Successful Universities and Colleges Receiving Federal and/or National Research Initiative Funds

Alabama A & M University*	University of California Los Angeles
Auburn University *	University of California Riverside *
Baylor College of Medicine	University of California San Diego
Baylor University *	University of California San Francisco
Boise State University *	University of California Santa Barbara
Boston University	University of California Santa Cruz *
Brown University	University of Chicago
California Institute of Technology	University of Cincinnati
California State Polytechnic University *	University of Colorado Boulder
Carnegie-Mellon University	University of Connecticut
Case Western Reserve University	University of Delaware *
City University of New York, City College*	University of Florida
Clemson University *	University of Georgia
Colorado State University	University of Hawaii Manoa
Columbia University	University of Idaho *
Cornell University	University of Illinois Chicago
CUNY Mount Sinai School of Medicine	University of Illinois Urbana-Champaign
Dartmouth College	University of Iowa
Drew University*	University of Kansas
Duke University	University of Kentucky
Emory University	University of Maine Orono *
Florida State University	University of Maryland Baltimore Prof Sch
Georgetown University	University of Maryland Biotechnology Institute *
Georgia Institute of Technology	University of Maryland College Park
Harvard University	University of Massachusetts Amherst *
Illinois State University *	University of Massachusetts Medical School Worcester
Indiana University Bloomington *	University of Medicine and Dentistry of New Jersey
Indiana University Purdue University at Indianapolis	University of Miami
Iowa State University *	University of Michigan Ann Arbor
Johns Hopkins University	University of Minnesota Twin Cities
Kansas State University *	University of Mississippi *
Louisiana State University *	University of Mississippi Medical Center *
Loyola University Chicago *	University of Missouri Columbia
Massachusetts Institute of Technology	University of Missouri Rolla *
Medical College of Wisconsin	University of Missouri St. Louis *
Medical University of South Carolina	University of Montana *
Miami University*	University of Nebraska Lincoln *
Michigan State University	University of Nebraska Kearney *
Michigan Technological University *	University of Nevada Las Vegas *

Mississippi State University	University of Nevada Reno *
Montana State University *	University of New Hampshire *
New Mexico Institute of Mining and Technology *	University of New Mexico
New Mexico State University *	University of North Carolina Chapel Hill
New York University	University of North Carolina Greensboro *
North Carolina State University *	University of North Texas *
North Dakota State University *	University of Notre Dame *
Northern Arizona University *	University of Oklahoma Health Sciences Center *
Northwestern University	University of Oregon *
Ohio State University	University of Pennsylvania
Oklahoma State University *	University of Pittsburgh
Oregon Health Sciences University	University of Rhode Island *
Oregon State University	University of Rochester
Pennsylvania State University	University of South Florida
Princeton University	University of Southern California
Purdue University	University of Tennessee Knoxville *
Rice University *	University of Texas at Austin
Rockefeller University	University of Texas Health Science Center San Antonio
Rutgers, The State University of New Jersey	University of Texas Health Science Center Houston
Scripps Research Institute	University of Texas MD Anderson Cancer Center
South Dakota State University *	University of Texas Medical Branch Galveston
Southern Illinois University Carbondale *	University of Texas SW Medical Center Dallas
Southwestern Indian Polytechnic Institute *	University of Utah
Stanford University	University of Vermont
State University of New York at Albany *	University of Virginia
State University of New York at Stony Brook	University of Washington
State University of New York College of Environmental Science & Forestry *	University of Wisconsin Madison
Texas A&M University *	University of Wyoming *
Texas Tech University *	Utah State University
Thomas Jefferson University	Vanderbilt University
Tufts University *	Virginia Commonwealth University
Tulane University	Virginia Institute of Marine Science *
University of Alabama Birmingham	Wake Forest University
University of Alaska Fairbanks *	Washington State University *
University of Arizona	Washington University
University of Arkansas Fayetteville *	Wayne State University
University of California Berkeley	West Virginia University *
University of California Davis	Woods Hole Oceanographic Institute
University of California Irvine	Yale University
	Yeshiva University New York

Based on data from the table 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 2003 of Federal

Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

*Annotated institutions are not in the list for the most successful Federally funded, but were among the top 50th percentile of those funded by the National Research Initiative (Competitive, Special, and Facilities Research Grant Act (7 U.S.COLLEGE 450i(b)).

NRI DEADLINE DATES FOR FY 2008

The following dates have been established for FY 2008 application submission deadlines within the NRI Program, CSREES, United States Department of Agriculture. To be considered for funding in any fiscal year, applications must be SUBMITTED TO Grants.gov by Close of Business (5:00 P.M., Eastern Time) on the date listed below. When the deadline date falls on a weekend or Federal holiday, transmission must be made by the following business day.

In FY 2008 several programs require a letter of intent prior to submission of the full application. Select individuals will be invited to submit a complete application by the program's deadline. Applications submitted to programs requiring a letter of intent without the proper invitation will be returned without review.

Programs offered in any fiscal year depend on availability of funds and deadlines may be delayed due to unforeseen circumstances. Consult the NRI home page (http://www.csrees.usda.gov/funding/nri/nri.html) for up-to-date information.

TABLE 4 NRI Personnel Contact Information

Deputy Administrator	Dr. Anna Palmisano	apalmisano@csrees.usda.gov	(202) 401-1761
Research Director	Dr. Mark Poth	mpoth@csrees.usda.gov	(202) 401-5244
Integrated Programs Director	Dr. Deborah Sheely	dsheely@csrees.usda.gov	(202) 401-1924
Extension and Education Advisor	Dr. Elbert Dickey	edickey@csrees.usda.gov	(202) 205-5700
Science Advisor	Dr. Larry Robinson	lrobinson@csreesu.usda.gov	(202) 720-1765
Microbial Genomics	Dr. Ann Lichens-Park Dr. Daniel Jones	apark@csrees.usda.gov djones@csrees.usda.gov	(202) 401-6460 (202) 401-6854
Microbial Biology	Dr. John L. Sherwood Dr. Ann Lichens-Park	jsherwood@csrees.usda.gov apark@csrees.usda.gov	(202) 690-1659 (202) 401-6460
Plant Genome	Dr. Ed Kaleikau	ekaleikau@csrees.usda.gov	(202) 401-1931
Plant Biosecurity	Dr. Liang-Shiou Lin Dr. John L. Sherwood	llin@csrees.usda.gov jsherwood@csrees.usda.gov	(202) 401-5042 (202) 690-1659
Arthropod and Nematode Biology and Management	Dr. Mary Purcell-Miramontes	mpurcell@csrees.usda.gov	(202) 205-0440
Animal Genome	Dr. Peter Burfening Dr. Muquarrab Qureshi	pburfening@csrees.usda.gov mqureshi@csrees.usda.gov	(202) 401-5823 (202) 401-4895
Animal Protection and Biosecurity	Dr. Peter Brayton Dr. Peter Johnson	pbrayton@csrees.usda.gov pjohnson@csrees.usda.gov	(202) 401-4399 (202) 401-1896
Animal Reproduction	Dr. Mark Mirando	mmirando@csrees.usda.gov	(202) 401-4336
Animal Growth and Nutrient Utilization	Dr. Mark Mirando	mmirando@csrees.usda.gov	(202) 401-4336
Plant Biology	Dr. Liang-Shiou Lin Dr. Gail McLean	llin@csrees.usda.gov gmclean@csrees.usda.gov	(202) 401-5042 (202) 401-6060
Agribusiness Markets and Trade	Dr. Siva Sureshwaran	ssureshwaran@csrees.usda.gov	(202) 720-7536
Biobased Products and Bioenergy Production Research	Dr. Chavonda Jacobs-Young	cjacobs@csrees.usda.gov	(202) 401-6188
Nanoscale Science and Engineering for Agriculture and Food Systems	Dr. Hongda Chen	hchen@csrees.usda.gov	(202) 401-6497
Bioactive Food Components for Optimal Health	Dr. Etta Saltos	esaltos@csrees.usda.gov	(202) 401-5178
Human Nutrition and Obesity	Dr. Etta Saltos Dr. Susan Welsh	esaltos@csrees.usda.gov swelsh@csrees.usda.gov	(202) 401-5178 (202) 720-5544
Food Safety and Epidemiology	Dr. Chris Wozniak Dr. Mary Torrence	cwozniak@csrees.usda.gov mtorrence@csrees.usda.gov	(202) 401-6020 (202) 401-6357
Improving Food Quality and Value	Dr. Ram Rao Dr. Hongda Chen	rrao@csrees.usda.gov hchen@csrees.usda.gov	(202) 401-6010 (202) 401-6497
Managed Ecosystems	Dr. Diana Jerkins	djerkins@csrees.usda.gov	(202) 401-6996
Soil Processes	Dr. Nancy Cavallaro	ncavallaro@csrees.usda.gov	(202) 401-4082
Water and Watersheds	Ms. Mary Ann Rozum	mrozum@csrees.usda.gov	(202) 401-4533
Global and Climate Change	Dr. Nancy Cavallaro Dr. Louie Tupas	ncavallaro@csrees.usda.gov ltupas@csrees.usda.gov	(202) 401-4082 (202) 401-4926
Air Quality	Dr. Ray Knighton	rknighton@csrees.usda.gov	(202) 401-6417
Biology of Weedy and Invasive Species in Agroecosystems	Dr. Michael Bowers	mbowers@csrees.usda.gov	(202) 401-4510
Rural Development	Dr. Siva Sureshwaran	ssureshwaran@csrees.usda.gov	(202) 720-7536
Agricultural Prosperity for Small and Medium-Sized Farms	Dr. Siva Sureshwaran Dr. Diana Jerkins	ssureshwaran@csrees.usda.gov djerkins@csrees.usda.gov	(202) 720-7536 (202) 401-6996

TABLE 5 NRI Program Deadline Date

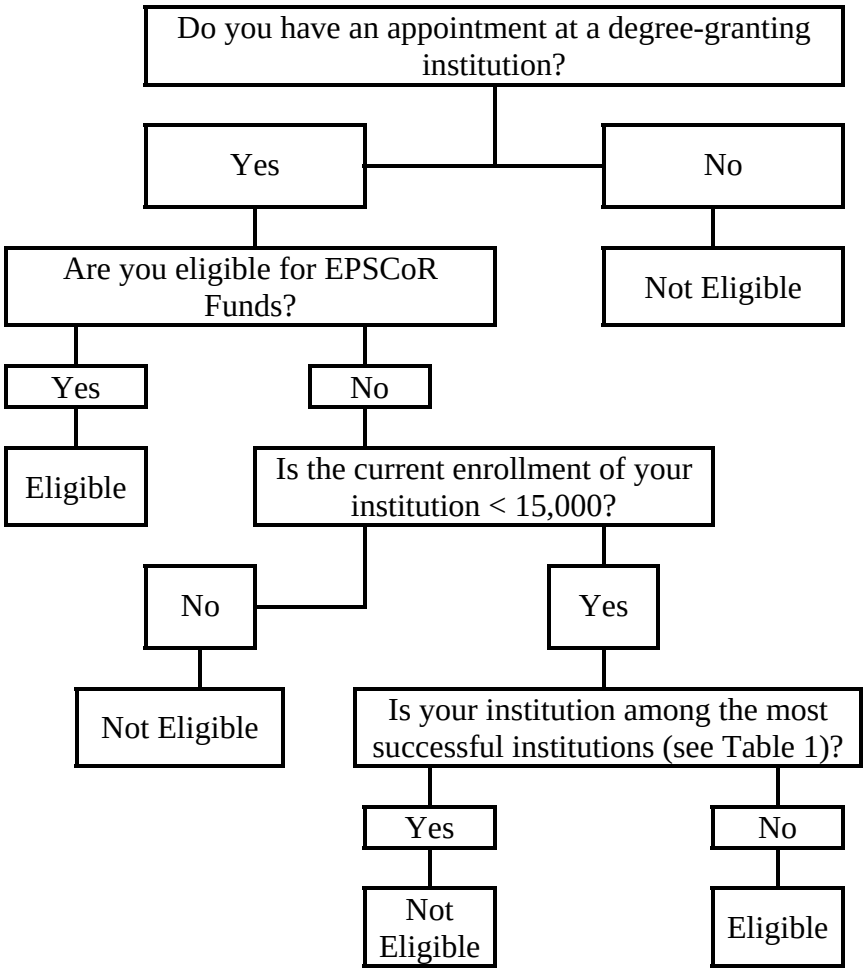
Code	Program	National Program Leader	Integrated	Letter of Intent Deadline	Application Deadline
20.2	Plant Biosecurity[6]	Dr. Liang-Shiou Lin Dr. John L. Sherwood	Yes	3/14/2008	6/5/2008
23.1	Managed Ecosystems[7]	Dr. Diana Jerkins	Yes	10/9/2007	12/19/2007
25.0	Soil Processes[8]	Dr. Nancy Cavallaro	No	11/19/2007	2/14/2008
26.0	Water and Watersheds[8]	Ms. Mary Ann Rozum	No	No	1/17/2008
27.0	Global and Climate Change	Dr. Nancy Cavallaro Dr. Louie Tupas	No	No	not offered
28.0	Air Quality[7]	Dr. Ray Knighton	Yes	3/5/2008	6/5/2008
31.0	Bioactive Food Components for Optimal Health[7]	Dr. Etta Saltos	Yes	11/5/2007	1/17/2008
31.5	Human Nutrition and Obesity[7]	Dr. Etta Saltos Dr. Susan Welsh	Yes	No	6/5/2008
32.0	Food Safety and Epidemiology (A): Biological Approaches for Food Safety[8]	Dr. Chris Wozniak	No	No	12/19/2007
32.0	Food Safety and Epidemiology (B): Epidemiological Approaches for Food Safety[8]	Dr. Mary E. Torrence	No	No	12/19/2007
41.0	Animal Reproduction[7]	Dr. Mark Mirando	Yes	No	11/15/2007
42.0	Animal Growth and Nutrient Utilization[7]	Dr. Mark Mirando	Yes	No	6/5/2008
43.0	Animal Genome (A): Translational Animal Genomics[7]	Dr. Peter J. Burfening Dr. Muquarrab Qureshi	Yes	3/14/2008	6/5/2008
43.0	Animal Genome (B): Tools and Resources[8]	Dr. Peter J. Burfening Dr. Muquarrab Qureshi	No	No	6/5/2008
43.0	Animal Genome (C):Bioinformatics[8]	Dr. Peter J. Burfening Dr. Muquarrab Qureshi	No	No	6/5/2008
43.0	Animal Genome (D): Functional Genomics[8]	Dr. Peter J. Burfening Dr. Muquarrab Qureshi	No	3/14/2008	6/5/2008
43.0	Animal Genome (E): Whole Genome Enabled Animal Selection[8]	Dr. Peter J. Burfening Dr. Muquarrab Qureshi	No	11/26/2007	2/14/2008
44.0	Animal Protection and Biosecurity (A): Animal Disease[8]	Dr. Peter Johnson Dr. Peter Brayton	No	10/9/2007	12/19/2007
44.0	Animal Protection and Biosecurity (B): Animal Well-Being[7]	Dr. Peter Brayton	Yes	No	12/19/2007
44.0	Animal Protection and Biosecurity (C):Animal Biosecurity CAP[6]	Dr. Peter Johnson	Yes	No	12/19/2007
51.0	Microbial Genomics (A): Genome Sequencing[8]	Dr. Ann Lichens-Park Dr. Daniel Jones	No	No	see NSF
51.0	Microbial Genomics (B): Functional Genomics of Microorganisms	Dr. Ann Lichens-Park	No	No	not offered
51.2	Arthropod and Nematode Biology and Management (A): Organismal and Population Biology[8]	Dr. Mary Purcell-Miramontes	No	11/26/2007	2/14/2008
51.2	Arthropod and Nematode Biology and Management (B): Suborganismal Biology[8]	Dr. Mary Purcell-Miramontes	No	3/14/2008	6/5/2008

Code	Program	National Program Leader	Integrated	Letter of Intent Deadline	Application Deadline
51.2	Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics[8]	Dr. Mary Purcell-Miramontes	No	314/2008	6/5/2008
51.2	Arthropod and Nematode Biology and Management (D): Protection of Managed Bees CAP[6]	Dr. Mary Purcell-Miramontes	Yes	11/26/2007	2/14/2008
51.8	Microbial Biology (A): Microbial Observatories[8]	Dr. John Sherwood	No	No	see NSF
51.8	Microbial Biology (B): Microbial Associations with Plants[8]	Dr. Ann Lichens-Park	No	10/9/2007	12/19/2007
51.9	Biology of Weedy and Invasive Species in Agroecosystems[7]	Dr. Michael Bowers	Yes	12/6/2007	3/5/2008
52.1	Plant Genome (A): Tools, Resources, and Bioinformatics[8]	Dr. Ed Kaleikau	No	No	2/14/2008
52.1	Plant Genome (B): Functional Genomics[8]	Dr. Ed Kaleikau	No	No	2/14/2008
52.1	Plant Genome (C):Genome Structure and Organization[8]	Dr. Ed Kaleikau	No	No	2/14/2008
52.1	Plant Genome (D): Applied Plant Genomics CAP[6]	Dr. Ed Kaleikau	Yes	11/26/2007	2/14/2008
56.0	Plant Biology (A): Gene Function and Regulation[8]	Dr. Liang-Shiou Lin	No	10/9/2007	12/19/2007
56.0	Plant Biology (B): Environmental Stress[8]	Dr. Gail McLean	No	10/9/2007	12/19/2007
56.0	Plant Biology (C): Biochemistry[8]	Dr. Gail McLean	No	11/26/2007	2/14/2008
56.0	Plant Biology (D): Growth and Development[8]	Dr. Liang-Shiou Lin	No	11/26/2007	2/14/2008
56.0	Plant Biology (E): Plant Breeding and Education[6]	Dr. Liang-Shiou Lin Dr. Gail McLean	Yes	10/9/2007	12/19/2007
61.0	Agribusiness Markets and Trade	Dr. Siva Sureshwaran	No	No	not offered
62.0	Rural Development[6]	Dr. Siva Sureshwaran	Yes	No	2/14/2008
66.0	Agricultural Prosperity for Small and Medium-Sized Farms[6]	Dr. Siva Sureshwaran Dr. Diana Jerkins	Yes	No	6/5/2008
71.1	Improving Food Quality and Value[7]	Dr. Ram Rao	Yes	11/5/2007	1/17/2008
71.2	Biobased Products and Bioenergy Production Research[8]	Dr. Chavonda Jacobs-Young	No	11/2/2007	1/17/2008
75.0	Nanoscale Science and Engineering for Agriculture and Food Systems[8]	Dr. Hongda Chen	No	No	1/17/2008

[6] This program only solicits integrated projects.
[7] This program solicits integrated and research projects.
[8] This program only solicits research projects.

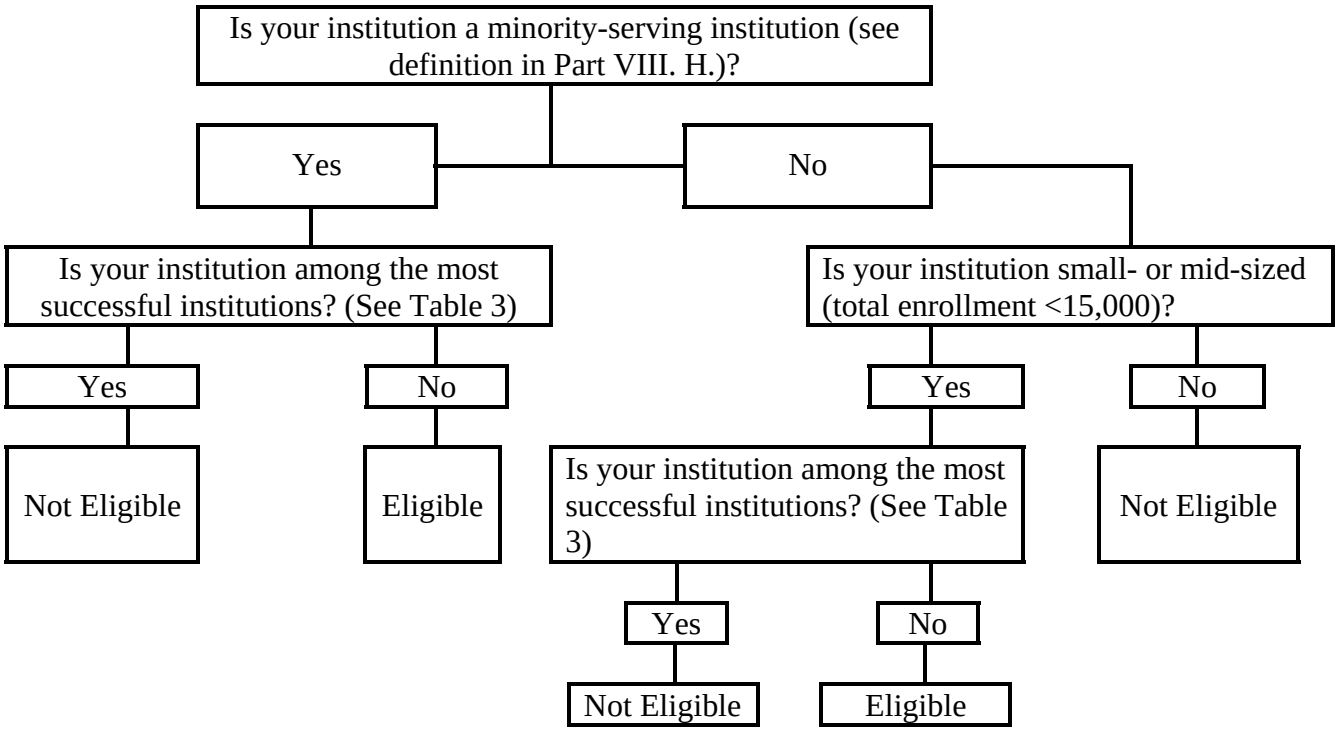
FIGURE 1. Flow Chart for Strengthening Research Award Eligibility

(Seed Grants, Research Career Enhancement Awards, Strengthening Standard Awards; **NOT Equipment Grants***)



*The only requirements for Equipment Grants are that the institution is degree granting and not among the Most Successful Universities and Colleges (see Table 1).

FIGURE 2. Flow Chart for Bridge Grant Eligibility



NRI Application Checklist

Only electronic applications may be submitted to CSREES via Grants.gov in response to this RFA. All applications submitted under the NRI must contain the applicable elements outlined in these guidelines. The following checklist has been prepared to assist in ensuring that the application is complete prior to submission:

? Are you eligible to apply for the funding offered in this RFA? Eligibility information is detailed in Part III, Eligibility Information.

? Have all attachments been submitted in portable document format (PDF)? CSREES will only accept PDF attachments. See Part III of the CSREES Grants.gov Application Guide.

? Have you followed the guidelines for filling out your electronic application provided in the CSREES Grants.gov Application Guide, which is posted along with the electronic SF 424 R&R application package on Grants.gov?

? Have you followed the guidelines for filling out your electronic application provided in this RFA?

? Do all submitted PDF documents have one-inch margins and are typed or word processed using no font size smaller than 12 point and six lines per inch? Are all PDF documents numbered sequentially on each page of the attachment? Are all page limitations for a given attachment followed? Submitted proposals that do not meet these requirements for PDF attachments are at risk for being returned without review.

? Have all components of the SF 424 Research and Related (R&R) Application Package been completed? Did you use the "Check Package for Errors" feature of the PureEdge viewer (see section 1.8 of the CSREES Grants.gov Application Guide)?

- ☐ SF 424 R&R Cover Sheet
- ☐ R&R Other Project Information
- ☐ R&R Senior/Key Person Profile
- ☐ R&R Personal Data
- ☐ R&R Budget
- ☐ CSREES Supplemental Information Form
- ☐ NRI Proposal Type Form
- ☐ R&R Subaward Budget Attachment Form (if applicable)

? <u>SF 424 R&R Cover Sheet</u>

- Have all required fields been completed?

<u>R&R Other Project Information</u>

- Has field 4, describing project potential or actual environmental impact, been properly completed?

- <u>Project Summary/Abstract</u>
  Did you use the suggested Project Summary/Abstract Template found at:
  http://www.csrees.usda.gov/funding/templates/project_summary.doc?
  Has the Project Summary PDF been attached to this form in Field 6?
  Are the names and affiliated organizations of all Project Directors listed at the top of the page in addition to the title of the project?
  Has a specific program priority been identified in the Project Summary?
  Does the Project Summary include research, education, and/or extension objectives, as appropriate?
  Does this section adhere to the format and page limitations?
  If the application is a resubmission, does it respond to previous review?

- <u>Project Narrative</u>
  Has the Project Narrative PDF been attached to this form in Field 7?
  Is the project fully described?
  If a renewal application, is a clearly marked progress report included?
  Does this section adhere to the format and page limitations?

- <u>Response to Previous Review</u> (for resubmissions and resubmitted applications)
  Has the Response to Previous Review been included in the Project Narrative?
  Are comments from the previous review addressed?
  Has the application been clearly and meaningfully revised and are the revisions briefly described?

- <u>Bibliography & References Cited</u>
  Has the Bibliography & References Cited PDF been attached to this form in Field 8?
  Are all references cited and are all citations referenced?
  Do all citations contain a title, the names of all authors, and are they in accepted journal format?

- <u>Facilities & Other Resources</u>
  Has the Facilities & Other Resources PDF been attached to this form in Field 9?
  Has a description of facilities, sufficient to indicate you will be able to carry out this project, been given?

- <u>Equipment</u>
  Has the Equipment PDF been attached to this form in Field 10?
  Is the description of your equipment sufficient to indicate that you will be able to carry out this project?

- <u>Key Personnel & Management Plan</u>
  Has the Key Personnel & Management Plan PDF been attached to this form in Field 11?
  Are roles and responsibilities of the PD, co-PD(s), and/or collaborator(s) clearly described?
  For integrated projects only, are the management plan and timeline for project implementation clearly described?

- <u>Collaborative Arrangements</u>
  Has the Collaborative Arrangements PDF been attached to this form in Field 11?

- <u>Results from Prior NRI Support (if appropriate)</u>
  Has the Results from Prior NRI Support PDF been attached to this form in Field 11?
  Does this section adhere to the format and page limitations?

- <u>Appendices to Project Description</u>
  Has the Appendices to Project Description PDF been attached to this form in Field 11?
  Are the reprints/preprints limited to 2 (as described in the instructions)?

R&R Senior/Key Person Profile

- Biographical Sketch
  Has the biographical sketch (vitae) PDF for the PD and each co-PD, senior associate, and other professional personnel been attached?

- Current and Pending Support
  Did you use the suggested Current and Pending Support Template found at:
  http://www.csrees.usda.gov/funding/templates/current_pending.doc?
  Has the Current and Pending Support PDF for personnel with PD or co-PD(s) been attached?
  Have all current and pending projects been listed and summarized, **including this proposal**?

R&R Personal Data

- Have all fields been completed?

R&R Budget

- Have all fields been completed for each PD and co-PD(s)?
- Are annual and summary budgets included? For multi-institution applications, has a subaward budget been included for each institution involved?
- Budget Justification
  Has the Budget Justification PDF been attached to this form in Field K?
  Are budget items individually justified?
  For multi-institutional applications, has a budget justification been included for each institution involved?
  Have any matching requirements been addressed, if applicable?

Supplemental Information Form

- Has Field 1 been pre-populated such that "National Research Initiative Competitive Grants Program" appears for Funding Opportunity Name and "USDA-CSREES-NRI-001030" for Funding Opportunity Number?
- Does Field 2 indicate the Program Code Name and Program Code to which you are applying?
- Conflict of Interest List
  Did you use the suggested Conflict of Interest Template found at:
  http://www.csrees.usda.gov/funding/templates/conflict_of_interest.doc?
  Has the Conflict of Interest List PDF been attached to this form in Field 8?
  Has a Conflict of Interest List been provided for all individuals who have submitted a Biographical Sketch?
  Does the Conflict of Interest list include the four categories as appropriate?

NRI Proposal Type Form

- Is proposal type properly indicated on the NRI Proposal Type Form?