United States
Department of
Agriculture

Cooperative State
Research, Education,
and Extension Service

Competitive Programs

SBIR-09-1

Program Solicitation

Small Business Innovation Research Program – Phase I

Fiscal Year 2009

Phase I Closing Date: September 4, 2008

Telephone: 202-401-4002
Email: sbir@csrees.usda.gov
Internet: www.csrees.usda.gov/fo/sbir

Catalog of Federal Domestic Assistance Number (CFDA)
10.212 Small Business Innovation Research

CSREES Funding Opportunity Number
USDA-CSREES-SBIR-001725

CONTENTS

Acronym List

ADO – Authorized Departmental Officer
APHIS – Animal and Plant Health Inspection Service
AR – Authorized Representative

CCR – Central Contractor Registry
CFDA – Catalog of Federal Domestic Assistance
CFR – Code of Federal Regulations
COI – Conflict of Interest
CRADA – Cooperative Research and Development Agreement
CRIS – Current Research Information System
CSREES – Cooperative State Research, Education, and Extension Service

DHHS – Department of Health and Human Services
DUNS – Data Universal Number System

E-Business POC - E-Business Point of Contact

F&A – Facilities and Administration
FR – Federal Register
FY – Fiscal Year

HUBZONE – Historically Underutilized Business Zone

M-PIN – Marketing Partner Identification Number

NPL – National Program Leader

PD – Project Director
PDF – Portable Document Format
PI – Principle Investigator
PMS – Payment Management System
POC – Point of Contact
PRS – Peer Review System

R/R&D – Research or Research and Development
R&D – Research and Development
R&R – Research and Related
PROGRAM SOLICITATION – Request for Applications

SBA – Small Business Administration
SBC – Small Business Concern
SBIR – Small Business Innovation Research
STTR – Small Business Technology Transfer Program

U.S. – United States
USDA – United States Department of Agriculture

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

IMPORTANT CHANGES IN THE USDA SBIR Fiscal Year (FY) 2009 PROGRAM SOLICITATION

Proposed research must be responsive to one of the USDA program interests as stated in the research topic area descriptions of this solicitation, see section 8.0. The USDA does not prioritize between research topic areas. Applicants are encouraged to submit applications that focus on the research topic areas identified in this RFA. Applicants should pay attention to specific instructions located within each of the topic areas, section 8.0, when developing their applications.

The USDA SBIR program requires all FY 2009 applications be submitted electronically through Grants.gov. This SBIR program funding opportunity is for Phase I applications and has a closing date of September 4, 2008.

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF). ANY PROPOSALS CONTAINING NON-PDF DOCUMENTS WILL BE AT RISK OF BEING EXCLUDED FROM CSREES REVIEW. Partial applications will be excluded from CSREES review;**
- **Applicants must allow additional time for electronic submission and plan ahead. It is recommended that applicants begin submitting their completed application at least one day prior to the deadline;**
- **The registration procedure for companies or individual proprietorships intending to submit a grant application through Grants.gov requires several steps and must be finished prior to submitting an application. This is a one-time registration process. It can take as much as two weeks to complete, so it is critical that companies begin this process as soon as possible (See Section 3.2.2);**
- **Please note, individual proprietorships, i.e., farmers, ranchers, etc., must register with Grants.gov as organizations, not as individuals;**
- **Please note, within the Grants.gov forms, applicants will be asked to submit information relevant to specific "programs you are applying for". This refers to the "topic area," see section 8.0, to which you are submitting your USDA SBIR application;**
- Information about the forms and submission requirements for Grants.gov can be found in section 3.0 and in the Grants.gov guide that accompanies the forms on Grants.gov;
- Applications must be submitted via Grants.gov by 5:00 p.m. Eastern Time, on the Phase I deadline of September 4, 2008, as indicated under section 6.1 of this program solicitation; and
- Applicants who have problems with their submissions to Grants.gov should call the Grants.gov help desk to help resolve the problems and keep a record of any correspondence with Grants.gov regarding the submission problem.

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

Section 3.0 of this program solicitation provides additional information that is specific to the USDA SBIR program. Applicants are advised to refer to this program solicitation to determine the specific information that is required during the submission of the application to Grants.gov. The information in this program solicitation supersedes any information provided in the CSREES Application Guide.

Helpful Information for Submission	Website Address
Information pertaining to the electronic submission can be found at the CSREES website.	www.csrees.usda.gov/funding/electronic This page will be updated frequently and should be checked for program-specific help.
Applications should be submitted through the Grants.gov website.	Grants.gov
The **CSREES GRANTS.GOV Application Guide** provides guidance for completing the forms required by Grants.gov and CSREES. Used in conjunction with the program solicitation, this guide will assist applicants with most field-specific questions.	Contained within the application package is 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. **Applicants should reference this program solicitation for additional guidance not found in the application guide.**

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

If you do not own PDF-generating software, Grants.gov provides online tools to assist applicants. On the Grants.gov Customer Support Webpage (http://grants.gov/CustomerSupport) users will find a link to "Convert Documents to PDF" (http://grants.gov/assets/PDFConversion.pdf). PDF documents submitted as a part of the application must also adhere to the following guidelines:

- margins not less than 1 inch or 2.5 cm on all sides;
- type no less than 12 point font size regardless of whether it is single or double spaced;
- Font type should be "Times New Roman, Geneva, Helvetica, or Arial"; and
- Tables and graphics may be included; text for captions, headings and graphic explanations must not be smaller then 9 point and must be the same font type as the rest of the application.

APPLICATIONS RECEIVED AFTER CLOSE OF BUSINESS (COB) ON THE SPECIFIED CLOSING DATE, NOT MEETING ELIGIBILITY REQUIREMENTS AS DESCRIBED IN SECTION 1.4, OR NOT IN COMPLIANCE WITH APPLICATION GUIDELINES PROVIDED IN THIS PROGRAM SOLICITATION WILL NOT BE REVIEWED.

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

USDA recognizes **Agriculturally-related Manufacturing Technology** and **Alternative and Renewable Energy** as two cross-cutting priorities with relevance to all topic areas listed in Section 8.0 of this program solicitation. USDA encourages applicants—as appropriate—to address these priorities within their applications for submission to one of the topic areas listed in Section 8.0. Special consideration will be given to applications that address one of these priorities.

Agriculturally-related Manufacturing Technology

On February 26, 2004 the President issued Executive Order 13329 (69 FR 9181) entitled "Encouraging Innovation in Manufacturing." In response to this Executive Order, USDA encourages the submission of applications that deal with some aspect of agriculturally-related manufacturing technology (Section 2.17). Since manufacturing impacts all aspects of agriculture and rural development, applications dealing with manufacturing could be submitted to any of the topic areas. If an application has a connection to manufacturing this should be indicated in section (2) of the project narrative (the project narrative is included as an attachment in Field 7 of the R&R Other Project Information form) and a brief explanation of how it is related to manufacturing should be provided.

Alternative and Renewable Energy

In an effort to reduce the Nation's dependence on fossil fuels, the USDA has established research on alternative and renewable energy as a high priority. The research may include development of new energy crops, improved methods for producing biofuels, such as ethanol and biodiesel, producing hydrogen and other fuel gases from agricultural waste and more efficiently using energy in agricultural production and in rural communities. Energy issues impact all aspects of agriculture and rural development, and thus applications dealing with alternative and renewable energy could be submitted to a variety of topic areas. If an application has a connection to alternative and renewable energy, this should be indicated in section (2) of the project narrative (the project narrative is included as an attachment in Field 7 of the R&R Other Project Information form) and a brief explanation should be included indicating how the proposed research is related to alternative and renewable energy.

USDA'S PROGRAM SOLICITATION
SMALL BUSINESS INNOVATION RESEARCH
FISCAL YEAR 2009

1.0 GENERAL PROGRAM DESCRIPTION

1.1 Introduction

The U.S. Department of Agriculture (USDA) invites science-based small business firms to submit research applications under this program solicitation entitled "Small Business Innovation Research Program (SBIR), Fiscal Year 2009." Firms with strong scientific research capabilities in any of the topic areas described in section 8.0 are encouraged to participate. USDA will support high-quality research or research and development (R/R&D) applications containing advanced concepts related to important scientific problems and opportunities that could lead to significant public benefit.

Objectives of the SBIR program include stimulating technological innovation in the private sector, strengthening the role of small businesses in meeting Federal research and development needs, increasing private sector commercialization of innovations derived from USDA-supported research and development efforts and fostering and encouraging participation by women-owned and socially and economically disadvantaged small business firms in technological innovation.

1.2 Three-phase Program

The USDA SBIR program is carried out in three separate phases. Phase I is to determine the scientific or technical feasibility of ideas submitted by applicants on research topic areas described in section 8.0 of this solicitation. **This program solicitation is only for the preparation and submission of Phase I applications.** Phase I awards may not exceed $80,000 for a period normally not to exceed eight (8) months. However, longer grant periods, up to 20 months, may be considered (See section 4.2(E)). The Phase I application should concentrate on research that will significantly contribute to **proving the scientific or technical feasibility** of the approach or concept and will be a prerequisite to further USDA support in Phase II.

Phase II applications promote principal R/R&D and will require a more comprehensive application, outlining the proposed effort in detail. At the appropriate time, the SBIR program will provide Phase I awardees that are eligible to submit Phase II applications with instructions for preparing these applications and a deadline date (normally early February of each year) for submitting applications. USDA recognizes that Phase II awards may not be sufficient in either dollars or time for the firm to complete the total R/R&D required to bring the project results to commercialization in the market place. Therefore, completion of the research under these circumstances may have to be carried into Phase III.

The purpose of Phase III is to stimulate technological innovation and the national return on investment from research through the pursuit of commercialization objectives resulting from the USDA-supported work carried out in Phases I and II. No Federal SBIR funds may be used to support Phase III projects. However, firms are strongly encouraged to secure Phase III funding from their own resources or from other public and private sources. Additionally, Phase III is to be conducted by the small business firm, including joint ventures and limited partnerships.

This program solicitation is issued pursuant to the Small Business Innovation Development Act of 1982, Pub. L. No. 97-219, as amended (15 U.S.C. 638) and Section 630 of the Act making appropriations for Agriculture, Rural Development and Related Agencies' programs for fiscal year ending September 30, 1987, and for other purposes, as made applicable by Section 101(a) of Pub. L. No. 99-591, 100 Stat. 3341. This program is administered by the Cooperative State Research, Education, and Extension Service (CSREES) of the USDA.

This program is subject to the provisions found at 7 CFR Part 3403. These provisions set forth procedures to be followed when submitting grant applications, rules governing the evaluation of applications and the awarding of grants, and regulations relating to the post-award administration of grant projects. Changes have been made to the provisions and incorporated into this solicitation. These changes were subject to the comments provided in response to the Small Business Innovation Research Grants Program – Final Rule (72 FR 20702, April 26, 2007).

This SBIR program funding opportunity for FY 2009 Phase I applications has a closing date of September 4, 2008.

1.3 Potential Commercial Outcome

In addition to supporting scientific research and development, the program's primary goal is to provide incentive and opportunity for small business firms to convert USDA-sponsored research to technological innovation in the private sector. All proposed research should have some potential commercial outcome. Phase I applications should contain a brief description of any potential commercial application(s) and whether or not the small business firm will attempt to secure follow-on, non-SBIR funding to pursue the commercial development of the expected products from the proposed research (See Section 3.3.2 R&R Other Project Information (10) – Potential Post Application).

1.4 Eligibility

Each applicant submitting an application must qualify as a small business concern for R/R&D purposes at the time of award, see definitions in section 2.0. A potential grantee that is a subsidiary must show that the parent company is also a small business entity and the parent company must provide documentation supporting their small business status (the documentation should be included in Field 11, Other Attachments, of the Research and Related (R&R) Other Project Information form). If the parent company is not a small business entity, then the subsidiary is not eligible to submit an SBIR application. In addition, the primary employment of the Project Director must be with the small business concern at the time of award and during the conduct of the proposed research, unless otherwise approved in writing by the USDA Authorized Departmental Officer (ADO) after consultation with the appropriate National Program Leader (NPL). Primary employment means that more than one-half of the Project Director's time is spent in the employ of the small business. Primary employment with the small business precludes the applicant as a full-time employee with another organization. This requirement applies to Phase I awards. Any deviations from this requirement must be approved in writing by the (ADO) after consultation with the appropriate NPL. While the PD must work more than one-half of his/her time for the small business during the entire grant period, there is no minimal time requirement for what percentage of the Project Director's time is spent working on the proposed research.

To be eligible to receive awards from the USDA's SBIR program, a business concern must meet the requirements of paragraphs (A) and (B) below:

(A) Ownership and control.

1. An SBIR awardee must;

    a. Be a concern which is at least 51 percent owned and controlled by one or more individuals who are citizens of the United States or permanent resident aliens in the United States; or

    b. Be a concern which is at least 51 percent owned and controlled by another business concern that is itself at least 51 percent owned and controlled by individuals who are citizens of or permanent resident aliens in the United States; or

    c. Be a joint venture in which each entity to the venture must meet the requirements set forth in either paragraphs (A)(1)(a) or (A)(1)(b) of this section.

2. If an Employee Stock Option Plan owns all or part of the concern, USDA considers each stock trustee and plan member to be an owner.

3. If a trust owns all or part of the concern, USDA considers each trustee and trust beneficiary to be an owner.

(B) Size.

An SBIR awardee, together with its affiliates, must not have more than 500 employees. The small business concern must be the primary performer of the proposed research effort. In Phase I, a minimum of **two-thirds** of the research or analytical work, as determined by budget expenditures, must be performed by the proposing organization. Occasionally, deviations from this requirement may occur, and must be approved in writing by the ADO after consultation with the USDA SBIR National Program Leader/Director.

Also, for Phase I, the R/R&D work must be performed in the United States. On rare and unique circumstance, for example, a supply, material or project requirement not available in the United States, agencies may allow that particular portion of the R/R&D work be performed or obtained in a country outside of the United States. Approval, in writing, is necessary by both the responsible NPL and the ADO for such specific conditions.

1.5 Agency Contacts

Applicants and other interested parties are encouraged to contact the SBIR NPL indicated for more information about each topic area listed below.

Dr. Peter Burfening (pburfening@csrees.usda.gov)
Telephone: (202) 401- 5823
Fax: (202) 401- 6070
8.3 Animal Production and Protection

Dr. Charles Cleland (ccleland@csrees.usda.gov)
Telephone: (202) 401- 6852
Fax: (202) 401- 6070
8.1 Forests and Related Resources

8.4 Air, Water and Soils
8.7 Aquaculture
8.12 Small and Mid-Size Farms

Dr. William Goldner (wgoldner@csrees.usda.gov)
Telephone: (202) 401- 1719
Fax: (202) 401- 6070
8.2 Plant Production and Protection - Biology
8.8 Biofuels and Biobased Products
8.13 Plant Production and Protection - Engineering

Dr. Richard Hegg (rhegg@csrees.usda.gov)
Telephone: (202) 401- 6550
Fax: (202) 401- 6070
8.11 Animal Manure Management

Dr. Siva Sureshwaran (ssureshwaran@csrees.usda.gov)
Telephone: (202) 720 - 7536
Fax: (202) 401- 6070
8.6 Rural Development
8.9 Marketing and Trade

Dr. Dionne Toombs (dtoombs@csrees.usda.gov)
Telephone: (202) 401- 2138
Fax: (202) 401- 6070
8.5 Food Science and Nutrition

Questions of a general nature about this SBIR solicitation should be sent to sbir@csrees.usda.gov or can be directed to:

Mr. Scott Dockum (sbir@csrees.usda.gov)
Telephone: (202) 401- 4002 or (202) 401- 4995
Fax: (202) 401- 6070
Program Specialist – Small Business Innovation Research (SBIR)

2.0 DEFINITIONS

The following definitions apply for purposes of this solicitation:

2.1 Ad hoc Reviewers

Experts or consultants, qualified by training and experience in particular scientific or technical fields, solicited to render advice on the scientific technical merit of grant applications on an individual basis. Written evaluations of reviewed applications will be submitted for review.

2.2 Applicant

The organizational entity that, at the time of award, will qualify as a small business concern and that submits a grant application for a funding agreement under the SBIR Program.

2.3 Authorized Departmental Officer

The authorized departmental officer (ADO) is the Secretary or any employee of the Department who has the authority to issue or modify grant instruments on behalf of the Secretary

2.4 Authorized Representative

The authorized representative (AR) is the president, director, chief executive officer or other designated official of the applicant small business concern who has the authority to commit the resources of the organization.

2.5 Budget Period

Each project is divided into different intervals of time for budgetary and reporting purposes.

2.6 Commercialization

The process of developing marketable products or services as well as producing and delivering products or services for sale, whether by the originating party or by others, to Government or commercial markets.

2.7 CSREES

The Cooperative State Research, Education, and Extension Service.

2.8 Department

The U. S. Department of Agriculture.

2.9 Direct Costs

Costs that occur in direct support of a single project and can be clearly identified, segregated and billed directly to the contract via the companies' accounting system.

2.10 Essentially Equivalent Work

Occurs when (1) substantially the same research is proposed for funding in more than one grant application submitted to the same Federal agency; (2) substantially the same research is submitted to two or more different Federal agencies for review and funding consideration; or (3) a specific research objective and the research design for accomplishing an objective are the same or closely related in two or more applications or awards, regardless of the funding source.

2.11 Fee

The amount of profit a company will receive from the grant.

2.12 Funding Agreement

A funding agreement is any contract, grant or cooperative agreement entered into between any Federal agency and any small business concern for the performance of experimental, developmental or research work, including products or services funded in whole or in part by the Federal Government.

2.13 Grant

A financial assistance mechanism providing money, property or both to an eligible entity to carry out the approved project or activity. Substantial programmatic involvement by Government is not anticipated.

2.14 Grantee

The small business concern designated in the grant award document as the responsible legal entity to whom the grant is awarded under this part. Also referred to as an "awardee."

2.15 Historically Underutilized Business Zone (HUBZone)

A small business concern meeting the following criteria:

(A) Located in a "historically underutilized business zone" or HUBZone area located in one or more of the following:

(1) A qualified census tract (as defined in section 42(d)(5)(C)(i)(l) of the Internal Revenue Code of 1986); or
(2) A qualified "non-metropolitan county" (as defined in section 143(k)(2)(B) of the Internal Revenue Code of 1986); or
(3) On an Indian Reservation- Land within the boundaries of a Federally recognized Indian Reservation.

(B) Owned and controlled by one or more U.S. Citizens; and

(C) At least 35 percent of its employees must reside in a HUBZone.

2.16 Indirect Costs

Costs which occur in support of more then one project, often called overhead or General & Administrative (G&A).

2.17 Innovation

A new or improved item having marketable potential including (1) development of new technologies; (2) refinement of existing technologies; or (3) development of new applications for existing technologies.

2.18 Intellectual Property

The separate and distinct types of intangible property that are referred to collectively as "intellectual property," including but not limited to: patents, trademarks, copyrights, trade secrets, SBIR technical data (as defined in this section), ideas, designs, know-how, business, technical and research methods, other types of intangible business assets, and all types of intangible assets either proposed or generated by a small business concern as a result of its participation in the SBIR program.

2.19 Joint Venture

An association of concerns with interests in any degree or proportion by way of contract, express or implied, consorting to engage in and carry out a single specific business venture for joint profit, for which purpose they combine their efforts, property, money, skill or knowledge, but not on a continuing or permanent basis for conducting business generally. A joint venture is viewed as a business entity in determining power to control its management.

2.20 Manufacturing Related

Encompasses improvements in existing methods or processes as well as wholly new processes, machines, or systems. Four main areas include:

(A) Unit process level technologies that create or improve manufacturing processes, including:

1. Fundamental improvements in existing manufacturing processes that deliver substantial productivity, quality, or environmental benefits; or
2. Development of new manufacturing processes, including new materials, coatings, methods, and associated practices.

(B) Machine level technologies that create or improve manufacturing equipment, including:

1. Improvements in capital equipment that create increased capability, such as accuracy or repeatability, increased capacity through productivity improvements or cost reduction or increased environmental efficiency, such as safety, energy efficiency and, environmental impact; or

2. New apparatus and equipment for manufacturing, including additive and subtractive manufacturing, deformation and molding, assembly and test, semiconductor fabrication, and nanotechnology.

(C) Systems level technologies for innovation in the manufacturing enterprise, including:

1. Advances in controls, sensors, networks, and other information technologies that improve the quality and productivity of manufacturing cells, lines, systems, and facilities;
2. Innovation in extended enterprise functions critical to manufacturing, such as quality systems, resource management, supply change integration and distribution, scheduling, and tracking; or
3. Technologies that enable integrated and collaborative product and process development, including computer-aided and expert systems for design, tolerancing, process and materials selection, life-cycle cost estimation, rapid prototyping, and tooling.

(D) Environment or societal level technologies that improve workforce abilities, productivity, and manufacturing competitiveness, including:

1. Technologies for improved workforce health and safety, such as human factors and ergonomics; or
2. Technologies that aid and improve workforce manufacturing skill and technical excellence, such as educational systems incorporating improved manufacturing knowledge and instructional methods.

2.21 Outcomes

The measure of long-term, eventual program impact.

2.22 Outputs

The measures of near-term program impact.

2.23 Peer Review Group

Experts or consultants, qualified by training and experience in particular scientific or technical fields, that provide advice on the scientific and technical merit of grant applications. The group assembles to discuss and evaluate all of the eligible applications submitted to this program in their area of expertise.

2.24 Principal Investigator/Project Director (PI/PD)

The one individual designated by the applicant to provide the scientific and technical direction to a project supported by the funding agreement.

2.25 Program Solicitation

A formal request for applications whereby a Federal agency notifies the small business community of its research or Research and Development (R&D) needs and interests in broad and selected areas, as appropriate to the agency, and requests applications from small business concerns in response to these needs and interests.

2.26 Prototype

A model of something to be further developed, which includes designs, protocols, questionnaires, software, and devices.

2.27 Project Period

The total length of time approved by the Department for conducting the research project as outlined in an approved grant award.

2.28 Research or Research and Development (R/R&D)

R/R&D means any activity which is:

(1) A systematic, intensive study directed toward greater knowledge or understanding of the subject studied;
(2) A systematic study directed at applying new knowledge to meet a recognized need; or
(3) A systematic application of knowledge toward the production of useful materials, devices and systems or methods, including design, development and improvement of prototypes, and new processes to meet specific requirements.

2.29 Research Project Grant

The award by the Department to a grantee to assist in meeting the costs of conducting an identified project, which is intended and designed to establish, discover, elucidate, or confirm information or the underlying mechanisms relating to a research topic area identified in the annual solicitation of applications.

2.30 SBIR Participants

Business concerns that have received SBIR awards or that have submitted SBIR applications.

2.31 SBIR Technical Data

All data generated during the performance of an SBIR award.

2.32 SBIR Technical Data Rights

The rights a small business concern obtains in data generated during the performance of any SBIR award that an awardee delivers to the Government during or upon completion of a Federally-funded project and to which the government receives a license.

2.33 Small Business Concern (SBC)

SBC means a concern that, on the date of award for Phase I or Phase II funding agreements:

(1) is organized for profit, with a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the United States economy through the payment of taxes or use of American products, materials, or labor;

(2) is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture, there can be no more than 49 percent participation by foreign business entities in the joint venture;

(3) is at least 51 percent owned and controlled by one or more individuals who are citizens of or permanent resident aliens in, the United States, except in the case of a joint venture, where each entity in the venture must be 51 percent owned and controlled by one or more individuals who are citizens of or permanent resident aliens in the United States; and

(4) has, including its affiliates, not more than 500 employees. The term "affiliates" is defined in greater detail in 13 CFR 121.103. The term "number of employees" is defined in 13 CFR 121.106.

2.34 Small and Mid-Size Farms

Small Farms are defined as farms or ranches with less than $250,000 in annual agricultural sales. Mid-Size Farms are defined as farms or ranches with less than $500,000 in annual agricultural sales.

2.35 Socially and Economically Disadvantaged Small Business Concern

A socially and economically disadvantaged small business concern is one:

(1) Which is at least 51 percent owned by (i) an Indian tribe or a native Hawaiian organization or (ii) one or more socially and economically disadvantaged individuals; and
(2) Whose management and daily business operations are controlled by one or more socially and economically disadvantaged individuals.

For purposes of this solicitation, a socially and economically disadvantaged individual is defined as a member of any of the following groups: Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, other groups designated from time to time by the Small Business Administration (SBA) to be socially disadvantaged, or any other individual found to be socially and economically disadvantaged by the SBA pursuant to Section 8(a) of the Small Business Act, 15 U.S.C. 637(a).

Note: The certification of socially and economically disadvantaged small business is for statistical purposes only.

2.36 Subcontract

Any agreement, other than one involving an employer-employee relationship, entered into by an awardee of a funding agreement calling for supplies or services for the performance of the original funding agreement.

2.37 United States

United States means the 50 states, the territories and possessions of the Federal Government; the Commonwealth of Puerto Rico; the District of Columbia; the Republic of the Marshall Islands; the Federated States of Micronesia; and the Republic of Palau.

2.38 Women-owned Small Business Concern

A women-owned small business concern is one:

(1) Which is at least 51 percent owned by one or more women, and
(2) Whose management and daily business operations are controlled by one or more women.

Note: Certification of women-owned small business is for statistical purposes only.

3.0 APPLICATION PREPARATION INSTRUCTIONS AND REQUIREMENTS

3.1 Application Requirements

Applications must address only scientific research activities. **A small business must not propose technical assistance, demonstration projects, classified research, or financial assistance to start or create a company or patent applications**. Many of the research projects supported by the SBIR program lead to the development of new products based upon the research results obtained during the project. However, projects that seek funding solely for product development where no research is involved (i.e., the funds are needed to permit the development of a product based on previously completed research) will not be accepted. Research may be carried out through the construction and evaluation of a laboratory prototype, where necessary.

Literature surveys should be completed prior to the Phase I application and should not be proposed as part of the R&D effort. Applications that deal principally with developing proven concepts for commercial markets or scaling up previously developed prototypes for commercial production should not be submitted. Such efforts are considered the responsibility of the private sector and therefore are not supported by USDA. An application must be limited to only one research problem.

Applicants may respond to any of the topic areas listed under section 8.0. **The same application, however, may not be submitted under more than one topic area.** In the event that the proposing organization wishes to submit additional applications with a different research focus, the USDA SBIR program allows organizations to submit separate applications under different topic areas or different applications under the same topic area outlined in this solicitation. Where similar research is discussed under more than one topic area, the applicant should choose the topic area whose description is most relevant to the applicant's research concept. **Duplicate applications will not be reviewed.**

The purpose of a research application is to provide a written statement that contains sufficient information to persuade members of the research community who review the application and then advise the USDA SBIR professional staff that the proposed research is a sound approach to an important scientific question and is worthy of support under the stated USDA evaluation criteria (see section 4.0). The application should be self-contained and written with the care and thoroughness accorded papers for publication. Each application should be reviewed carefully by the applicant prior to submission and by others knowledgeable on the subject to ensure inclusion of data essential for comprehensive evaluation.

3.2 USDA SBIR Application Submission Overview

For all FY 2009 applications, the USDA SBIR program will require electronic application submission through Grants.gov (www.grants.gov). Submission through Grants.gov requires the use of forms located at the Grants.gov Website. Applications not submitted electronically and/or applications submitted using incorrect or old forms are not eligible to be considered for a Phase I SBIR award and will not be reviewed.

Please note the USDA CSREES has developed both this RFA and a CSREES document titled "A Guide for Preparation and Submission of CSREES Applications via Grants.gov", also known as the "CSREES Application Guide" to assist in completing the application forms. Section 3.0 of this program solicitation provides additional information that is specific to the USDA SBIR program. Applicants are advised to refer to this program solicitation to determine if specific information is

required during the submission of the forms on Grants.gov. If directed by this program solicitation to provide information that is different from other documents, the information in the program solicitation supersedes in all cases.

Furthermore, the "CSREES Application Guide," is part of this program solicitation package and is located at Grants.gov. The program solicitation will direct an applicant to this guidance for completing the required forms at Grants.gov.

To access the electronic application package via Grants.gov, go to www.grants.gov, under the "Apply for Grants" heading on the left side of page and click on "Download Grant Application Packages". Enter the CFDA number (i.e., 10.212) in the appropriate box to search by Catalog of Federal Domestic Assistance (CFDA) number. **From the search results, select the item with CFDA number 10.212, Small Business Innovation Research.** Applicants can also access the appropriate page on Grants.gov by visiting the USDA SBIR funding opportunity page at http://www.csrees.usda.gov/fo/sbir. Clicking on the Funding Opportunity Number listed near the bottom of the page will link the applicant directly to the information and forms necessary to submit through Grants.gov.

Applicants must download the "PureEdge Viewer" software, which is a small, free program that will allow you to access, complete, and submit applications electronically and securely on Grants.gov. For further information, see http://www.grants.gov/DownloadViewer.

3.2.1 Resources

Online

There are considerable online resources to help potential applicants with the electronic forms and submission requirements. The "Get Registered" tab on Grants.gov (http://www.grants.gov/applicants/get_registered.jsp) provides information on registering your company with Grants.gov and the steps necessary to apply for a grant. A quick reference guide listing these steps is available as a four-page PDF document at the following website: http://www.grants.gov/section910/Grants.govRegistrationBrochure.pdf.

In addition, CSREES has developed documentation to help navigate these electronic processes. The central point for all information related to the electronic submission for the USDA SBIR program is www.csrees.usda.gov/funding/electronic. This site is updated frequently and it should be checked often for program-specific help concerning electronic submission of USDA SBIR grants. As stated above, one of the principal resources available is the CSREES Application Guide, which provides guidance for completing the forms required by Grants.gov and CSREES. Used in conjunction with this program solicitation, the CSREES Application Guide will assist applicants with questions related to the fields located within each form that do not have specific SBIR directions.

Personalized

Questions about the registration process through Grants.gov, the PureEdge Viewer software, PDF files, completing and submitting electronically, or technical 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.

Answers to field-specific questions about the SF-424 (R&R) forms package should be found in either this program solicitation or the CSREES Application Guide.

If you are unable to find the answer that you need, please send an email to electronic@csrees.usda.gov with your question. Make sure to identify the form name, the field number related to your question and indicate that you will be applying to the USDA SBIR program.

Any program-specific questions concerning the USDA SBIR program, such as the appropriateness of your proposed research or work plan, should be directed to the NPL responsible for the topic area where you wish to submit your application, see section 1.5. For general questions you can also contact the USDA SBIR office at sbir@csrees.usda.gov or 202-401-4002.

3.2.2 Registration Procedures for Companies and Individuals

The registration procedure for companies or individual proprietorships intending to submit a grant application through Grants.gov requires several steps and must be finished prior to submitting an application. **This is a one-time registration process. It can take as long as "two weeks" to complete so it is critical that companies begin this process as soon as possible.**

Listed below are the steps necessary to submit an application through Grants.gov. More information about these steps is available at http://www.grants.gov/applicants/get_registered.jsp. A quick reference guide listing these steps is available as a four-page PDF document at the following website: http://www.grants.gov/section910/Grants.govRegistrationBrochure.pdf.

STEP 1 – Register Your Organization

Obtain your organization's Data Universal Number System (DUNS) number
A DUNS number is a unique number that identifies an organization. It has been adopted by the Federal government to help track how Federal grant money is distributed. If your organization does not have a DUNS number, call the special Dun & Bradstreet hotline at 1-866-705-5711 to receive one free of charge. You will receive a DUNS number within several days of your request. **Please note, individual proprietorships (i.e. farmers, ranchers) can request and receive a DUNS number, but must register with Grants.gov as an organization, not as an individual.**

Register your organization with Central Contractor Registry (CCR)
The CCR is the central government repository for organizations working with the Federal government. If your organization is not already registered, identify the primary contact who should register your organization. When your organization registers with CCR, it will be required to designate an e-Business Point of Contact (e-Business POC). The e-Business POC authorizes individuals to submit grant applications on behalf of the organization and creates a special password called a Marketing Partner ID Number (M-PIN) to verify individuals authorized to submit grant applications for the organization. Visit the CCR Web site at http://www.ccr.gov to begin this process. It may take several days to collect the information needed for your organization's registration. The CCR Assistance Center can be reached at 888-227-2423.

STEP 2 – Register an Authorized Representative (AR) for your Company

Obtain your username and password

To safeguard the security of your electronic information, and to submit a Federal grant application via Grants.gov, you must first obtain a username and password from the Grants.gov Credential Provider. Register with Grants.gov's Credential Provider at

http://www.grants.gov/applicants/register_credential_provider.jsp. You will need to enter your organization's DUNS number to access the registration form. Once you complete the registration form you will be given your username and you will create your own password.

Register with Grants.gov

After obtaining your username and password, allow 30 minutes for your data to transfer from the Credential Provider. Register with Grants.gov to set up a short AR profile. Visit http://www.grants.gov/applicants/register_grants_gov.jsp to register your username and password and set up your profile. You will only be authorized for the DUNS number that you register in your Grants.gov profile.

STEP 3 – Become Authorized as an AR

Obtain your e–Business POC authorization

After the AR profile is completed, your organization's e-Business POC will receive an email regarding your requested AR registration with links and instructions to authorize you as an AR. Instruct your e-Business POC to login to Grants.gov at http://www.grants.gov/applicants/e_biz.jsp and enter your organization's DUNS number and M-PIN. The e-Business POC will be authorized as an AR and will be the individual verified to submit grant applications. You can check your AR status by logging in to Grants.gov at http://www.grants.gov/applicants/applicants.jsp.

3.2.3 Special Considerations

Throughout the program solicitation, the following is specified, "Attachment Format – (PDF Format is Required)." Applicants should note that the attachments must be in the PDF format. It is the responsibility of the applicant to correctly submit the attachments in the correct format. Grants.gov will not check the application for adherence to this requirement at the time of submission.

USDA SBIR electronic application submissions consist of forms (viewed, completed, and submitted through the Grants.gov PureEdge Viewer) and attachments.

THE USDA SBIR PROGRAM WILL ONLY ACCEPT ATTACHMENTS IN PDF.

If you do not own PDF-generating software, Grants.gov provides online tools to assist applicants. On the Grants.gov Customer Support Web page (http://grants.gov/CustomerSupport), users will find a link to "Convert Documents to PDF" (http://grants.gov/assets/PDFConversion.pdf). PDF documents submitted as a part of the application must also adhere to the following guidelines:

- margins not less than 1 inch; 2.5 cm on all sides;
- type no smaller than 12 point font size regardless of whether it is single or double spaced;
- Font type should be Times New Roman, Geneva, Helvetica, Arial; and
- Tables and graphics may be included; text for captions, headings and graphic explanations must not be smaller than 9 point and must be the same font type as the rest of the application.

ANY PROPOSALS CONTAINING NON-PDF DOCUMENTS WILL BE AT RISK OF BEING EXCLUDED FROM CSREES REVIEW. Partial applications will be excluded from CSREES review.

Page Limitations

Applications submitted electronically via Grants.gov consist of forms and PDF attachments. **Page limitations for certain attachments must be followed, see section 3.3. Applications that do not follow the page limits outlined in section 3.3 are not eligible to be considered for a Phase I SBIR award and will not be reviewed.**

Changes, Additions or Corrections

Modifications to the application will not be accepted after the closing date of this program solicitation. Under some circumstances, changes, additions, or corrections may be necessary to an application submitted to the USDA SBIR program via Grants.gov **before the specified program solicitation closing date**. Modifications to applications will require a resubmission of the entire application package and the applicant must notify the program at sbir@csrees.usda.gov of the resubmission. **Submitting changes to Grants.gov without contacting the program could significantly delay your application submission and may result in the application not being reviewed.**

3.3 Application Guidelines

Those who wish to submit an application to the USDA SBIR program should submit the following components and associated attachments via Grants.gov (see Table 1).

Table 1: Forms of a CSREES SBIR Phase I Application

Document	Required	Optional	Instructions
RR_SF424	✔		Section 3.3.1
CSREES_Supplemental_Info	✔		Section 3.3.7
RR_KeyPersonExpanded	✔		Section 3.3.3
RR_OtherProjectInfo	✔		Section 3.3.2
SBIR_STTR_Information	✔		Section 3.3.8
RR_PersonalData		✔	Section 3.3.4
RR_Budget	✔		Section 3.3.5

RR_SubawardBudget		✔	Section 3.3.6

Table 2: Attachments of a CSREES SBIR Phase I Application

Document	Required	Optional	Form Location	Instructions
Project Summary/Abstract	✔		Located within the RR_OtherProjectInfo Form	Section 3.3.2
Project Narrative	✔		Located within the RR_OtherProjectInfo Form	Section 3.3.2
Bibliography & References Cited	✔		Located within the RR_OtherProjectInfo Form	Section 3.3.2
Facilities & Other Resources	✔		Located within the RR_OtherProjectInfo Form	Section 3.3.2
Equipment	✔		Located within the RR_OtherProjectInfo Form	Section 3.3.2
Other Attachments		✔	Located within the RR_OtherProjectInfo Form	Section 3.3.2
Biographical Sketch	✔		Located within the RR_KeyPersonExpanded Form	Section 3.3.3
Current and Pending Support	✔		Located within the RR_KeyPersonExpanded Form	Section 3.3.3
Additional Senior Key Persons		✔	Located within the RR_Budget Form	Section 3.3.5
Additional Equipment		✔	Located within the RR_Budget Form	Section 3.3.5
Budget Justification	✔		Located within the RR_Budget Form	Section 3.3.5

If there is a discrepancy between the program solicitation and the CSREES Application Guide, the information contained in this program solicitation is overriding.

Below are instructions for completing each field of the forms required in the application package. Page limitations indicated in bold are appropriate for a given section/attachment.

3.3.1 SF-424 R&R Cover Sheet

Field 1. Type of Submission – Applicants must check the "Application" box.

Field 2. Applicant Identifier – This field is provided for the Applicant's use if you have an internal tracking system and would like to use in tracking applications submitted. (This field is not required.)

Field 3. Date received by State and **State Application Identifier** – This is not applicable for USDA SBIR applications and this field does not need to be completed.

Field 4. Federal Identifier –Applicants must reference the CSREES Application Guide for directions.

Field 5. Applicant Information – Provide all required information detailed in the CSREES Application Guide. **Please note: the USDA SBIR program's official correspondence will be with either the PD or AR.**

Fields 6 – 12. Employer Identification; Type of Applicant; Name of Federal Agency; Catalog of Federal Domestic Assistance Number (10.212); Descriptive Title of Applicants Project; and Areas Affected by Project - Applicants must reference the CSREES Application Guide for directions.

Field 13. Proposed Project Start Date and End Date – The proposed duration of Phase I projects should normally not exceed eight months, except in special, justified circumstances. In most circumstances, the following dates should be used for these fields:

	Start	**End**
Phase I	5/1/2009	12/31/2009

Fields 14 – 15. Congressional Districts; and Project Description/Principal Investigator Contact Information – Applicants must reference the CSREES Application Guide for directions.

Fields 16. Estimated Project Funding – Applicants must adhere to the following guidelines when completing fields a and c.

a. Total Estimated Project Funding – This is the total amount of funds the applicant is requesting from the USDA SBIR program and should match the R&R Budget Request for this solicitation.

b. Total Federal and Non-Federal Funds – Enter total estimated funds for the entire project, including both Federal and Non-Federal funds.

c. Estimated Program Income – Identify any program income estimated for this project period, if applicable.

Field 17. Is this Application Subject to Review by State Executive Order 12372 Process – Check "No." The USDA SBIR program is not covered by State Executive Order 12372.

Field 18. Complete Certification – Please refer to the CSREES Application guide for information on the Certifications that are being agreed to by checking this box. Included in the Certifications is the Statement as to Delinquency on Federal Debts. Statement as to Delinquency on Federal Debts by Applicants for Federal Assistance - Pursuant to OMB Circular A-129, (implemented by USDA in 7 CFR Part 3), "Except where required by law or approved by the head of the agency, no award of Federal funds shall be made to an applicant who is delinquent on a Federal debt until the delinquent account is made current or satisfactory arrangements are made between affected agencies and the debtor." The certification of non-delinquency applies only to the organization requesting financial assistance and not to the individual project director. By checking the Complete Certification box, the applicant is providing the statement of non-delinquency on any Federal debt. For the purposes of this statement, the following definitions of delinquency apply:

(1) Direct loans – a debt more than 31 days past due on a scheduled payment;
(2) Grants – recipients of a "Notice of Grants Cost Disallowance" who have not repaid the disallowed amount or who have not resolved the disallowance; and
(3) Guaranteed and insured loans – recipients of a loan guaranteed by the Federal Government that the Federal Government has repurchased from a lender because the borrower breached the loan agreement and is in default.

Examples of debts include delinquent taxes, audit disallowances, guaranteed and direct student loans, housing loans, farm loans, business loans, Department of Education institutional loans, benefit overpayments, and other miscellaneous administrative debts.

NOTE: An applicant who is delinquent on Federal debts must attach explanatory information detailing all relevant particulars concerning the Federal debt in PDF format in Field 11 Other Attachments.

Field 19. Authorized Representative – Applicants must reference the CSREES Application Guide for directions.

Field 20. Pre-application – This is not applicable to the USDA SBIR program. No attachments should be added.

Field 21. Attach an additional list of Project Congressional Districts if needed – Applicants must reference the CSREES Application Guide for directions.

3.3.2 R&R Other Project Information

Fields 1 – 5. Are Human Subjects Involved; Are Vertebrate Animals Used; Is Proprietary /Privileged Information Included…; Does this project have an actual or potential impact on the environment; Does the project involve activities outside the U.S… Applicants must reference the CSREES Application Guide for directions.

Field 6. Project Summary/Abstract – (PDF Format is Required)

1 PAGE is the Page Limit for the Summary/Abstract.
In the technical abstract, include a brief description of the problem or opportunity, project objectives, and a description of the effort. Provide another paragraph discussing the anticipated results and potential commercial applications of the proposed research. **The project summary/abstract of successful**

applications may be published by USDA and, therefore, should not contain proprietary information.

It is the responsibility of the applicant to review the attachment for page limit and PDF compliance before submission.

Field 7. Project Narrative – (PDF Format is Required)

16 PAGES is the Page Limit for the Project Narrative. NOTE: The USDA SBIR Program encourages applicants to only include information pertaining to the items listed below. Applicants must **not** include additional information such as cover sheets, table of contents, reference listings, budgets, and appendices unless the applicant intends for these to be considered in the page count. It is the responsibility of the applicant to review the attachment for page limit and PDF compliance before submission.

(1) Response to Previous Review – This is only required if you are submitting an application in which the project described was previously submitted to the SBIR program, but not funded. Please provide a clear statement acknowledging comments from the previous review, indicating revisions, rebuttals, etc. This response is a critical part of the screening criteria as noted in subsection 4.2(G). Furthermore, the revised application should clearly indicate the changes that have been made in the project. Make sure to include the application number of the previous submission at the top of this section.

(2) Responsiveness to USDA SBIR Program Priorities – Please indicate if the application has a connection to agriculturally–related manufacturing technology or alternative and renewable energy, see section 8.0. Provide a brief explanation of how the application is related to the area indicated.

(3) Identification and Significance of the Problem or Opportunity – Clearly state the specific technical problem or opportunity addressed and its importance.

(4) Background and Rationale – Indicate the overall background and technical approach to the problem or opportunity and the part that the proposed research plays in providing needed results. As a part of this section, it is critical that applications adequately cite relevant scientific literature. **Moreover, all citations provided must be properly referenced in the Bibliography & References Cited attachment (see 3.3.2 – Field 8).**

(5) Relationship with Research or Research and Development

Phase I – Discuss the significance of the Phase I effort in providing a foundation for the follow-on Phase II R&D effort. State the anticipated results of the approach if the project is successful. This should address: (a) the technical, economic, social, and other benefits to the Nation and to users of the results, such as the commercial sector, the Federal Government or other researchers; (b) the estimated total cost of the approach relative to benefits; and (c) any specific policy issues or decisions that might be affected by the results. **This section should constitute a substantial portion of the project narrative**.

(6) Technical Objectives – State the specific objectives of the research or research and development effort. Include the technical questions needed to establish the technical feasibility of the proposed approach.

(7) Work Plan – The work plan must provide an explicit, detailed description of the research or research and development approach. The plan should list the tasks to be performed, **provide details of the methodology that would be used to research each task**, including statistical analysis, if applicable, and indicate how and where the work will be carried out. The effort should attempt to determine the technical feasibility of the proposed concept. The work plan should be linked with the technical objectives of the research and the questions the effort is designed to answer. **This section should constitute a substantial portion of the project narrative**.

(8) Related Research or Research and Development – Describe significant research or Research and Development (R&D) activities that are directly related to the proposed effort, including any conducted by the Project Director or by the proposing small business concern, how the proposed effort expands on the related work, and any planned coordination with outside sources. **The applicant must persuade reviewers that he or she is aware of related research in the selected subject**. It is critical that the applicant make a convincing case that the proposed research builds upon previous research and, if successful, will lead to the development of a new product, process, service, or technology or to substantial improvement of an existing product, process, service, or technology.

(9) Potential Post Application – Briefly describe the commercialization potential of the proposed research after Phase I funding. In addition, indicate whether there appears to be a potential use of the proposed research by the Federal Government. Include a brief description of the proposing company (e.g., date founded, number of employees, and its field of interest). What are the major competitive products in this field, and what advantages will the proposed research have over existing technology in application, performance, technique, efficiency, or cost?

(10) Satisfying the Public Interest – Specify how the proposed research will satisfy one or more of the following USDA strategic goals: (more information can be found at www.usda.gov/ocfo/usdasp/usdasp.htm)

- **a.** Enhance International Competitiveness of American Agriculture;
- **b.** Enhance the Competitiveness and Sustainability of Rural and Farm Economics;
- **c.** Support Increased Economic Opportunities and Improved Quality of Life in Rural America;
- **d.** Enhance Protection and Safety of the Nation's Agriculture and Food Supply;
- **e.** Improve the Nation's Nutrition and Health; and
- **f.** Protect and Enhance the Nation's Natural Resource Base and Environment.

Field 8 Bibliography & Cited References – (PDF Format is Required)

Provide a complete list of all references cited in the application. **For each reference, provide the complete name for each author, the year of the publication, full title of the article, name of the journal or book published, volume, and the page numbers.** The references should be listed in alphabetical order using the last name of the first author.

Field 9 Facilities & Other Resources – (PDF Format is Required)

Describe the types, location, and availability of instrumentation and physical facilities necessary to carry out the work proposed. **If university facilities, private facilities, or government laboratories are being used, there must be a letter in the application from the authorized organizational representative of the university, private facility, or government laboratory describing the arrangement and testifying that the facilities will be subject to the exclusive use and control of the applicant.** This letter should be included as a part of Other Attachments, see Field 11 below.

Field 10 Equipment Documentation – (PDF Format is Required)

Describe the types, location, and availability of equipment necessary to carry out the work proposed. Items of equipment to be purchased must be fully justified under this section. When purchasing equipment or a product under the SBIR funding agreement, the small business should purchase only American-made items whenever possible.

Field 11 Other Attachments – (PDF Format is Required)

Additional documentation that may be required for your application should be grouped in this section.

(1) Use of Facilities or Equipment – If university facilities, private facilities, or government laboratories are being used, there must be a letter in the application from the authorized organizational representative of the university, private facility, or government laboratory describing the arrangement and testifying that the facilities will be subject to the exclusive use and control of the applicant.

(2) Outside Services – Involvement of university, government, or other outside personnel in the planning and research stages of the project as consultants or through subcontracting arrangements is permitted and may be particularly helpful to small business firms that have not previously received Federal research awards. Establishment of a Cooperative Research and Development Agreement (CRADA) with a USDA laboratory or other Federal laboratory may also be beneficial to proposing firms. If the application involves outside consultants, subcontracts, or involvement with a CRADA partner, these arrangements should be described in detail. **Applications must include letters from proposed consultants, subcontractors or CRADA cooperators indicating their willingness to serve in order for such participation to be considered during the application review and evaluation process, see subsection 4.3 as appropriate**.

(3) Letters of Support – General letters of support from potential end-users of the technology or from individuals/organizations that want to express support for the application.

(4) Duration Exceeds Normal Project Period – The proposed duration of Phase I projects should normally not exceed eight months, except in special, justified circumstances. Where a proposed research project requires more than eight months to complete Phase I, a longer project period, not to exceed twenty months, may be considered. An applicant of a Phase I project with an anticipated duration beyond eight months should specify and justify the length of duration in the application at the time of its submission to USDA in order for it to be considered.

(5) Applicant is a Subsidiary – A potential grantee that is a subsidiary must show that the parent company is also a small business entity and the parent company must provide documentation supporting their small business status.

(6) Statement as to Delinquency on Federal Debts by Applicants for Federal Assistance – An applicant that is delinquent on Federal debts must attach, in PDF format, explanatory information detailing all relevant particulars concerning the Federal debt.

(7) Non-Domestic Performance Explanation – Requests for foreign travel or work are discouraged, but may be approved (e.g., applications submitted to the Marketing and Trade topic area that are focused on export issues) based on the justification provided in the application (see Field K. under 3.3.3 below).

3.3.3 R&R Senior Key Person – (PDF Format is Required)

Applicants must fill out a profile for the PD and anyone that will be supported by the budget. For instructions on completing the profile part of this form, applicants must reference the CSREES Application Guide for directions.

(1) Biographical Sketch (Vitae) – (PDF Format is Required) – Identify key personnel of the small business concern, project consultants, and subcontractors and include information on their directly related education and experience, relevant publications, or a current copy of their vitae. The vitae should be limited to two (2) pages each in length, excluding publications listings. The vitae should include a presentation of academic and research credentials, as applicable (e.g., earned degrees, teaching experience, employment history, professional activities, honors and awards and grants received). A chronological list of the most important and/or relevant publications in refereed journals during the past four (4) years, including those in press, must be included. Also, list only those non-refereed technical publications that have relevance to the proposed project. All authors should be listed in the same order as they appear on each paper cited, along with the title and complete reference as these usually appear in journals.

(2) Current and Pending Support – (PDF Format is Required) – A current and pending support list should be included for all PDs. **Please note that the project being proposed should be identified as pending in the attached document.** An application that duplicates or overlaps substantially with an application already reviewed and funded (or to be funded) by another organization or agency will not be funded. The template that applicants must use for this information can be found at http://www.csrees.usda.gov/home/faq_apply.html#current.

If an identical application or one containing a significant amount of essentially equivalent work as the one submitted in response to this solicitation has been previously funded or is currently funded, pending or about to be submitted to another Federal agency or to USDA in a separate action, the applicant must provide the following information:

a. Name and address of the agency(s) to which an application was submitted, or will be submitted, as well as from which an award is expected or has been received;
b. Date of actual or anticipated application submission or date of award, as appropriate;
c. Title of application or award, identifying number assigned by the agency involved and the date the application was submitted or the award was received;
d. Applicable research topic area for each application submitted or award received; and
e. Name and title of PD for each application submitted or award received.

3.3.4 R&R Personal Data – Optional Form

Social Security Number – This is not a required field on this form. To protect the privacy of the PD, we request that you do not list the PD's Social Security number on this form or in any other location in the application.

3.3.5 R&R Budget – (PDF Format is Required)

A Research & Related Budget form must be completed for each year (or partial year) for which work is proposed under this program solicitation. **Applicants must include a budget request that is appropriate for this solicitation. All USDA SBIR Phase I grants have a cap of $80,000. Applicants must ensure that the budget provided matches the requested budget amount found in field 16 on the SF–424 form.**

Applicants should note that the USDA SBIR program offers a Phase I commercialization program and the SBIR program will set aside the funds for each awardee to participate in this program.

Applicants not familiar with terms used in this section should reference section 2.0 Definitions.

Fields A1–B. Section A&B, Budget Period 1 – Applicants must reference the CSREES Application Guide for directions.

Fields C1–C11. Equipment Description – Performing organizations are expected to have appropriate facilities, suitably furnished and equipped. However, funding for items of equipment may be requested provided that they are specifically identified with the dollar amount and adequately justified, see Field K-Budget Justification of the R&R Budget (defined as in excess of $5,000 for each item).

Field D1. Domestic Travel – Applicants must reference the CSREES Application Guide for directions.

Field D2. Foreign Travel Costs Funds Requested – Requests for foreign travel are discouraged, but may be approved (e.g., applications submitted to the Marketing and Trade topic area that are focused on export issues) based on the justification provided in the application. In the budget justification, provide the purpose, the destination, method of travel, number of persons traveling, number of days and estimated cost for each trip. If details of each trip are not known at the time of application submission, provide the basis for determining the amount requested.

Fields E 1–5. Participant/Trainee Support Costs – Applicants must reference the CSREES Application Guide for directions.
Fields F 1-10. Other Direct Costs – Applicants must reference the CSREES Application Guide for directions.

Field G. Direct Costs – Applicants must reference the CSREES Application Guide for directions.

Fields H 1-4. Indirect Costs – Applicants must reference the CSREES Application Guide for directions (see 3.3.5 Field K(7)).

Field I. Total Direct and Indirect Costs – Applicants must reference the CSREES Application Guide for directions.

Field J. Fee – Applicants must reference the CSREES Application Guide for directions.

Field K. Budget Justification – (PDF Format is Required) - A budget justification with supporting detail for each budget category as noted in items (1) through (5) of this subsection must be attached. **A budget justification is required for each entity for which a Research & Related Budget Form is submitted.**

(1) Salaries and Wages – Indicate the number and kind of personnel for whom salary support is sought, including job tasks. For key personnel, also indicate the number of work months of involvement to be supported with USDA funds, and explain how the level of compensation was established (e.g., the hourly rate of pay, the monthly rate of pay, or the yearly rate of pay).

(2) Equipment – Performing organizations are expected to have appropriate facilities, be suitably furnished and equipped. However, funding for items of equipment may be requested, provided that they are specifically identified with the dollar amount and adequately justified. **Such requests should normally not exceed 10 percent of the budget**. Equipment is defined as an article of nonexpendable, tangible personal property having a useful life of more than one year and an acquisition cost of $5000 or more per unit. Awardees are usually allowed to retain title to equipment purchased with funding provided under a SBIR funding agreement. However, in some instances, USDA may direct the awardee to vest title to a third party. **Awardees should plan to lease expensive equipment**. The inclusion of equipment will be carefully reviewed with respect to need and appropriateness for the research proposed.

(3) Materials and Supplies – The types of expendable materials and supplies required should be indicated in general terms with estimated costs.

(4) Travel – The type and extent of travel and its relationship to the project should be specified. Funds may be requested for field work or for travel to professional meetings. Requests for foreign travel are discouraged, but may be approved (e.g., applications submitted to the Marketing and Trade topic area that are focused on export issues) based on the justification provided in the application. In the budget justification, provide the purpose, the destination, method of travel, number of persons traveling, number of days, and estimated cost for each trip. If details of each trip are not known at the time of application submission, provide the basis for determining the amount requested.

(5) All Other Direct Costs – Other anticipated direct costs not included above should be itemized. Examples include, but are not limited to, subcontracts and consultants. See Field 11 "Other Attachments" of the R&R Other Project Information form for required documentation associated with subcontracts and consultants. A budget and budget justification stating subcontractual and consulting costs and the rationale for the amount of the costs are required. Consultants' rate of pay normally cannot exceed $550/day for an eight hour day. However, with proper documentation and justification, higher rates can be approved. Applicants should reference Section 1.4 (B) Size to determine the total amount of funds a Phase I SBIR project can provide to subcontracts and consultants.

(6) Fee - A reasonable fee, not to exceed seven percent of total Federal funds awarded (.07527 of total Direct and Facilities and Administrative (F&A)/Indirect Costs) is permitted under this program solicitation, but applicants are encouraged to minimize fee requests due to the small amount of funds available. **All fees are subject to negotiation with USDA**. If a fee is requested, the amount should be indicated in Field J "Fee" on the R&R Budget form. **Applicants that are not familiar with the definition of a fee, should reference section 2.0 of this RFA.**

(7) Indirect Costs - If available, the current rate negotiated with the cognizant Federal negotiating agency should be used. Indirect costs may not exceed the negotiated rate. If a negotiated rate is used, the percentage and base should be indicated in the space allotted in item H of the budget sheet. If no rate has been negotiated, a reasonable dollar amount in lieu of indirect costs may be requested, which will be subject to approval by USDA. In the latter case, if an application is recommended for funding, an indirect cost rate proposal must be submitted to support the amount of indirect costs requested. CSREES will request an indirect cost rate proposal and provide instructions, as necessary. An

applicant may elect not to charge indirect costs and, instead, use all grant funds for direct costs. If indirect costs are not charged, the phrase "None requested" should be written in this space. A billing rate may be established for this award only.

3.3.6 R&R Subaward Budget Attachment - (PDF Format is Required)

Applicants should reference the CSREES Application Guide to complete this form.

3.3.7 CSREES Supplemental Information

Field 1. Funding Opportunity – Applicants must reference the CSREES Application Guide for directions.

Field 2. Program to Which You Are Applying and Program Code – This refers to the topic area (see section 8.0) to which you are submitting your USDA SBIR application. For example:

Program Code Name
Animal Manure Management
Program Code
8.11

If you have a question about which topic area is appropriate for your application, please contact the NPL(s) in the area(s) in question. An application can only be submitted to one topic area. It is extremely important the Program Code Name and Program Code are spelled correctly and match exactly one of the topic areas indicated in section 8.0 of the program solicitation. Failure to complete these fields correctly could significantly delay the acceptance of your application into the program and the application may not be reviewed.

Field 3. Type of Applicant - Applicants must reference the CSREES Application Guide for directions.
Field 4. Additional Applicant Types - Applicants must reference the CSREES Application Guide for directions.

Field 5. Supplemental Applicant Types - Applicants must reference the CSREES Application Guide for directions.

Field 6. HHS Account Information - Applicants must reference the CSREES Application Guide for directions.

Field 7. Key Words - Applicants must reference the CSREES Application Guide for directions.

Field 8. Conflict of Interest List – A conflict of interest attachment is not necessary for USDA SBIR applications. No attachments should be added.

3.3.8 SBIR/Small Business Technology Transfer Program (STTR) Information

Please note: Guidance for completing this form will not be found in the CSREES Application Guidance. Applicants should follow the instructions detailed in this program solicitation.

Program Type – Select SBIR only. USDA does not offer a STTR program.
SBIR/STTR Type – Select Phase I. The USDA SBIR program does not offer the Fast-Track Option.

Field 1. Did you certify that at the time of award your organization will meet the eligibility criteria for a small business as defined in the funding opportunity announcement? – Enter yes or no.

Field 2. Does this application include subcontracts with Federal laboratories or any other Federal Government agencies? Enter yes or no. **If yes, insert the names of the Federal laboratories/agencies.**

Field 3. Are you located in a HUBZone? – Enter yes or no.

Field 4. Will all research and development on the project be performed in its entirety in the United States? – Enter yes or no. **If no, provide an explanation in an attached PDF file** (this is required information).

Field 5. Has the applicant and/or Project Director/Principal Investigator submitted applications for essentially equivalent work under other Federal program solicitations or received other Federal awards for essentially equivalent work? – Enter yes or no. **If yes, insert the names of the other Federal agencies** (this is required information).

Field 6. Disclosure Permission Statement: If this application does not result in an award, is the Government permitted to disclose the title of your proposed project, and the name, address, telephone number and e-mail address of the official signing for the applicant organization to organizations that may be interested in contacting you for further information (e.g., possible collaborations, investment)? – Enter yes or no.

Field 7. Commercialization Plan – Leave this section blank.

Field 8. Documentation of Prior SBIR Phase I Awards – A small business firm that submits a Phase I application and has received more than 15 Phase II SBIR awards during the preceding five fiscal years must document the extent to which it was able to secure Phase III funding to develop concepts resulting from previous Phase II SBIR awards. In addition, the documentation must include the name of the awarding agency, date of award, funding agreement number, amount, topic or subtopic title, follow-on agreement amount, source and date of commitment, and current commercialization status for each Phase II award. USDA shall collect and retain the information at least until the General Accounting Office submits the report required under section 105 of the Small Business Research and Development Enhancement Act of 1992.

If the applicant falls under the threshold as indicated above, provide an attachment stating that per the program solicitation guidelines, less than 15 Phase II awards have been granted to this organization/company.

Field 9. Will the Project Director/Principal Investigator have his/her primary employment with the small business at time of award? – Check Yes or No.

Fields 10-11. STTR-Specific Questions – Do not respond to these questions. They are not applicable to the USDA SBIR program.

4.0 METHOD OF SELECTION AND EVALUATION CRITERIA

4.1 Introduction

All Phase I applications will be evaluated on a competitive basis. Applications will be initially screened to determine responsiveness to the program solicitation. Applications passing this initial screening will be evaluated by technical reviewers to select those with the highest scientific and technical merit. **Applications received after the specified closing date or not following application guidelines of this program solicitation will not be considered for a Phase I SBIR award and will not be reviewed**.

External peer reviewers will be used during the technical evaluation stage of this process. Selections will be made from among recognized specialists who are uniquely qualified by training and experience in their respective fields to render expert advice on the merit of applications received. It is anticipated that these experts will be drawn from universities, Government, and non-profit research organizations. If possible, USDA intends that peer review groups shall be balanced with minority and female representation and with an equitable age distribution.

Final decisions will be made by USDA based upon the ratings assigned by reviewers and consideration of other factors, **including the potential commercial application**, possible duplication of other research, any critical USDA requirements, program balance, and budget limitations. There is no commitment by USDA to fund any particular application, to support any specific number of applications in a given research topic area, or to make a specific number of awards. USDA also may elect to fund several or none of the proposed approaches to the same topic. Care will be taken to avoid actual and potential conflicts of interest among reviewers. Evaluations will be confidential to USDA staff members, peer reviewers, and the proposed Project Director to the extent permitted by law.

4.2 Initial Screening Criteria

To avoid misunderstanding, applicants should be aware that applications not satisfying all of the screening criteria will be returned to the proposing entity without review. Returned applications may not be resubmitted (with or without revision) under this solicitation. The initial screening criteria are the following:

(A) The proposing firm must qualify as a small business concern as defined in section 2.0.

(B) The application must meet the Application Content and Format requirements as described in section 3.0.

(C) Applications must be limited to one research problem as described in section 3.0.

(D) The proposed budget must be within the dollar limit identified in subsection 1.2.

(E) The proposed Phase I research must fall within a solicited topic area. See section 8.0 for the listing of topic area descriptions.

(F) An application must contain adequate scientific/technical information clearly stating the research plan and objectives. USDA reserves the right not to submit for review any application that it finds to have insufficient scientific/technical information.

(G) A resubmitted application must address concerns of the previous review panel. USDA reserves the right not to submit for review any application found not to be responsive to the previous review.

4.3 Phase I Evaluation Criteria

USDA plans to select for award those applications offering the best value to the nation. The primary evaluation criteria used by reviewers are listed below. Approximately equal consideration will be given to each criterion, **except for item (A) which will receive twice the value of any of the other items.**

(**A) Scientific and Technical Feasibility:**

- The application should contain a thorough background section with an up-to-date literature review.
- The application should clearly state the objectives logically and indicate how they will lead toward proving the technical feasibility of the approach or concept.
- The research plan should offer an original and innovative approach to the problem and sufficient detail to indicate how each research objective will be investigated.
- The research plan should be completed in the requested grant period.

(B) Importance of the Problem:

- The application should provide sufficient justification for the importance of the problem and clearly indicate the anticipated commercial potential of the proposed research.
- The proposed project should be in the public interest and satisfy one or more of the strategic goals and objectives listed in subsection 3.3.2 (item 11 of Field 7).

(**C) Investigator and Resource Qualifications:**

- The bibliographic information should be provided to document that the Project Director, other key staff and any consultants have the appropriate training and experience to carry out the proposed research plan.
- If consultants, subcontractors or CRADA cooperators are involved in the project, letters from these individuals should be included in the application verifying their willingness to participate in the research study, their rates of pay and any other budgetary information.
- Adequate research facilities that are available should be owned or controlled by the small business for the duration of the grant.
- Instrumentation available should be adequate to complete the proposed research plan.

(D) Budget:

- The budget should be appropriate for the proposed research plan.
- Budget detail should include subcontract, consultant, and CRADA data to indicate clearly how the funds would be utilized.

(E) Duplication:

- Duplication of any ongoing or previous research by the small business firm or by other researchers will not be considered.
- The application should clearly indicate how the proposed technology would differ significantly from existing technology.
- If the small business firm or a consultant has received or applied for patent(s) pertaining to the proposed technology, the proposed research should constitute a legitimate feasibility study.

Additional factors that will be considered in the review process include whether an application involves a CRADA with a USDA laboratory or is a resubmission. In the event that two or more applications are of approximately equal merit, the existence of a CRADA with a USDA laboratory will be an important consideration. If one application is a resubmission, this will also be an important consideration.

4.4 Phase I Review Process

USDA evaluates applications using a confidential peer review. Separate review panels are held that correspond to each of the topic areas listed in Section 8.0. Reviewers are drawn from universities, government and non-profit research organizations. For each topic area, a leading research scientist is appointed as a topic manager. In consultation with the SBIR program staff, this individual appoints a review panel. The review panel meets in Washington, DC to evaluate all applications. Applications are reviewed both by members of the review panel and by ad hoc reviewers with specific expertise appropriate for each application. The panel discusses each application carefully and then ranks the applications. The panel rankings are used in determining which applications are funded.

Considerable effort is made to ensure that the review process is confidential. Reviewers are instructed to handle all applications in complete confidence and each reviewer is provided written guidelines to follow. All reviewers are obligated to certify that they will maintain confidentiality at the time they prepare a review and submit it through the Agency's electronic Peer Review System.

Every effort is made to avoid even the appearance of a conflict-of-interest (COI). The USDA has very detailed rules on COI that are followed during the review process. If a panel member has a COI on an application, he/she will not review the application and will be excused from the panel meeting while the particular application is being discussed. USDA is committed to ensuring the review process is fair and is handled with confidentiality.

4.5 Notice to Applicants

Technical reviewers will base their conclusions and recommendations on information contained in the application. It cannot be assumed that reviewers are acquainted with any experiments referred to within an application, with key individuals, or with the small business firm itself.

After final decisions have been announced, a panel summary that briefly states the main strengths and weaknesses of the application and the written reviews of the application will be sent to the Project Director. The reviews will not include the scores nor the identities of the reviewers. Due to funding limitations and USDA's desire to support as many worthwhile projects as possible, it may be necessary for USDA to reduce the amount of an award below the amount requested by a small business or to fund only certain objectives outlined in the application. Any significant changes will be discussed with the

proposing firm, which may then be asked to submit a revised budget reflecting the reduced amount. In the event that this occurs, specific instructions will be provided to the applicant.

5.0 CONSIDERATIONS

5.1 Awards

Depending upon the availability of funds, USDA expects to make approximately 85 Phase I awards not to exceed $80,000 each to small businesses in FY 2009. Awards are anticipated to be made on or after May 1, 2009. USDA will announce the names of those concerns receiving awards and successful applicants will then typically have eight months after awards are made to carry out their proposed Phase I effort.

All Phase I awards will be issued as research grants in accordance with the guidelines contained in 31 U.S.C. 6301-6308, the authority contained in Section 630 of the Act making appropriations for Agriculture, Rural Development and Related Agencies' programs for fiscal year ending September 30, 1987 and for other purposes, as made applicable by Section 101(a) of Public Law Number 99-591, 100 Stat. 3341.

A reasonable fee, not to exceed seven percent of total Federal funds awarded (.07527 of total direct and F&A/indirect costs) is permitted under this program solicitation, but applicants are encouraged to minimize fee requests due to the small amount of funds available. All fees are subject to negotiation with USDA. If a fee is requested, the amount should be indicated in Field J. Research and Related Budget.

5.2 Reports

5.2.1 Current Research Information System (CRIS) Reports

All awardees are required to submit the AD–416 and AD–417 CRIS report forms before a project can be awarded. **Documentation must be submitted to CRIS before CSREES funds will be released.** In addition, the AD–419 and AD–421 report forms have to be submitted at the conclusion of a Phase I project as a termination report. Additional information about CRIS will be provided to all awardees prior to the start of their award. The online portal to all CRIS reports is located at http://cwf.uvm.edu/cris.

Please note: CRIS reports are meant to provide information about USDA SBIR grants to the general public through the online CRIS database. **As such, proprietary information should not be included in these reports.**

5.2.2 Technical Reports

For Phase I applications, the grantee is required to submit the following technical reports.

(1) Interim Technical progress report – This report must be submitted at approximately the mid-point in the project.

(2) Comprehensive final technical report – This report must be submitted within 30 days following expiration of the Phase I grant.

These reports should be submitted electronically as an attachment (MS Word or PDF) to the following email address: sbir@csrees.usda.gov. **Each report should include a single-page executive summary as the first page.** This summary should include the purpose of the research, a brief description of the research carried out, the research findings or results, and in a final paragraph, potential applications (commercial or other) of the research. The balance of the report should include a comparison of actual

accomplishments with the goals established for the grant; the reasons for slippage if established goals were not met; estimates of technical feasibility; and additional pertinent information, such as an explanation of cost over-runs or unexpectedly high unit costs. Also, identify all other recipients (public and private) of the research results documented in the report. Additional guidance for these reports can be found on the "Grantee Resources" webpage located at http://www.csrees.usda.gov/funding/sbir/sbir.html.

Please note: All technical reports are held confidential for a period covering four years after the termination of the project. **As such, proprietary information should not be included in all reports only when necessary to provide the USDA SBIR Staff adequate information to evaluate the outcome of the project.**

5.2.3 Financial Reports

For Phase I applications, a final **"Financial Status Report" (SF-269)** is due within 90 days after the expiration date of the grant and should be submitted to the Awards Management Branch, Office of Extramural Programs at the address listed below, in accordance with instructions contained in Section 3015.82 of the Uniform Federal Assistance Regulations.

Awards Management Branch
Office of Extramural Programs
Cooperative State Research, Education,
and Extension Service
U.S. Department of Agriculture
STOP 2271
1400 Independence Avenue, SW
Washington, DC 20250-2271
Telephone: (202) 401-4986

Quarterly Reports of Federal Cash Transactions (SF-272) are required by the Department of Health and Human Services (DHHS) (www.dpm.psc.gov) and are submitted online through the DHHS Payment Management System (PMS) Web site. If you become delinquent in these reports, you will not be able to access your funds.

5.3 Payment Schedules

Payments will be made by electronic funds transfer through the DHHS-PMS. Requests for payment should be in accordance with DHHS-PMS instructions. All questions relating to payments should be submitted to:

Funds Management Section
Office of Extramural Programs
Cooperative State Research, Education, and Extension Service
U. S. Department of Agriculture
STOP 2298
1400 Independence Avenue, S W
Washington, DC 20250-2298
Telephone: (202) 401-4527
Facsimile: (202) 401-3481

Drawdown instructions will be sent to the awardee under separate cover. Anticipated payments shall be made according to the following schedule:

(A) Aggregate payment requests of up to 50 percent of total award dollars will be honored during the first half of the project.

(B) Upon acceptance of the interim progress report, up to an additional 40 percent of total dollars will become available for support of the project.

(C) The final 10 percent of total award dollars will be paid upon receipt and acceptance of the comprehensive final technical report required under section 5.2 above.

If the awardee is a sole proprietorship, funds awarded shall be deposited in a separate bank account and CSREES, through the ADO, shall be informed of the name and location of the bank. In addition, arrangements must be reached between the awardee and the bank of deposit of the award funds in accordance with the following:

1. The account must be of a nature that permits the bank of deposit to return unused funds remaining in that account to CSREES in the event of the awardee's demise. However, CSREES shall not be named a joint owner of such an account, but rather as beneficiary.

2. These arrangements must also be reported to CSREES through the ADO.

5.4 Proprietary Information

Information contained in unsuccessful applications will remain the property of the applicant. The Government may, however, retain copies of all applications. Public release of information in any application submitted will be subject to existing statutory and regulatory requirements. If proprietary information is provided by an applicant in an application, which constitutes a trade secret, proprietary commercial or financial information, confidential personal information or data affecting the national security, it will be treated in confidence, to the extent permitted by law. This information must be clearly marked by the applicant with the term "confidential proprietary information," and the following legend must appear on each PDF attachment submitted as a part of the application: "These data shall not be disclosed outside the Government and shall not be duplicated, used or disclosed in whole or in part for any purpose other than evaluation of this application. If a funding agreement is awarded to this applicant as a result of or in connection with the submission of these data, the Government shall have the right to duplicate, use or disclose the data to the extent provided in the funding agreement and pursuant to applicable law. This restriction does not limit the Government's right to use information contained in the data if it is obtained from another source without restriction. The data subject to this restriction are contained on pages __ of this application."

Any other legend may be unacceptable to the Government and may constitute grounds for removing the application from further consideration without assuming any liability for inadvertent disclosure. The Government will limit dissemination of such information to within official channels.

USDA, by law, is required to make the final decision as to whether the information is required to be kept in confidence. Information contained in unsuccessful applications will remain the property of the applicant. However, USDA will retain for three years one file copy of all applications received; extra copies will be destroyed. Public release of information for any application submitted will be subject to existing statutory and regulatory requirements. The legislation reauthorizing the SBIR program

strengthened the protection of awardee firms relative to maintaining confidentiality of proprietary information for a period of four years after the end of the grant period. However, any application which is funded will be considered an integral part of the award and normally will be made available to the public upon request through the Freedom of Information Act, except for designated proprietary information.

The inclusion of proprietary information is discouraged unless it is necessary for the proper evaluation of the application. If proprietary information is to be included, it should be limited, set apart from other text on a separate page, and keyed to the text by numbers. It should be confined to a few critical technical items which, if disclosed, could jeopardize the obtaining of foreign or domestic patents. Trade secrets, salaries, or other information that could jeopardize commercial competitiveness should be similarly keyed and presented on a separate page. Applications or reports that attempt to restrict dissemination of large amounts of information may be found unacceptable by USDA.

5.5 Rights in Technical Data

Rights in technical data, including software developed under the terms of any funding agreement resulting from an application submitted in response to this solicitation, shall remain with the grantee. However, the Government shall have the limited right to use such data for Governmental purposes and shall not release such data outside the Government without permission of the grantee for a period of four years from completion of the project under which the data were generated. Effective at the conclusion of the four-year period, the Government shall retain a royalty-free license for Governmental use of any technical data delivered under the agreement, whether patented or not.

5.6 Copyrights

With prior written permission of the Authorized Departmental Officer, the grantee normally may copyright and publish (consistent with appropriate national security considerations, if any) material developed with USDA support. USDA receives a royalty-free license for the Federal Government and requires that each publication contain the following acknowledgment and disclaimer statement:

"The project was supported by the Small Business Innovation Research program of the U.S. Department of Agriculture, grant number #. Any opinions, findings and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture."

The last sentence may be omitted from articles published in scientific journals.

5.7 Patents and Inventions

Allocation of rights to inventions shall be in accordance with 35 U.S.C. 202-206 and the Department of Commerce implementing regulations entitled "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms under Government Grants, Contracts and Cooperative Agreements" at 37 CFR Part 401. These regulations provide that small businesses normally may retain the principal worldwide patent rights to any invention developed with USDA support. USDA receives a royalty-free license for Federal Government use, reserves the right to require the patentee to license others in certain circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by 35 U.S.C. 205, USDA will not make public any information disclosing a USDA-supported invention for a four-year period to allow the grantee a

reasonable time to file an initial patent application. Additional information may be obtained by contacting:

Director, Planning and Accountability
Cooperative State Research, Education, and Extension Service, USDA
STOP 2213
1400 Independence Avenue, SW
Washington, DC 20250-2213
Telephone: (202) 720-5623
Facsimile: (202) 720-7714
E-mail: rmacdonald@csrees.usda.gov

SBIR awardees must report inventions to the awarding agency within two months of the inventor's report to the awardee. The reporting of inventions must be made through submission to Interagency Edison (www.iedison.gov). Specific instructions for invention reporting are contained in the agency's terms and conditions, a copy of which can be provided upon request.

5.8 Research Involving Special Considerations

A number of situations frequently encountered in the conduct of scientific research require the submission of special information for a particular project. Since some types of research targeted for SBIR support have high probability of involving human subjects at risk or vertebrate animals, special instructions follow:

If the proposed research will involve human subjects at risk or vertebrate animals, the application must so indicate by checking "Yes" on the RR_OtherProjectInfo form. Further, in the event that the project is funded, the applicant may be required to have the research plan reviewed and approved by the appropriate review board or committee. It is suggested that applicants contact local universities, colleges, or nonprofit research organizations that have established such reviewing mechanisms to have this service performed.

Guidelines to be applied and observed when conducting such research are outlined below.

(A) **Human Subjects at Risk** - Regulations issued by the Department of Agriculture to be used in safeguarding the rights and welfare of human subjects used in research supported with USDA grant funds are contained in 45 CFR Part 46 and USDA regulations set forth in 7 CFR part 1c. All nonexempt research projects involving human subjects must be approved by an Institutional Review Board prior to commencing actual substantive work.

(B) **Animal Care** - The performing organization must comply with the Animal Welfare Act (7 U.S.C., 2131-2156); Public Law 89-544, 1996 and the regulations issued by the Department of Agriculture in 9 CFR parts 1, 2, 3 and 4. In the case of domesticated farm animals housed under farm conditions, the grantee must adhere to the principles stated in the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching, and Federation of Animal Sciences Societies, 1999. In the event a project involving the use of living vertebrate animals results in a grant award, funds will be released only after a qualified Institutional Animal Care and Use Committee has approved the project.

5.9 Grantee Commitments

Upon issuance of a research grant by USDA, the awardee will be required to make certain legal commitments through acceptance of the award document and the terms and conditions attached thereto, as well as any project-specific terms or conditions outlined. Most of these terms and conditions are contained in USDA's Uniform Federal Assistance Regulations, 7 CFR Part 3015, which will be incorporated into all Phase I awards resulting from this program solicitation. These regulations primarily consolidate internal policies and procedures relating to USDA's assistance programs and implement various Federally issued assistance policies, including applicable Federal cost principles and uniform administrative requirements. Copies are available at:
www.access.gpo.gov/nara/cfr/waisidx_04/7cfr3015_04.html.

5.10 Additional Information

(A) This program solicitation is intended for informational purposes and reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR funding agreement, the terms of the funding agreement are controlling.

(B) Before the award of an SBIR funding agreement, USDA requires the submission of certain organizational management, personnel, and financial information to assure responsibility of the applicant, including certification that the proposing organization is in compliance with the Civil Rights Act of 1964. These forms will be provided to the small business concern by the Office of Extramural Programs, CSREES, prior to the forwarding of the funding agreement for acceptance. The information contained in both forms must normally be submitted on a one-time basis only. (If sufficient changes occur within the organization to warrant submission of new or additional information, additional forms should be requested by calling either (202) 401-5050 or (202) 401-4342.) It is anticipated that all Phase I awardees will be required to submit the above information. **Please note that CSREES will not issue an award until all requested organizational management and financial information has been received. Delaying or failing to submit this information could result in the application not being funded.**

(C) If an applicant or a grantee is contemplating any type of transaction involving the entity (i.e., merger, spin-off or sale), it is advised that the applicant or the grantee contact one of the SBIR NPLs (see subsection 1.5) for knowledge of how the transaction may affect a potential grant or existing grant, as applicable.

(D) USDA is not responsible for any monies expended by the applicant prior to the award of any funding agreement.

(E) This program solicitation is not an offer by USDA and does not obligate USDA to make any specific number of awards. Also, awards under this program are contingent upon the availability of funds.

(F) Unsolicited applications will not be accepted under the SBIR program.

(G) The applicant must provide the total number of employees for the organization and its subsidiaries and/or parent company, if applicable.

6.0 SUBMISSION OF APPLICATIONS

6.1 When to Submit

All Phase I applications must be submitted via Grants.gov by **5:00 p.m. Eastern Time on September 4, 2008.** Applications received after this deadline normally will not be considered for funding.

For the convenience of all potential applicants, the following schedule is provided for informational purposes:

Phase I

Deadline date for applications……..… September 4, 2008

Normal period of research performance…….…..May 1, 2009 through December 31, 2009

6.2 What to Submit

USDA SBIR electronic application submissions consist of forms (viewed, completed, and submitted through the Grants.gov Web site) and attachments. All of the necessary forms and instructions will be found on the Grants.gov Web site and in section 3.0 of this program solicitation. One way applicants can access the appropriate page on Grants.gov is by visiting the USDA SBIR funding opportunity page at http://www.csrees.usda.gov/fo/sbir. Clicking on the Funding Opportunity Number listed near the bottom of the page will link the applicant directly to the information and forms necessary to submit through Grants.gov.

All attachments submitted with the application must be in PDF.

ANY PROPOSALS CONTAINING NON-PDF DOCUMENTS WILL BE AT RISK OF BEING EXCLUDED FROM CSREES REVIEW. Partial applications will be excluded from CSREES review.

Please note: Applicants must have successfully completed the entire registration process, see subsection 3.2.2, prior to being able to submit an application through Grants.gov.

6.3 Where to Submit

All FY 2009 applications submitted to USDA SBIR must be submitted electronically through Grants.gov.

6.4 Questions Pertaining to the USDA SBIR Program or to this Solicitation

Written or verbal questions of a general nature about the USDA SBIR program, as well as general questions pertaining to this solicitation, but not pertaining to requests for additional copies of the solicitation, should be sent to sbir@csrees.usda.gov or can be directed to one of the USDA SBIR NPLs, see section 1.5.

6.5 Information on Application Status

It is anticipated that the evaluation of Phase I applications will require approximately six months from September 4, 2008, and no information on application status will be available until final selections have been made. Both successful and unsuccessful applicants will be notified of final award decisions within approximately six months.

7.0 SCIENTIFIC AND TECHNICAL INFORMATION SOURCES

Listed below are some of the sources that can provide technology search and document services which may be useful in preparing SBIR applications. They can be contacted directly for service and cost information.

National Agricultural Library
Service Desk
U.S. Department of Agriculture
10301 Baltimore Avenue
Beltsville, MD 20705-2351
(301) 504-5755
www.nal.usda.gov

National Technology Transfer Center
Wheeling Jesuit University
316 Washington Avenue
Wheeling, WV 26003
(304) 243-2455 or (800) 678-6882
www.nttc.edu

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(800) 553-6847
www.ntis.gov

Current Research Information Center (CRIS)
USDA/CSREES/ISTM
1400 Independence Ave., SW
Stop 2270
Washington, DC 20250
http://cris.csrees.usda.gov

Regional Technology Transfer Centers

Far West
University of Southern California
3716 South Hope Street, Suite 200
Los Angeles, CA 90007-4344
(213) 743-2353
www.usc.edu/dept/engineering/TTC

Mid-Continent Technology Transfer Center
Texas Engineering Extension Service
The Texas A&M University System
301 Tarrow
College Station,TX 77843-8000
(979) 845-8762
Fax (979) 845-3559
www.teex.com

Midwest
Great Lakes Industrial Technology Center
25000 Great Northern Corporate Center
Suite 260
Cleveland, OH 44070
(216) 734-0094
www.glitec.org

Mid-Atlantic
TECC - the Technology Commercialization Center
144 Research Drive
Hampton, VA 23666
(757) 766-9200
Fax (757) 766-2402
www.teccenter.org

Northeast
Center for Technology Commercialization
1400 Computer Drive
Westborough, MA 01581-5043
(508) 870-0042
www.ctc.org

Southeast
Georgia Institute of Technology
151 6th Street
216 O'Keefe Building
Atlanta, GA 30332
(404) 894-6786
www.edi.gatech.edu/nasa

8.0 RESEARCH TOPIC DESCRIPTIONS AND INSTRUCTIONS

Applicants are encouraged to submit applications that address the research priorities stated for each topic area described in this RFA (see topic areas 8.1 through 8.13 below). Applicants should pay attention to specific instructions located within each of the topic area descriptions when developing their application. Each topic area description provides background information, FY 2009 research priorities and other key information. Applicants should apply to the most appropriate topic area. However, USDA reserves the right to shift applications between topic areas when necessary for most effective review. Applicants that have questions regarding topic areas should contact the listed NPL.

In addition, USDA recognizes **Agriculturally-related Manufacturing Technology** and **Alternative and Renewable Energy** as two cross-cutting priorities with relevance to all topic areas listed in this program solicitation. USDA encourages applicants—as appropriate—to address these priorities within their applications for submission to one of the topic areas listed in this section. Special consideration will be given to applications that address one of these priorities.

Agriculturally-related Manufacturing Technology

On February 26, 2004 the President issued Executive Order 13329 (69 FR 9181) entitled "Encouraging Innovation in Manufacturing." In response to this Executive Order, USDA encourages the submission of applications that deal with some aspect of agriculturally-related manufacturing technology (Section 2.17). Since manufacturing impacts all aspects of agriculture and rural development, applications dealing with manufacturing could be submitted to any of the topic areas. If an application has a connection to manufacturing this should be indicated in R&R Other Project Information (Field 7(2)) and a brief explanation of how it is related to manufacturing should be provided.

Alternative and Renewable Energy

In an effort to find alternatives to fossil fuels, the USDA established research on alternative and renewable energy as a high priority. Such research includes development of new energy crops, improved methods for producing biofuels, such as ethanol and biodiesel, producing hydrogen and other fuel gases from agricultural waste and more efficient use of energy in agricultural production and in rural communities. Energy issues impact all aspects of agriculture and rural development and thus applications dealing with alternative and renewable energy could be submitted to many of the different topic areas. If an application has a connection to alternative and renewable energy this should be indicated in R&R Other Project Information (Field 7(2)) and a brief explanation of how it is related to alternative and renewable energy should be provided.

8.1 Forests and Related Resources

Investigators are encouraged to contact Dr. Charles Cleland, National Program Leader for SBIR Forests and Related Resources at ccleland@csrees.usda.gov or (202) 401-6852 regarding questions about the suitability of research topics or to arrange a telephone consultation.

Background

The Forests and Related Resources topic area aims to develop environmentally sound techniques to increase productivity of forest lands and to develop improved technologies to produce wood products and value-added materials derived from woody resources. New technologies are also needed to enhance the protection of the Nation's forested lands and forest resources and help to ensure the continued existence of healthy and productive forest ecosystems.

To meet the identified needs in forestry and wood utilization, the program's long-term goals (10 years) are to achieve increased utilization of woody resources for value-added products from wood; healthy and sustainable forest ecosystems with reduced impact from wildfires; healthier forest ecosystems where the impact of pathogens and insects can be minimized; sustainable harvesting of woody resources with reduced ecological impact; and improved growth and yield of major forest species that will lead to more efficient use of forested lands.

FY 2009 Research Priorities:

Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

1. **Growth and yield –** Improving growing stock, tissue culture, genetic manipulation or vegetative reproduction of forest trees, and other means of increasing the regenerative abilities of forests; developing systems to increase the survival of newly planted trees through mechanical, physical or chemical means that are environmentally safe; reducing the adverse impact of pathogens and insects by developing better methods to monitor infestations and improved control strategies for combating insects and pathogens that attack important woody species.

2. **Increasing the utility of forest-grown material –** Research to improve lumber yield or other means of increasing the volume and worth of wood from individual trees; utilizing a greater percentage of the tree through improved or new techniques of veneering or comminution, for the production of new or improved reconstituted products; developing better methods for manufacturing wood products and testing wood products for performance and durability; and developing improved methods for the production of paper.

3. **Reducing ecological damage by forest operations –** Research to reduce soil erosion, compaction or other alterations caused by harvesting and/or other forest operations, and provide for the economic recovery of resources from forests while raising potential productivity and reducing impacts to the ecological structure of the area of operation.

4. **Developing technology that facilitates the control of wildfires on forest lands –** Research that provides systems for detecting and managing wildfires; systems for reducing fuel loads in forests; tools and equipment for improving the efficacy and safety of fire fighters on the ground and in the air; and communication and navigation systems for improving the coordination of fire management activities.

5. **Developing economical and environmentally sustainable technologies** – Research for development of technologies for the conversion of forest biomass into alcohol, other biofuels and specialty chemicals.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Applications that deal with the development of biofuels derived from non-woody agricultural crops should be submitted under topic area 8.8 Biofuels and Biobased Products.

8.2 Plant Production and Protection - Biology

Investigators are encouraged to contact Dr. William Goldner, National Program Leader for SBIR Plant Production and Protection - Biology at wgoldner@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-1719.

Background

The objective of this topic is to examine means of enhancing crop production by applying biological approaches to reduce the impact of harmful agents, develop new methods for plant improvement, and develop new food and specialty-use crop plants, as well as new genotypes of existing crop plants with characteristics that allow their use in new commercial applications. Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

- **Plant improvement –** Improved efficiency of crop production by adoption and/or development of innovative methods to traditional plant improvement and biotechnology, including but not limited to, molecular biology, and mutagenesis; genomics; tissue culture; and embryogenesis to produce crops with new or improved quality, yield and agronomic, horticultural, value-added, or economic traits.

- **New crops** – Development of new crop plants (both terrestrial and aquatic) as sources of food, small-scale non-food (e.g., plant-based vaccines, therapeutic proteins), or ornamental products.

- **Plant protection –** Reduced the impact of plant pathogens, insect pests, and abiotic stress on crop plants; and increasing plant resistance to plant pathogens, insect pests, and abiotic stress.

FY 2009 Research Priorities: SBIR is **strongly encouraging** the submission of applications focusing on the following problem areas. Additional consideration will be given to applications addressing the development of products, process, and services for U.S. production of specialty crops (fruits and vegetables, tree nuts, and nursery crops (including floriculture)) and agronomic bioenergy feedstock crops:

1. Projects that employ the use of translational genomics to augment or complement traditional plant breeding approaches to create specialty crop and bioenergy feedstock crop genotypes with superior quality and/or abiotic or biotic stress tolerance.

2. Projects that address the health and success of domesticated and natural pollinators of economically important crops.

3. Improved plant disease diagnostics (accurate, rapid, and cost-effective identification of causal agents in specialty crop plants at the earliest possible time relative to manifestation of disease).

4. Biological approaches to improving commercial floricultural production (technology to improve the competitiveness of U.S. production of flowering potted plants, bedding plants, seasonal crops, annuals, perennials, and cut flowers).

5. Biological approaches to improve commercial woody (trees and vines) fruits, nuts, and ornamentals (e.g., flowering shrubs, shade trees, grapes, brambles, citrus, and apple).

6. Systems, methods, or technologies that facilitate the movement (deregulation) of transgenic specialty crops through the existing regulatory system to reach consumer markets. Applications should not address issues surrounding consumer acceptance of transgenic crops and their products.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Phase I applications involving the development of transgenic crops would benefit by the inclusion of a brief description of the proposed path to commercialization, including an understanding of what will be needed to clear regulatory consideration. Phase II applications involving the development of transgenic crops should have an expended section on how regulatory considerations will be met and market entry attained.

- Applications that deal with non-biological engineering technologies should be sent to topic area 8.13 Plant Production and Protection – Engineering.

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

8.3 Animal Production and Protection

Investigators are encouraged to contact Dr. Peter Burfening, National Program Leader for SBIR Animal Production and Protection at pburfening@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-5823.

Background

The Animal Production and Protection topic area aims to develop technologies to generate new or improved high-quality products/processes and to promote the efficiency of agricultural production systems. These technologies will also enhance protection and safety of the Nation's agriculture and food supply. Program success will result in marketable technologies that reduce 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 long-term goals (10 years) include commercial adoption and sales of technologies aimed at improving animal productivity and improving the quality of animal products; new technologies that provide improved understanding of animal nutrition for improved efficiency, performance, health, and well-being of animals, and to optimize resource use while delivering environmental benefits; and new technologies that reduce adverse impacts and improve the management of animal diseases that represent a threat to animal production, biosecurity or public health.

FY 2009 Research Priorities:

1. Development of marketable technology that will improve the production efficiency of animals of agricultural importance and/or improve their end products;

2. Developing marketable technologies that enhance the nutrient value of the by-products of the biofuels industry for the purpose of feeding these by-products to livestock; and

3. Development of marketable technology that will improve the health and well-being of animals of agricultural importance. Examples of these technologies may be diagnostics, therapeutics, vaccines and other immunization methods, animal biosecurity management tools, and traceability.

Other Key Information

- Applications not meeting one of the above research priorities will not be reviewed.

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Applications dealing with animal manure management should be submitted to topic area 8.11 Animal Manure Management.

- Applications dealing with the development of transgenic technologies for animals are currently not being accepted while this program awaits federal guidance on the use of transgenic animals in the food supply. Studies aimed at the production of transgenic animals for the production of human health products will no longer be accepted by the USDA/SBIR Animal Production and Protection topic area.

- USDA/SBIR Animal Production and Protection program is interested in receiving applications on carcass decontamination, which could make the contaminated carcasses useful for value added processing.

- Applications focused on Animal Protection should focus on the following diseases identified as high priority:

  - Species Specific High Priority Areas
    - Equine: Laminitis; *Streptococcus equi* (strangles); *Rhodococcus equi*;
    - Poultry: Avian *Clostridium perfringens*; Marek's Disease; Avian pneumovirus
    - Ruminants: Bovine viral diarrhea; Bovine & ovine respiratory disease complex; Infectious causes of dairy cattle mastitis; Johne's Disease; and
    - Swine: Porcine Reproductive and Respiratory Syndrome (PRRS); Post-weaning *E.coli* diarrhea; Swine Influenza.
  - Non-Species Specific High Priority Areas
    - Diseases that may be introduced to livestock 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);
    - Foreign Animal Diseases (limited to: Foot and Mouth Disease, Avian Influenza, Exotic Newcastle Disease, Vesicular Stomatitis Virus, or Classical Swine Fever); and
    - Projects that do not include work with a specific disease are also considered a high priority if the Project Director justifies the potential for broad applicability to multiple diseases.

- Applications dealing with aquacultured species should be submitted under topic area 8.7 Aquaculture.

- Applications that deal with post harvest technologies should be submitted under topic area 8.5 Food Science and Nutrition.

8.4 Air, Water and Soils

Investigators are encouraged to contact Dr. Charles Cleland, National Program Leader for SBIR Air, Water and Soils at ccleland@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-6852.

Background

The Air, Water and Soils topic area aims to develop technologies for conserving and protecting air, water and soil resources while sustaining optimal farm and forest productivity and the manufacture of resulting agricultural commodities. Applications need to address some aspect of agriculture or make clear how the proposed project would impact agriculture. Agriculture is the largest impact of humankind on the environment and it is imperative that we find ways to minimize the adverse impact of agriculture on the environment and also to mitigate environmental pollutants that adversely impact agriculture.

To meet these identified needs of agriculture, the program's long-term goals (10 years) are to achieve improved air quality and improved utilization of water resources that are better able to sustain production agriculture; better use of limited water resources for agriculture through improved irrigation technologies; a more sustained soil resource through reduced soil erosion and thereby lead to more productive agriculture; and improved soil quality that will permit a more sustainable and productive agriculture.

FY 2009 Research Priorities:

Examples of appropriate subtopics for research applications from small businesses include, but are not limited to, the following:

1. **Water Quality and Conservation –** Develop new and improved technologies to optimize water conservation at both the farm level and a at a watershed scale, monitor the quality of surface water and groundwater resources for biotic and abiotic pollutants, and develop improved methods for the reuse of waste water, including the remediation and restoration of water resources that impact agriculture and forestry operations.

2. **Irrigation –** Develop improved irrigation technologies for both farming and landscaping applications that will provide more efficient and cost-effective delivery of water and chemicals. Develop new irrigation methods that allow for more efficient use of water including accurate delivery of water to where it is needed.

3. **Soil Erosion** – Develop better methods for preventing soil erosion by wind and surface water runoff and for monitoring wind erosion and sediment transport.

4. **Soil Quality** – Develop new technologies for measuring soil properties, soil nutrient content, and the physical and chemical nature of soil. Research new technologies that enhance soil properties while restricting adverse environmental impact and develop improved methods to remediate degraded soils.

5. **Air Resources** – Develop new and improved technologies to monitor air quality and reduce air pollution stemming from agricultural enterprises.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Applications that deal with air pollution caused by animal wastes should be submitted under topic area 8.11 Animal Manure Management.

8.5 Food Science and Nutrition

Investigators are encouraged to contact Dr. Dionne Toombs, National Program Leader for SBIR Food Science and Nutrition at dtoombs@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-2138.

Background

The Food Science and Nutrition topic area aims to fund projects that support research focusing on developing new and improved processes, technologies, or services that increase the understanding of food safety issues and the characteristics of foods, including their biologically active components. Additionally, the program will fund projects that develop novel rapid tests for the determination of food quality and safety parameters; rapid detection methods of food-borne pathogens, and toxic metabolites to reduce food contamination and foodborne illnesses; methods for the processing and packaging of food products; and nutrition-related technologies and processes that will improve health. The outcome of a successful project is a proof of concept for a marketable item or patented process.

The long term goals (10 years) of the program are to commercialize the production of useful new food products, processes, materials, and systems, as well as to apply information that addresses nutrition-related issues to improve and protect the Nation's food supply.

FY 2009 Research Priorities:

1. Developing novel or rapid assay, bioassay techniques, or field tests to measure nutrients and food interactions;

2. Developing innovative food processing and packaging technologies;

3. Developing sensor technologies for the detection of microorganisms and improved methods for detection of microorganisms during post-harvest, processing, and distribution;
   Examples of common food-borne bacteria:
   i. *E coli* 0157:H7 associated with fruits and vegetables
   ii. *Listeria* associated with ready-to-eat foods
   iii. Vibrio species associated with seafood
   iv. Salmonella species and Campylobacter species associated with poultry and swine

4. Developing specialty products or processes using non-thermal techniques for food preservation; and

5. Developing and using information technology to address obesity, nutritional issues among children, older adults, as well as families and developing intervention strategies to increase awareness and improve health.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Projects that promote value-added products and processes are encouraged.

- Projects that address functional foods to promote health are encouraged.

- Projects that focus on technologies for improving cost benefit and model-based analyses, including distribution, warehousing, and retailing systems as they relate to the economy are accepted.

- Applicants who have received previous SBIR funding should address outcomes for those projects.

- Projects should include appropriate collaborations with experts in the field of investigation.

8.6 Rural Development

Investigators are encouraged to contact Dr. Suresh Sureshwaran, National Program Leader for SBIR Rural Development at ssureshwaran@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 720-7536.

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 an agrarian to post-agrarian economy. The results of this transformation have been uneven across the rural landscape. Some communities are facing economic decline and rural exodus, while in other communities, especially those in areas near large urban centers or rich in natural amenities, economic and population growth have accelerated. As is true for rural communities, these changes have not benefited all rural people equally. Applications may be submitted for the development of new technology or for the utilization of existing technology that address important economic and social development issues or problems in rural America. The applications need not be centered on agriculture, but may be focused on any area that has the potential to provide significant benefits to rural Americans. All applications should explicitly discuss the specific rural problem or opportunity that will be examined and how this technology will successfully address the problem or opportunity. Applications submitted must include objectives and/or activities that clearly demonstrate the impacts of the proposed project on the environment or the socio-economic development of rural areas.

The long-term goals of this program include the following: (1) Create sustainable rural economies; (2) Develop rural communities that are more resilient to both natural and human disasters; (3) Enhance economic vitality of rural areas; and (4) Promote job creation and income growth in rural areas.

FY 2009 Research Priorities:

1. Development of technologies and services that protect or enhance the natural environment while promoting economic development. Topics may include technologies and services that promote rural tourism, protect the ecosystem, conserve energy, etc.

2. Reducing the vulnerabilities of rural communities to all types of hazards, including intentional acts, such as terrorism, and especially natural or unintentional hazards, such as hurricanes or accidental chemical spills. Examples of such reduction include preparation, forecast and warning, response, and rebuilding phases of hazard mitigation.

3. Development of information and managerial systems that improve the efficiency and effectiveness of local governments in service delivery, especially in critical areas, such as transportation, telecommunications and health care, and in turn, enhance the economic vitality of rural areas.

4. Development of products or services that enhance the availability and capability of entrepreneurs and small businesses.

5. Development of technologies and services that specifically address the low-income sector of the rural population, including ways to enhance human capital investment and other means to build earnings capacity, labor force participation, etc.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation, exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- All funded applications are expected to enhance the environmental and/or economic vitality of rural communities. Therefore, applications must contain objectives and/or activities that clearly demonstrate the impacts of the proposed project on the environment or the socio-economic development of rural areas. Applications that do not address this may not be reviewed.

- Applications dealing with on farm production agriculture research should be submitted to topic area 8.12 Small and Mid-sized Farms.

8.7 Aquaculture

Investigators are encouraged to contact Dr. Charles Cleland, National Program Leader for SBIR Aquaculture at ccleland@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-6852.

Background

The Aquaculture topic area aims to develop new technologies that will enhance the knowledge and technology base necessary for the continued growth of the domestic aquaculture industry as a form of production agriculture. Seafood production from the wild is under increased pressure due to overfishing and pollution and therefore aquaculture is increasingly becoming an important source of seafood. Emphasis is placed on research leading to improved production efficiency and increased competitiveness of private sector aquaculture in the United States. Studies on commercially important, or potentially important, species of fish, shellfish and plants from both freshwater and marine environments are included. 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 in aquaculture, the program's long-term goals (10 years) are to achieve improved aquaculture production resulting from improved reproductive efficiency in fish and shellfish; improved aquaculture production resulting from genetic improvement in fish and shellfish; improved aquaculture production resulting from improved animal health; improved aquaculture production with reduced water usage and improved production efficiencies; and cost-effective production of microalgae for use as aquaculture feed and as a source of valuable human food supplements.

FY 2009 Research Priorities:

Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

1. **Reproductive Efficiency** – Novel or innovative approaches to improve reproductive efficiency in aquaculture including: greater control of maturation, ovulation and fertilization; improved gamete and embryo storage; improved larval rearing techniques; enhanced reproductive performance of broodstock; improved methods for cryopreservation of sperm and embryos; and methods to control sex determination.

2. **Genetic Improvement** – Novel or innovative approaches to improve production efficiency through genetic improvement of aquacultural stocks including: genetic mechanisms of sex determination; genetic basis for inheritance of commercially important traits, such as growth, cold tolerance, and pathogen susceptibility; identification of major genes affecting performance; application of molecular biology and genomics and the integration of this technology into breeding programs; and performance evaluation of aquacultural stocks and utilization of crossbreeding and hybridization.

3. **Integrated Aquatic Animal Health Management** – Novel or innovative approaches to reducing acute and chronic losses related to aquatic animal health in aquaculture production systems through an integrated holistic approach including: physiological stress related to the quality of the aquatic production system; genetic, environmental, and nutritional components of aquatic health management; control of predation in aquaculture production systems; development of new vaccines or immunization procedures to enhance resistance to infectious diseases and parasites; development of diagnostic tests for specific diseases that pose a health hazard; and development of improved

treatment methods for acute or chronic health problems caused by specific infectious or non-infectious agents, parasites, injuries and chemical and toxic agents.

4. **Improved Production Systems and Management Strategies** – Novel or innovative approaches to improve existing or alternative production system design and management strategies including: development of biological, engineering and economic design criteria and models; enhancement of water quality in existing production systems through aeration, flow patterns, etc.; characterization, handling and treatment of effluent from aquacultural production systems; improved harvesting methods and strategies; and improved operating efficiencies for recirculation systems.

5. **Plant Production Systems** – Novel or innovative approaches to improve the efficiency of algal production systems including: identification of new species with improved nutritional profile for use in feeding to other aquacultural species or as a source of valuable human food supplements; development of improved bioreactor technology; and development of better methods for harvesting algal biomass.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Applications that deal with the development of new food products derived from aquaculture species should be submitted under topic area 8.5 Food Science and Nutrition.

8.8 Biofuels and Biobased Products

Investigators are encouraged to contact Dr. William Goldner, National Program Leader for SBIR Biofuels and Biobased Products at wgoldner@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-1719.

Background

The objective of this research area is to promote the use of biofuels and non-food biobased products by developing new or improved technologies that will lead to increased production of industrial products from agricultural materials. This research will lead to new opportunities to diversify agriculture and enhance agriculture's role as a reliable supplier of raw materials to industry. Historically, appropriate research areas have included: development of new crops that have the potential of producing raw materials that can be converted into useful industrial products; development of procedures for enhanced recovery of critical raw materials from agricultural commodities; development of improved technology for converting agriculturally derived raw materials into useful industrial products; and development of industrial products derived from agricultural materials to make them more effective and/or more cost competitive with non-agriculturally derived industrial products. In order to enhance the impact of the program, acceptance of applications will be limited to the following selected Priority Research Areas.

FY2009 Priority Research Areas

Acceptance of applications for the FY2009 solicitation will be **strictly limited** to:

1. **Biobased Fuels** – New and improved technology for the **economically and environmentally sustainable** production and conversion of agriculturally important biomass material into ethanol and other products to be used as fuel (including but not limited to ethanol, hydrogen, biodiesel); fuel additives; development of improved biocatalysts for enhanced biofuel production and byproducts from the biofuel production stream that will optimize the economic feasibility of the production of biofuels. This solicitation seeks to support innovative technologies that will minimize environmental consequences during crop biomass crop production (for example: increased crop water-use efficiency; increased nutrient use-efficiency) and conversion (for example: reduction of energy use and water use during conversion; reduction of harmful byproducts from conversion) and have carbon reduction benefits. Applications developing technology for corn grain ethanol production will not be accepted. Applications not addressing economic and environmental sustainability may not be reviewed.

2. **New Crops for the Production of Non-food Biobased Products** – Identification, agronomic/horticultural testing, and development of **new industrial crops** that will provide new local or regional economic opportunities for farmers and growers to produce raw materials for the production of non-food biobased products. Focus should be on crops that do not require high inputs of water and fertilizer.

3. **New Non-food Biobased Products from New Industrial Crops** – Identification of markets and development of new biobased products and processes for making products from new industrial crops. These products should be economically competitive and have carbon reduction benefits.

4. New processes for the manufacture of biobased plastics and products produced from biobased plastics.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications that deal with developing value-added biobased products from animal manure or carcasses should be sent to the 8.11 Animal Manure Management topic area.

- Applications submitted to this topic area that do not specifically address the FY2009 Priority Research Areas will not be reviewed.

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

8.9 Marketing and Trade

Investigators are encouraged to contact Dr. Suresh Sureshwaran, National Program Leader for SBIR Marketing and Trade at ssureshwaran@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 720-7536.

Background

Success of the U.S. economy in general, including agribusiness and rural communities in particular, is increasingly dependent on maintaining and expanding domestic and international markets. The U.S. agribusiness economy is dependent on the development of new products, production practices, business and marketing tools, and information that enhance efficiency, equity, and the competitiveness of the sector. The scope of research of this topic is to identify an array of innovative marketing strategies to increase sales of the U.S. agribusiness sector, including agricultural, forestry, and aquacultural enterprises that derive a significant portion of its revenues from sales of agricultural products or sales to agricultural producers. Products include, but are not limited to, raw commodities, plus processed, value-added food, feed, seeds, fertilizer, and industrial products derived from these commodities, including biofuels and waste from biofuel production.

The long-term goals for this program are to: (1) Create efficient and equitable agribusiness marketing systems; (2) Assist with commercialization of new agribusiness products and technology; (3) Increase export market opportunities for U.S. agribusinesses; and (4) Enhance environmental benefits based on the market rather than on regulations.

FY 2009 Research Priorities:

1. Development of new marketing strategies that promote the sales of agribusiness products in "niche markets," and in regional or national markets, including the development of new technologies, innovative utilization of existing technologies, and the promotion of efficient assembling, packing, process, and shipping methods.

2. Development of current and projected economic information on product sales, potential demand, prices, quality standards and specifications, packaging preferences, relevant time periods, and other changes relative to consumption patterns at home and abroad to assist agribusiness firms with commercialization of new products and technologies.

3. Identification of new export market opportunities and development of processes that resolve trade impediments for U.S. agribusiness, including forestry, agricultural and aquacultural products, and biofuels, especially innovative marketing systems for small producers, markets for waste from biofuel production, transportation, etc.

4. Development of market-based approaches to reduce or mitigate adverse agri-environmental consequences or to promote positive agri-environmental outcomes while simultaneously preserving economic growth.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Where appropriate, foreign travel may be approved provided justification is adequately documented in the application.

8.11 Animal Manure Management

Investigators are encouraged to contact Dr. Richard Hegg, National Program Leader for SBIR Animal Manure Management at rhegg@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-6550.

Background

The objective of this research area is to develop new or improved technologies based on economically and environmentally sound approaches for improved management of animal manures. This research area may include other materials combined with manure, such as bedding, litter, chemical or microbial additives, and water. The proposed research is intended to reduce the adverse impact of animal manure on the environment, improve the economics of animal production by optimizing manure management technologies creating value-added products derived from animal manure, and improve the socially acceptable manure management practices. This program will focus exclusively on terrestrial animal production, including poultry. Successfully meeting the research priorities will contribute to the protection and enhancement of the Nation's natural resource base and environment.

The long-term goals (10 years) of this program are commercial adoption of new manure management technologies, development of technologies to meet or exceed air and water quality standards, increase the number of commercially viable value-added products to off-set the cost of manure management for livestock and poultry producers, and adoption of socially acceptable manure management practices.

FY 2009 Research Priorities:

1. Development of methods and technologies to reduce the impact of animal production systems on the environment by establishing better ways to handle, collect, store, transport, treat, and recycle animal manure;

2. Development of methods for the detection and abatement of air emissions resulting from handling, collecting, transporting, storing, treating, and spreading manure;

3. Development of innovative, energy-efficient, cost-effective products, processes, or services to reduce the impact of animal manure on surface and groundwater resources;

4. Development of innovative ways to process animal manure into value-added products, including bio-fuels and energy derived from manure; and

5. Development of innovative ways to improve the social acceptance of manure management practices.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topics.

- Applications that deal with aquacultural waste should be submitted under topic area 8.7 Aquaculture.

8.12 Small and Mid-Size Farms

Investigators are encouraged to contact Dr. Charles Cleland, National Program Leader for SBIR Small and Mid-Size Farms at ccleland@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-6852.

Background

The Small and Mid-Size Farms topic area aims to promote and improve the sustainability and profitability of small and mid-size farms and ranches (where annual sales of agricultural products are less than $250,000 for small farms and $500,000 for mid-size farms - hereafter referred to as small farms). The vast majority of farms in this country are small and they play an important role in the agricultural sector. The viability and sustainability of small farms is important to the Nation's economy and to the stewardship of our biological and natural resources. Small farms are also critical to sustaining and strengthening the leadership and social fabric of rural communities. Applicants are strongly encouraged to emphasize how their project would contribute to the well-being of rural communities and institutions. In particular, applicants should emphasize how the results of their project would be disseminated to other small farmers and provide benefit to the small farm community.

To meet these identified needs in the small and mid-size farm sector, the program's long-term goals (10 years) are to achieve improvements in sustainability and profitability of small farms with increased production of specialty crops and specialty animals; improved farm management skills in small farmers that leads to more sustainable and profitable small farms; better stewardship of natural resources through adoption of more sustainable farming practices; enhanced utilization of renewable energy sources and more focus on energy efficiency and energy conservation; and better educated small farmers who are better able to operate their farms on a sustainable and profitable basis.

FY 2009 Research Priorities:

Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

1. **New Agricultural Enterprises** – Efforts are needed to develop new agricultural enterprises that are small scale and focused on specialty farm products, both plant and animal, and on innovative ways to market these farm products through direct marketing, such as farmer's markets or cooperatives where the financial return to the farmer is optimized or through specialty market outlets that offer a higher financial return. Emphasis is encouraged for organic and natural foods, specialty animal products, such as free-range poultry or natural beef, non-food specialty crops, such as medicinal herbs and value-added food, and non-food products.

2. **Farm Management** – Efforts are needed to develop tools and skills that are appropriate for small farms that will enhance the efficiency and profitability of small farms. New tools are also needed that will enhance farm safety. Development of new risk management tools to facilitate better planning is needed. Innovative ways to promote agro-tourism as a way to enhance farm profitability is encouraged.

3. **Natural Resources and Renewable Energy** – Efforts are needed to develop farming methods scaled appropriately for small farms that are directed at more efficient use of natural resources. Particular emphasis is needed to develop better ways to utilize renewable energy sources, such as wind, solar, and geothermal energy, and to promote improved energy efficiency and conservation in farming operations.

4. **Educational Outreach** – Efforts are needed to develop new tools to ensure that the next generation of small farmers has access to the information and resources they need to operate their small farms on a sustainable and profitable basis.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

- The applicants are strongly encouraged to contact the National Program Leader regarding the suitability of research topic

8.13 Plant Production and Protection - Engineering

Investigators are encouraged to contact Dr. William Goldner, National Program Leader for SBIR Plant Production and Protection - Engineering at wgoldner@csrees.usda.gov regarding questions about the suitability of research topics or to arrange a telephone consultation (202) 401-1719.

Background

The objective of this topic is to examine means of enhancing crop production by reducing the impact of harmful agents and developing effective crop production systems that are economically and environmentally sound. Projects that promote energy conservation or efficiency are strongly encouraged. Examples of appropriate subtopics for research applications from small businesses include, but are not limited to the following:

1. **Improved crop production methods or strategies –** Enhance the efficiency of crop production by utilizing innovative methods and equipment for planting, growing and harvesting crop plants, including optimization of inputs and reduction of environmental impacts by implementing the use of precision farming technology, sensors, information technology, and remote sensing.

2. **Plant protection –** Reduce the impact of plant pathogens, insect pests and competing vegetation on crop plants by developing efficient and environmentally safe pesticide and herbicide usage equipment, especially technology to monitor and manage plant disease, insect pests, or abiotic stress at the earliest stages of their manifestations.

3. **Energy conservation –** Develop crop management systems, farm and greenhouse structures, and waste utilization strategies that promote energy conservation and efficiency, including the development of technology for the economic use of alternative/renewable energy resources.

Special Priority Research Areas for FY 2009: SBIR is strongly encouraging the submission of applications focusing on the following problem areas. Additional consideration will be given to applications addressing the development of products, processes, and services for U.S. production of specialty crops (fruits and vegetables, tree nuts, and nursery crops (including floriculture)):

1. **Improved chemical application technology** that increases efficacy, worker safety, and reduces off-target drift of applied chemicals.

2. **High resolution spatial and temporal monitoring** of specialty crops using sensors and sensor networks (for example, temperature, humidity, drought stress, pest damage, and disease).

3. **Post-harvest handling of specialty crops,** including handling to maintain quality and reduce food safety issues, reducing waste streams from post-harvest handling, selection for quality and consumer preference.

4. **Reduction of manual labor in specialty crop production, harvesting, and post-harvest handling** through technology to improve the competitiveness of U.S. specialty crop production.

5. **Commercial floriculture production technology** to improve the competitiveness of U.S. flowering potted plant, bedding plant, and cut flower production, seasonal crops, annuals, and perennials.

6. **Identity/pathway preservation technologies for specialty crops** technology facilitating the rapid and accurate tracing of specialty crops from producer to retail distributor.

Other Key Information

- **ALL ATTACHMENTS MUST BE SUBMITTED IN THE PORTABLE DOCUMENT FORMAT (PDF).**

- All Phase I applications should give the reviewing community a brief vision of where the PD expects the project to be at the end of Phase II (entering Phase III commercialization).

- Applications that deal with irrigation and related technology should be sent to the 8.4 Air, Water, and Soil topic area.

- Applications exceeding the budget limitation or exceeding the page limit or not meeting the formatting requirements will not be reviewed.

9.0 SUBMISSION FORMS AND CERTIFICATIONS

All of the necessary forms and instructions will be found on the Grants.gov Web site. One way applicants can access the appropriate page on Grants.gov by visiting the USDA SBIR funding opportunity page at http://www.csrees.usda.gov/fo/sbir. Clicking on the Funding Opportunity Number listed near the bottom of the page will link the applicant directly to the information and forms necessary to submit through Grants.gov. P**lease note: Applicants must have successfully completed the entire registration process, see subsection 3.2 prior to submitting an application through Grants.gov. All attachments must be submitted in PDF format, see subsection 3.2.3.**

10. 0 SAMPLE APPLICATIONS FROM USDA SBIR SOLICITATION

These applications, which resulted in Phase I awards, were submitted under previous USDA SBIR Program Solicitation guidelines. As such, these applications do not accurately reflect the current format nor the forms and attachments that are required for submission through Grants.gov. The sample applications are provided solely for general guidance. In the original application, the cover page was signed by both the Project Director and Authorized Organizational Representative. Social security numbers, budgets, and some material containing biographical information have been deleted to protect confidentiality.

Visit the Web to see the sample applications available only in PDF version at:
www.csrees.usda.gov/funding/sbir/sbir_sample.html