REQUEST FOR APPLICATIONS
Small Business Innovation Research (SBIR) Program
Phase II

MODIFICATION:
This RFA is an updated version of the FY 2020 solicitation. It includes only the references to FY 2021 funding;

Additional edits or revisions appear in red font.

FUNDING YEAR:	Fiscal Year 2021
APPLICATION DEADLINE:	May 3, 2021
LETTER OF INTENT DEADLINE:	Not Required
ANTICIPATED AVAILABLE FUNDING:	$4,100,000
Assistance Listing (CFDA):	10.212

INITIAL ANNOUNCEMENT
National Institute of Food and Agriculture, United States (U.S.) Department of Agriculture (USDA)

Assistance Listing (AL). The Small Business Innovation Research (SBIR) program Phase II is listed in the beta.SAM.gov Assistance Listings [formerly known as the Catalog of Federal Domestic Assistance (CFDA)] number 10.212.

Table 1 Key Dates and Deadlines

Application:	5:00 P.M. Eastern Time, May 3, 2021, Letter of Intent: Not Required
Applicants Comments:	Within six months from the issuance of this notice (NIFA may not consider comments received after the sixth month)

Stakeholder Input. The National Institute of Food and Agriculture (NIFA) seeks comments on all request for applications (RFAs) so it can deliver programs efficiently, effectively, with integrity, and with a focus on customer service. NIFA considers comments, to the extent possible when developing RFAs and use comments to help meet the requirements of Section 103(c)(2), Public Law 105-185, the Agricultural Research, Extension, and Education Reform Act of 1998 (7 USC 7613). Applicants may submit written comments to Policy@usda.gov (email is for comments only). Please use the following subject line: Response to the Small Business Innovation Research Program Phase II RFA.

EXECUTIVE SUMMARY

This notice identifies the objectives for the Small Business Innovation Research (SBIR) Program Phase II projects, deadlines, funding information, eligibility criteria for projects and applicants, and application forms, and associated instructions.

The USDA SBIR program focuses on transforming scientific discovery into products and services with commercial potential and/or societal benefit. Unlike fundamental research, the USDA SBIR program supports small businesses in the creation of innovative, and/or disruptive technologies and enables the application of research advancements from conception into the market.

Different from most other investors, the USDA SBIR Program funds early or "seed" stage research and development that has a commercial potential. The program provides equity-free funding and entrepreneurial support at the earliest stages of company and technology development.

NIFA requests applications for the Small Business Innovation Research (SBIR) Program Phase II for fiscal year (FY) 2021 from previous SBIR Program Phase I awardees. Enactment and implementation of appropriations or authorizing legislation may affect the availability or level of funding for this program and may delay the start date of Phase II grants for FY 2021.

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PART I. FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority

The National Defense Authorization Act for Fiscal Year 2017 (Pub. L. 114–328, §1834(a) Extension of SBIR and STTR programs) amended the SBIR Small Business Act (15 U.S.C. 638(m) to September 30, 2022.

The SBIR program is Congressionally mandated and intended to support scientific excellence and technological innovation through the investment of federal research funds to build a strong national economy by stimulating technological innovation in the private sector; strengthening the role of small business in meeting federal research and development needs; increasing the commercial application of federally supported research results; and fostering and encouraging participation by socially and economically disadvantaged and women-owned small businesses.

B. Purpose and Priorities

The Small Business Administration (SBA), through the SBIR Policy Directive, provides policy guidance for this program. A main purpose of the legislation is to stimulate technological innovation and increase private sector commercialization. The USDA SBIR program Assistance Listing 10.212, is therefore in a unique position to meet both the goals of USDA and the purpose of the SBIR legislation by transforming scientific discovery and innovation both social and economic benefit, and by emphasizing private sector commercialization.

The purpose of a research application is to provide a written statement that contains sufficient information to persuade members of the research and business community that the proposed activities are a sound approach to an innovation that answers both a scientific question and has a strong potential to be commercialized. The reviewers advise the USDA-NIFA SBIR professional staff which applications are worthy of support under the stated USDA-NIFA evaluation criteria.

The application should be self-contained and written with care and thoroughness and should be reviewed carefully by the applicant and by others knowledgeable on the subject prior to submission. Applicants need to ensure the application contains information essential for a comprehensive evaluation of the application. Examples of information would be intellectual property, preliminary data, etc.

Handling of baseline data and data collection will be addressed in the Data Management Plan (DMP) in accordance with the Part IV(B) of this RFA.

The aim of Phase II applications is to continue the R&D developed under Phase I with a goal to commercialize and bring the innovation to market as the Phase II project completes. Phase II will require a more comprehensive application, outlining the proposed effort in detail and the commercialization strategy for the effort. USDA-NIFA recognizes that Phase II awards may not be sufficient in either dollars or time for the firm to complete the total R/R&D and the commercialization activities required to bring the project results to a marketplace. Therefore, completion of the research under these circumstances may have to be carried into Phase III.

Phase III refers to work that derives from, extends, or logically concludes effort(s) performed under prior SBIR funding, but is funded by sources other than the SBIR Program. Phase III work is typically

oriented towards completing the commercialization of SBIR research or technology.
For Phase II applications, a small business must not propose large scale demonstration projects, or classified research. 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, however the prototype will have to comply with Federal Regulations (7 CFR 3403) for disposition at the end of the grant and cannot be used for Phase III activities. The prototype should be used as a model to manufacture new versions of the innovation for sale to a commercial market.

Literature surveys should be completed prior to the Phase II application and cannot be proposed as part of the R&D effort. Phase II Applicants must respond to a topic area listed (see Part I, C.) that corresponds to the Phase I work that was previously funded.

The USDA SBIR program currently has no specific procurement focus, as a consequence USDA offers ten (10) solicitation topic areas that are intended to permit a broad spectrum of eligible and innovative science- and technology-based small businesses to compete for funding. The topics are detailed within this solicitation. These ten solicitation topic areas provide an opportunity to pursue four of the five theme areas outlined in the: USDA Science Blueprint, https://www.usda.gov/sites/default/files/documents/usda-science-blueprint.pdf ; (A Roadmap for USDA Science from 2020 to 2025):

1. Sustainable Ag Intensification,
2. Ag Climate Adaptation,
3. Food and Nutrition Translations, and
4. Value-Added Innovations.

The topics areas also provide an opportunity to support two of the four components of the USDA Agriculture Innovation Agenda (https://www.usda.gov/aia):

1. Synchronization of public- and private-sector research; and
2. Alignment of the work of our customer-facing agencies and integrate innovative technologies and practices into USDA programs.

The SBIR program Phase II is aligned with the following USDA Strategic Goals:

1. Strategic Goal 2: Maximize the Ability of American Agricultural Producers to Prosper by Feeding and Clothing the World;
2. Strategic Goal 3: Promote American Agriculture Products and Exports
3. Strategic Goal 4: Facilitate Rural Prosperity and Economic Development;
4. Strategic Goal 5: Strengthen the Stewardship of Private Lands Through Technology and Research;
5. Strategic Goal 6: Ensure Productive and Sustainable Use of Our National Forest System Lands; and
6. Strategic Goal 7: Provide all Americans Access to a Safe, Nutritious, and Secure Food Supply. Additional requirements on expected performance goals, indicators and targets may be required as a condition of award.

C. SBIR Phase II Topic Areas

Forests and Related Resources – Topic Area 8.1
Contact Dr. Patrick Cassidy, NPL for SBIR Forests and Related Resources at patrick.cassidy@usda.gov or (202) 906-0614
The Forests and Related Resources topic area aims to address the health, diversity, and productivity of the Nation's forests to meet the needs of present and future generations through the development of environmentally sound approaches to increase productivity of forest lands, improve sustainability and develop value-added materials derived from forest resources.

Plant Production and Protection – Biology – Topic Area 8.2
Contact Dr. Robert Nowierski, NPL for SBIR Plant Production and Protection (Biology) at robert.nowierski@usda.gov or (202) 552-9084
The objective of this topic area is to examine novel ways of enhancing crop production and protection by: applying biological approaches to develop new methods for plant improvement, applying traditional plant breeding methods and new technologies to develop new food and non- food crop plants, developing plant characteristics that reduce the harmful impact of plant pests and biotic stresses, and developing new genotypes of existing crop plants with characteristics that facilitate crop utilization in new commercial applications.

Animal Production and Protection– Topic Area 8.3
Contact Dr. Robert M. Smith, NPL for SBIR Animal Production and Protection at robert.m.smith@usda.gov or (202) 445-3468
The Animal Production and Protection topic area aims to develop innovative, marketable technologies that will provide significant benefit to the production and protection of agricultural animals.

Conservation of Natural Resources– Topic Area 8.4
Contact Dr. James Dobrowolski, National Program Leader for SBIR Conservation of Natural Resources at james.dobrowolski@usda.gov or (202) 420-8918
The Conservation of Natural Resources topic area aims to develop innovative technologies that are developed with the purpose to conserve, monitor, improve and/or protect the quality and/or quantity of natural resources while sustaining optimal farm and forest productivity and profitability. We encourage new technologies and innovations that will help improve soil health, reduce soil erosion, improve water and air quality, improve nutrient management and conserve and use water more effectively.

Food Science and Nutrition – Topic Area 8.5
Contact Dr. Mallory Koenings, NPL for SBIR Food Science and Nutrition at Mallory.Koenings@usda.gov or (202) 604-1985
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 address emerging food safety, food processing, and nutrition issues.

Rural and Community Development – Topic Area 8.6
Contact Mr. Richard Elrod, NPL for SBIR Rural and Community Development at Richard.Elrod@usda.gov or (202) 445-5456
The Rural Development topic area aims to fund the development of new technology, or for the utilization of existing technology, that address important economic and social development issues or

challenges 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 benefit to rural Americans.

Aquaculture – Topic Area 8.7
Contact Dr. Timothy Sullivan, NPL for SBIR Aquaculture at Timothy.Sullivan@usda.gov
The Aquaculture topic area aims to develop new technologies that will enhance the knowledge and technology base necessary for the expansion of the domestic aquaculture industry as a form of production agriculture.

Biofuels and Biobased Products – Topic Area 8.8
Contact Dr. Timothy Conner, NPL for Biofuels and Biobased Products at Timothy.Conner@usda.gov or (202) 875-3027
The objective of this topic 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 biofuels, industrial chemicals, and other value-added products from agricultural materials.

Small and Mid-Size Farms – Topic Area 8.12
Contact Dr. Denis Ebodaghe, National Program Leader for SBIR Small and Mid-Size Farms at Denis.Ebodaghe@usda.gov or (202) 445-5460
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).

Plant Production and Protection – Engineering – Topic Area 8.13
Contact Dr. Victoria Finkenstadt, National Program Leader for SBIR Plant Production and Protection Engineering at Victoria.Finkenstadt@usda.gov
The objective of this topic area is to enhance crop production by creating and commercializing engineering technologies that enhance system efficiency and profitability and protect crops from pests and pathogens in economically and environmentally sound ways.

In addition to the areas listed above, USDA NIFA recognizes Agricultural-related manufacturing technology and energy efficiency and alternative and renewable energy as two crosscutting priorities with relevance to all areas listed in this program solicitation. The USDA NIFA encourages applicants to address these priorities, as appropriate, within their applications.
However, these are not meant to be standalone topic areas.

Agricultural-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 NIFA encourages the submission of applications that deal with some aspect of agricultural-related manufacturing technology. Since manufacturing affects all aspects of agriculture and rural development, applications dealing with manufacturing could be submitted to any of the topic areas.
Energy Efficiency and Alternative and Renewable Energy. In an effort to find alternatives to fossil fuels and to reduce overall energy usage, the USDA established research on energy efficiency and alternative and renewable energy as a high priority. Such research includes development of new energy crops, improved methods for producing biofuels, such as ethanol, butanol, 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 affect all aspects of agriculture and rural development and thus applications dealing with energy efficiency and alternative and renewable energy could be submitted to any of the topic areas.

D. Potential Commercial Outcome

In addition to supporting scientific R&D, another program goal is to provide incentives and opportunities for small business firms to convert USDA-NIFA sponsored research into technological innovations in the private sector. All proposed Phase II projects should have a commercial outcome; therefore, the application requires an extensive commercialization plan. Instructions on how to complete the commercialization plan are described in Part IV, C. SBIR/Small Business Technology Transfer Program (STTR) Information, Field 7 of this RFA.

Additionally, if a Phase II applicant has received a prior Phase II grant from the USDA-NIFA SBIR Program, the applicant is required to provide USDA-NIFA with an update on the commercialization activities of the prior project (See Part IV, C. Field 8. SBIR/Small Business Technology Transfer Program (STTR) Information; Field 8. Documentation of Prior SBIR Phase II Awards).

E. Potential Commercial Outcome and Commercialization Assistance Training Program

Where Phase II applications are evaluated as having approximately equal technical merit, NIFA will consider optional letters of support or contingent commitment letters. In such instances, Phase II applicants with strong letters of support or contingent commitment letters for non-SBIR follow-on funding to pursue further development of the commercial potential during Phase III may receive special consideration as a point of merit in the review and evaluation process.

To receive the consideration described above, applicants must submit letters of support or contingent commitment letters between the small business firm and the entity as part of their Phase II application. The letters must be signed by both parties, set forth the specific amount of Phase III funds, and indicate the dates that such funds will be made available to the small business concern. The terms cannot be contingent upon the obtaining of a patent due to the length of time this process requires. The greater value (in Phase II evaluation) will be given for a signed formal agreement with reasonable terms and funding equal to or in excess of the Federal investment requested in the Phase II application.

The commitment may be in the form of: venture capital, a package including venture capital, contract research and development, a joint venture, a research and development limited partnership, or other agreement with a non-SBIR source of funding. No amortization, repayment, or repurchase of commitment funds may be included during the Phase II period of performance.

USDA understands that any such commitment will likely be contingent upon the Phase II awardee attaining technical objectives that are mutually agreed upon between the small business firm and the provider of the follow-on funding. These objectives should be closely related to those delineated in the Phase II research application. The technical objectives should be clearly defined and measurable and should be specified in the commitment agreement at the threshold level that would justify such an investment. The objectives do not have to be identical to those stated in the Phase II application, but they must be able to be accomplished within the scope of the proposed SBIR-funded research. Any letters or other forms of tentative commitment for follow-on Phase III funding from sources other than Federal SBIR Programs will be considered.

Special Instructions for Technical and Business Assistance Costs: The John S. McCain National Defense Authorization Act for Fiscal Year 2020 permits SBIR Phase II awardees to enter into agreements with one or more vendors to provide Technical and Business Assistance (TABA). TABA allows an additional $50,000 supplement to the award and is aimed at improving the commercialization success of SBIR awardees. It may be obtained from entities such as public or private organizations; including from an agency of or other entity established or funded by a State that facilitates or accelerates the commercialization of technologies or assists in the creation and growth of private enterprises that are commercializing technology. TABA may include access to a network of scientists and engineers engaged in a wide range of technologies or access to technical and business literature available through on-line databases. This also includes product sales, IP protections, market research, market validation, development of regulatory plans and manufacturing plans.

The goal of TABA is to assist SBIR awardees in:

1. Making better technical decisions on SBIR projects;
2. Solving technical problems that arise during SBIR projects;
3. Minimizing technical risks associated with SBIR projects; and
4. Commercializing the SBIR product or process.

An SBIR firm may acquire TABA services described above on its own. Firms must request this authority from USDA and demonstrate in its SBIR Phase II proposal that the vendor(s) or entity(ies) selected can provide the specific TABA services needed. In addition, costs must be included in the application. The TABA vendors/provider(s) may not be the requesting firm, an affiliate of the requesting firm, an investor of the requesting firm, or a subcontractor or consultant of the requesting firm otherwise required as part of the paid portion of the research effort (e.g. research partner or research institution). The applicant may use TABA funds for commercialization efforts that would require certification or registration of the innovation, if the certification or registration process requires a research or analytical effort that is outside the scope of the SBIR project. However, the costs for certification and registrations that require research and analytical efforts may be counted towards the SBIR one-half (1/2) cap for sub-awards. See part I. E (A).

To request TABA services please see Part IV, C. for further details and instructions.

PART II. AWARD INFORMATION

A. Available Funding

USDA NIFA plans to fund approximately forty (40) percent of the Phase II applications within each of the ten (10) topic areas identified in this RFA. Enactment and implementation of appropriations or authorizing legislation may affect the availability or level of funding for this program.

USDA is not committed to fund any particular application or to make a specific number of awards. The Automated Standard Application for Payments, operated by the Department of Treasury, Bureau of Fiscal Service, is the designated payment system for awards resulting from this RFA.

Awards are based on the level of funding provided to the program in FY 2021. For FY 2021, Phase II awards will not exceed $600,000 (not including TABA), with the maximum award available $650,000 (including TABA) for a period of 24 months with a start date of September 1, 2021.

B. Application Restrictions

NIFA will evaluate applications using the criteria described in Part V of this RFA. Applications for FY 2021 are limited to the following applications types:

1. New application. This is a project application that has not been previously submitted to the SBIR Phase II Program. We will review all new applications competitively using the screening for administrative requirements, review panel evaluation of applications using evaluation criteria, and selection process described in Part V- Application Review Requirements.

C. Project Types

Phase II applications may not request more than $600,000 (not including TABA), with the maximum award available $650,000 (including TABA) for a period normally not to exceed 24 months. In special cases, NIFA can allow a period of performance up to 36 months but applicants may not request more than $600,000 (not including TABA). The planned period of performance dates are listed below, however these dates may change due to the enactment of continuing resolutions or an appropriations act.

FY2021 ~ Phase II, Start Date: 9/1/2021, End Date: 8/31/2023

D. Ethical Conduct of Funded Projects

In accordance with sections 2, 3, and 8 of 2 CFR Part 422, institutions that conduct USDA- funded extramural research must foster an atmosphere conducive to research integrity, bear primary responsibility for prevention and detection of research misconduct, and maintain and effectively communicate and train their staff regarding policies and procedures. In the event an application to NIFA results in an award, the Authorized Representative (AR) assures, through acceptance of the award, that the institution will comply with the above requirements. Award recipients must, upon request, make available to NIFA the policies, procedures, and documentation to support the conduct of the training. See Responsible and Ethical Conduct of Research for further information. Reporting Waste, Fraud and Abuse - In the event a company or individual suspects any waste, fraud and/or abuse, the company or individual can contact the USDA Office of Inspector General (OIG)'s hotline or at (800) 424-9121.

PART III. ELIGIBILITY INFORMATION

A. Eligibility Requirements

Only previous USDA-NIFA SBIR Phase I awardees who have not previously applied for Phase II support are eligible to apply for Phase II support through this FY 2021 RFA. This includes those awardees identified via a "novated" or "successor-in-interest" revised funding agreement. A Phase I project may only apply for a Phase II award once. If a Phase I awardee was unsuccessful in receiving a Phase II award with a previous application, then the awardee is not eligible to resubmit the proposal under this or a future Phase II program solicitation. Failure to meet an eligibility criterion by the application deadline may result in the application being excluded from consideration or, even though an application may be reviewed, will preclude USDA NIFA from making an award.

Each applicant submitting an application must qualify as a Small Business Concern (SBC) through registration with the SBA for R/R&D purposes at the time of award (see Definitions in Part VIII).

SBIR/STTR program eligibility requirements are in place to ensure that the funds go only to small, independent businesses within the United States. The regulations include restrictions about (1) the type of firm, (2) its ownership structure, and (3) the firm's size in terms of the number of employees. The purpose of the requirement regarding type of firm is to target the awards to firms with an economic interest in developing the idea or research into a commercial application. The purpose of the ownership requirement is to limit the program to independent firms controlled by United States citizens or permanent resident aliens as a way of maximizing the likelihood that the funding will stimulate innovative activity within the United States economy. The purpose of the size restriction (number of employees of the firm and its affiliates) is to limit program funding to small business concerns which have a unique capacity for innovation and are more likely to be constrained by lack of access to such funding.

TYPE OF FIRM

- An SBIR/STTR small business awardee must be a business concern – it must be organized as a for-profit concern and meet all of the other requirements for a "business concern" in 13 C.F.R. § 121.105.
- Non-profit entities are not eligible.
- If an awardee is a joint venture, each party to the joint venture must be a concern that satisfies all program eligibility requirements.

OWNERSHIP & CONTROL

A majority (more than 50%) of your firms' equity (e.g., stock) must be directly owned and controlled by one of the following:

1) One or more individuals who are citizens or permanent resident aliens of the US,
2) Other for-profit small business concerns (each of which is directly owned and controlled by individuals who are citizens or permanent resident aliens of the US).
3) A combination of (1) and (2) above.
4) Multiple venture capital operating companies, hedge funds, private equity firms, or any combination of these, so long as no one such firm owns or controls more than 50% of the equity. Note: This option is allowed only for SBIR awards from agencies that are using the authority provided in § 5107 of the SBIR/STTR Reauthorization Act (majority

Note: If an Employee Stock Ownership Plan owns all or part of the concern, each stock trustee and plan member is considered an owner. If a trust owns all or part of the concern, each trustee and trust beneficiary is considered an owner.

For more information on SBIR eligibility go to
https://www.sbir.gov/sites/default/files/elig_size_compliance_guide.pdf

A potential grantee that is a subsidiary must show that the parent company or parent companies are also a small business entity as described above. The parent companies must be a small business and located within the United States. The parent company or parent companies must provide documentation supporting their small business status (the documentation should be included in, Other Attachments, of the Research and Related (R&R) Other Project Information form as directed by Part IV of this RFA). If the parent company or one of the parent companies is a nonprofit organization or an organization outside of the United States, then the subsidiary is not eligible to submit an SBIR application.

Joint ventures, limited partnerships and venture capital are eligible provided the entity created qualifies as a small business concern as defined in this program solicitation.

In addition, the primary employment of the Project Director/Principal Investigator (PD/PI) must be with the small business concern at the time of award and during the conduct of the proposed project. Eligible primary employment means that more than one-half (51%) of the PD's/PI's time is spent in the employ of the small business during the award period of performance. Primary employment with the small business precludes the applicant as a full-time employee with another organization or academic institution. While the PD/PI must work more than one-half (51%) of his/her time for the small business during the entire grant period, there is no time requirement for the PD's/PI's work on the proposed research. Prior Federal Employees must provide documentation that post termination requirements from Federal Service has been completed at time of submission.

Size. An SBIR awardee, combined 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 II, a minimum of one-half (50%) of the research or analytical work, as determined by budget expenditures, must be performed by the proposing organization.

Work in the United States. For Phase II, the R/R&D work must be performed in the United States. On rare and unique circumstances, for example, a supply, material or project requirement may not be available in the United States, agencies may allow that particular portion of the R/R&D work to be performed or obtained outside of the United States. Upon award, the Phase II awardee may request an exception as described in the award terms and conditions and submit to USDA-NIFA for approval.

Benchmark. A small business firm that submits a Phase II application and has received more than 15 SBIR Phase II awards during the preceding 5 fiscal years must document the extent to which it was able to secure Phase III funding/sales 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. This information

will be retained for the report required under section 105 of the Small Business Research and Development Enhancement Act of 1992.

B. Cost Sharing or Matching

No Match Required - The SBIR has *NO* matching requirement. NIFA will not factor matching resources into the review process as an evaluation criterion.

PART IV. APPLICATION AND SUBMISSION

A. Method of Application

Only electronic applications may be submitted via Grants.gov to NIFA in response to this RFA. Documents submitted via email will not be accepted. The electronic application for this RFA and additional resources are available on Grants.gov. Table 2 provides instructions on how to obtain an electronic application. Part II § 1 of the NIFA Grants.gov Application Guide (Application Guide) contains detailed information regarding the Grants.gov registration process. We urge you to submit early to the Grants.gov system. For information about the pre-award phase of the grant lifecycle see http://www.grants.gov/web/grants/learn-grants/grants-101/pre-award-phase.html.

Table 2 Steps to Obtain Application Materials

Step One: Register	*New Users* to Grants.gov must register early with Grants.gov prior to submitting an application (Register Here).
Step Two: Download Adobe	Download and Install Adobe Reader (see Adobe Software Compatibility for basic system requirements)
Step Three: Find Application	Using this funding opportunity number USDA-NIFA-SBIR-008080 search for application here: Opportunity Package.
Step Four: Assess Readiness	Contact an AR prior to starting an Application to assess the organization's readiness to submit an electronic application.

Table 3 Help and Resources

Grants. gov Support	NIFA Support
Grants.gov Online Support Telephone support: 800-518-4726 Toll-Free or 606-545-5035 Email support: support@grants.gov Self-service customer based support: Grants.gov iPortal *Key Information: Customer service business Hours 24/7, except federal holidays.*	Email: SBIR@usda.gov *Key Information*: Business hours: Monday thru Friday, 7a.m. – 5p.m..CT, except federal holidays

B. Small Business Administration (SBA) Registration

Companies that submit an application to any SBIR solicitation are required to register with the SBIR company registry and obtain an SBC Control Number. All companies are also required to update their commercialization status through the SBIR company registry. Supporting documentation must be included in a company's application as a portable document format (PDF) file and attached under Field 12 of the application. SBIR registration information is available on the SBIR Homepage.

C. Content and Form of the Application

The Application Guide is part of the corresponding application package for this RFA. The RFA overrides the Application Guide if there is a discrepancy between the two documents. NIFA will accept subsequent submissions to an application until the application deadline. However, applicants that do not meet the application requirements, to include partial applications, risk being excluded from NIFA's review. NIFA will assign a proposal number to all applications that meet the requirements of this RFA. Applicants must refer to the proposal number when corresponding with NIFA. Table 4 outlines other key instructions for applicants.

Note the attachment requirements (e.g., PDF) in Part III, Section 3 of the guide. ANY PROPOSALS THAT ARE NON-COMPLIANT WITH THE REQUIREMENTS (e.g., content format, PDF file format, file name restrictions, and no password protected files) WILL BE AT RISK OF BEING EXCLUDED FROM NIFA REVIEW. Grants.gov does not check for NIFA required attachments or whether attachments are in PDF format; see Part III, Section 6.1 of the guide for how to check the manifest of submitted files. Partial applications will be excluded from NIFA review.

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 NIFA 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 NIFA evaluation criteria. The application is to 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.

Multiple Submission – Submission of a proposal to more than one topic area is not allowed. NIFA will disqualify both applications. For those new to Federal financial assistance, NIFA's Grants Overview provides highly recommended information about grants and other resources to help understand the Federal awards process.

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 NIFA 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@usda.gov.
Submitting changes to Grants.gov without contacting the program contact could significantly delay your application submission and may result in the application not being reviewed.

Letter of Intent Number- This solicitation does not require a letter of intent. Use "NA" for this field.

Table 4 Key Application Instructions

Instruction)	References (All references are to the Application Guide
Attachments must be in a PDF format.	Part III § 3
Check the manifest of submitted files to verify attachments are in the correct format.	Part III § 6.1
Conduct an administrative review of the application before submission.	Part VII and
Follow the submission instructions.	Part IV § 1.5
Provide an accurate email address, where designated, on the SF-424 R&R.	Part IV § 1.5
Contact the Grants.gov helpdesk for technical support, and keep a record of the correspondence.	
Contact NIFA if applicant does not receive correspondence from NIFA regarding an application within *30* days of the application deadline.	

. See Part V § 2 and Part V § 2.17of the Application Guide for the required certifications and assurances.

Field 5. The USDA NIFA SBIR program's official correspondence will be with either the PD or AR.

Field 12. Proposed Project Start Date and End Date. The proposed duration of Phase II projects should normally not exceed twenty- four months, except in special, justified circumstances. The planned period of performance dates are listed below, however these dates may change due to the enactment of continuing resolutions or an appropriations act. In most circumstances, the following dates should be used for these fields:

FY2021 ~ Phase II, Start: 9/1/2021, End: 8/31/2023

Field 17. Complete Certification. Refer to the Application Guide for information on the certifications that are being agreed to by checking this box. 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 12 of the R&R Other Project Information form (Other Attachments).

Field 20. Pre-application. This is not applicable to the USDA NIFA SBIR program. Do not add attachments.

. See Part V § 3 of the Application Guide.

R&R Other Project Information Form. See Part V § 4 of the Application Guide.

1. *Field 7. Project Summary (PS)/Abstract*. The PS must show how the project goals align with the project goals of SBIR. See Part V § 4.7 of the Application Guide for instructions and suggested templates. The PS is limited to *one* page with line spacing not exceeding six lines of text per vertical inch, including all figures and tables.

The PS must include a description of the problem or opportunity, project objectives, and a description of the effort. The PS must also include a paragraph discussing the anticipated results and potential commercial applications of the proposed research. NIFA may publish the PS of successful applications; therefore, the PS should not contain proprietary information.

It is the responsibility of the applicant to review the attachment for page limit and PDF compliance before submission. Applicants must ensure that the abstract attachment meets the required page limit. NIFA will not review applications that exceed the required page limits.

2. *Field 8. Project Narrative (PN).* The PN must not exceed a total of 20 pages of written text with 12-point font and line spacing not exceeding six lines of text per vertical inch, including all figures and tables(the font must be Times New Roman with at least 1-inch margins). Labels for figures and tables may use a font no smaller than 10 point. The page limits outlined here ensure fair and equitable competition. Appendices to the PN are allowed if they are directly germane to the proposed project and are within the page limit. Do not add appendices to circumvent the page limit. Applicants must not include additional information such as cover sheets, table of contents, reference listings, budgets, and appendices unless the applicant intends for NIFA to consider them in the page count.

   The PN must include all of the following, or NIFA may not review it:

   a. *Responsiveness to USDA NIFA SBIR Program Priorities*: Indicate if the application has a connection to agricultural–related manufacturing technology, energy efficiency and alternative and renewable energy. Provide a brief explanation of how the application is related to the area indicated.
   b. *Prior USDA Support*: USDA-NIFA is interested in documenting examples of SBIR projects that are developing new technologies based on earlier USDA-supported research and development projects awarded to the proposing small business, university, or government scientist collaborators by other USDA research and development programs, such as the Agricultural Food and Research Initiative (AFRI). If any such support exists, it should be documented in this section by listing the PD, application title, organization that received the award, and the USDA program that awarded the project.
   c. *Identification and Significance of the Problem or Opportunity*: Clearly state the specific technical problem or opportunity addressed and its importance.
   d. *Background and Rationale*: Indicate the overall background and technical approach to the problem or opportunity as identified in the Phase I project. Describe the part that the proposed Phase II research plays in providing needed results to scale up the research and development and commercialization. As a part of this section, it is critical that applications adequately cite relevant scientific literature to demonstrate support for your proposed research. Moreover, all citations provided must be properly referenced in the Bibliography & References Cited as a separate attachment (see Field 9). USDA NIFA has the right to decline any application where there is evidence of plagiarism
   e. *Relationship with Research or Research and Development*: Discuss the results of the Phase I project. Include a discussion of the overall background of the Phase I project, a list of the Phase I technical objectives, a presentation of a detailed description of the Phase I results, a clear interpretation of the results, and conclusions as to the feasibility of the project. This section is where the Phase II applicant establishes technical feasibility by presenting results from Phase I. Therefore, this section should provide an adequate discussion of Phase I results. The applicant should also state the anticipated results of the proposed

approach if the project is successful.

f. *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.

g. *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 is linked with the technical objectives of the research and the questions the effort is designed to answer. This section will constitute a substantial portion of the project narrative and can include graphics, tables, charts, etc.

h. *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. Describe any commercial products, services, or innovations that are already in the market and if the project relates back to that R&D. Discussion of existing innovations in the application should convince reviewers that the applicant is aware of related research and commercial innovations 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 new innovations or to substantial improvement of an existing product, process, service, or technology.

i. *Potential Post Application*: For this section, briefly describe the market potential for the innovation. In Phase II, demonstration of commercialization potential requires a more extensive commercialization plan that must be presented as directed later in this RFA (see section 7. SBIR/Small Business Technology Transfer Program (STTR) Information, Field 7).

3. *Field 9. Bibliography & Cited References*. 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. Please list the references in alphabetical order using the last name of the first author.

4. *Field 10. Facilities & Other Resources*. Describe the types, location, and availability of instrumentation and physical facilities necessary to carry out the work proposed. If the work will be conducted at a facility not owned and operated by the applicant, see Field 12 for additional information.

5. *Field 11. Equipment Documentation*. 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.

6. *Field 12, Add Other Attachments*. See Part V § 4.12 of the Application Guide.

   a. *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.

b. *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 businesses 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 must be described in detail. Only fifty (50) percent of the grant based on expenditures can normally be used for outside services. 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.

c. *Letters of Support.* Letters of Support are strongly encouraged and should be included. Letters of support act as an indication of market validation and technical support for the proposed innovation and add significant credibility to the proposed effort. Letters of support demonstrate that the company has initiated dialogue with relevant stakeholders (potential customers or end users, strategic partners or investors) for the proposed innovation and that a legitimate business opportunity may exist should the technology prove feasible. The letter(s) must contain affiliation and contact information for the signatory stakeholder and should be addressed to the applicant. Letter of support from consultants or subcontractors may be provided if they are providing a critical role in the project, such as access to facilities, equipment, or expertise. The recommended page limit for each individual letter is two pages. Letters and supporting documents from State, Local and Congressional representatives are NOT considered letters of support and should not be submitted as part of the application. Applicants must include these letters of support in a PDF format and upload to Field 12 of the R&R Other Project Information form (Add Other Attachments).

   If letters of support are not appropriate for this stage of an innovation, due to business considerations, then the applicant must clearly justify why letters of support are not being included in a PDF format and uploaded in lieu of letters of support. The justification should relate to the technical and commercial considerations of the innovation proposed in the application.

d. *Duration Exceeds Normal Project Period.* The proposed duration of Phase II projects will not normally exceed twenty-four (24) months, except in special, justified circumstances. Where a proposed research project requires more than twenty-four months to complete Phase II, a longer project period, not to exceed thirty-six (36) months, may be requested. An applicant of a Phase II project with an anticipated duration beyond twenty-four months should specify and justify the length of duration in the application at the time of its submission to USDA NIFA.

e. *Applicant is a Subsidiary.* A potential grantee that is a subsidiary must show that the parent company or parent companies are also a small business entity and the parent company or parent companies must provide documentation supporting their small business status. The parent company or companies must reside in the U.S. and cannot be a nonprofit. The

subsidiary must provide documentation to support its independent viable financial status.

f. *Statement of 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.

g. *Non-Domestic Performance Explanation*. 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. All Applicants MUST note that per the terms and conditions of the award, "All foreign travel performed under this project must be approved in writing by USDA NIFA prior to departure. If foreign travel is authorized under this project, the approved budget will identify funds for this purpose. Where foreign travel is contemplated subsequent to the effective date of the project, a written request must be submitted to the USDA NIFA outlining the purpose of the proposed trip, the inclusive dates of travel, the destination, and estimated costs involved."

R&R Senior/Key Person Profile (Expanded). Applicants must fill out a profile for the PD and anyone who the budget will support. See Part V § 5 of the Application Guide for profile requirements, details about the biographical sketch, and suggested support templates. All biographical sketches must indicate the employment history of each PD and Co-PD for the last 10 years. Applicants must include the current and pending support form as an attachment in the application. The PD and Co-PDs must include a conflict of interest form.

R&R Personal Data. This information is voluntary and is not a precondition of award (see Part V § 6 of the Application Guide).

R&R Budget. See Part V § 7 of the Application Guide. Applicant must complete a Research and Related Budget form for each year (or partial year) for which work is proposed under this program solicitation. Applicants must ensure that the budget provided in the R&R Budget forms matches the requested budget amount found in Field 15(a) on the SF–424 form and that this number does not exceed the budget ceiling of $600,000 (not including optional TABA) with the maximum award available $650,000 (including TABA)for a period of 24 months. Budget requests that exceed the ceiling will be excluded from review.

Fields A. and B. 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).

Field C. Equipment Description - Performing organizations are expected to have appropriate facilities, suitably furnished, and equipped. However, applicants may request funding for items of equipment if they are specifically identified with the dollar amount and adequately justified, see Field K of the R&R Budget.

Field D2. Foreign Travel Costs Funds Requested - Requests for foreign travel must be approved 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. All Applicants MUST note that per the terms and conditions of

the award: “All foreign travel performed under this project must be approved in writing by USDA NIFA prior to departure. If foreign travel is authorized under this project, the approved budget will identify funds for this purpose. Where foreign travel is contemplated subsequent to the effective date of the project, a written request must be submitted to the USDA NIFA outlining the purpose of the proposed trip, the inclusive dates of travel, the destination, and estimated costs involved.”

Fields E 1-5. Participant/Trainee Support Costs – See the Application Guide for directions.

Fields F 1-10. Other Direct Costs – See the Application Guide for directions.

Field G. Direct Costs – See the Application Guide for directions.

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 12 “Other Attachments” of the R&R Other Project Information form for required documentation associated with subcontracts and consultants. A budget and budget justification stating sub- contractual and consulting costs and the rationale for the amount of the costs are required. In Phase II, a minimum of one-half (50%) of the research or analytical work, as determined by budget expenditures, must be performed by the proposing organization. Rates of pay for consultants exceeding that of a US Government Senior Executive Service Level IV salary rate will be given a greater than normal level of scrutiny and therefore, as much documentation as possible to support the rate is recommended.

Request for use of Technical and Business Assistance Funds - If an applicant chooses to request up to $50,000 for Technical and Business Assistance (TABA) (see Part I E.), the applicant must submit a TABA plan as a PDF file and attached to Field 12, Other Attachments of the Other Project Information Form (see section B.3. of this Part).The TABA plan must not exceed three (3) pages from the applicant that describes the following:

1. Name and contact information for vendor(s) that will provide the services;
2. Description of vendor(s) expertise and knowledge of providing technical and business assistance services;
3. Itemized list of services to be provided;
4. Expected metric and outcome for each service to be provided;
5. Plans to report back to USDA as a deliverable on the outcomes and success of the TABA services and what information will be provided to validate the results; and
6. Ensure the costs are reflected in the budget forms.
    a. If you wish to utilize a technical assistance vendor/provider, you are required to include this as a consultant in your budget and to provide a detailed budget justification indicating the costs per service.

A maximum three (3) page qualification statement from each selected vendors(s) that describes the following:

1. Statement must be provided on the selected vendor(s) letterhead and signed by an authorizing entity within the vendors organization that can attest to the services being provided.
2. Include a capabilities statement that provides the following:
    a. Indicates the qualifications, expertise and knowledge to provide the TABA services

requested by the applicant.
   b. Indicate the level of expertise and knowledge of the Federal SBIR program and specifically any prior support provided to Phase II awardees.
3. Describe the overall metrics of success for the services requested by the applicant.
4. Describe the plans to report back to USDA as a deliverable on the outcomes and success of the TABA services and what information will be provided to validate the results.

USDA-NIFA reserves the right to withhold funds requested for TABA until formal review and approval of the requested vendor is provided by NIFA's Award Management Branch and SBIR staff. If the project is selected for an award and the applicant demonstrates this requirement sufficiently as determined by the Government, USDA will permit the awardee to acquire such TABA assistance itself, in an amount up to $50,000 for the full Phase II project, as an allowable cost of the SBIR award. The amount will be in addition to the award of $600,000 and is not subject to any profit or fee by the requesting firm and cannot be used in the calculation of indirect cost rates. The amount is based on the original grant period of performance and does not apply to period of performance extensions. Requests for TABA funding outside of the Phase II application submission will not be considered.

Field H 1-4. Indirect costs (IDC) – See Part IV § D of this RFA for funding restrictions regarding indirect cost, and Part V 7.9 of the Application Guide for additional information. Additional guidance on indirect cost calculation for application to USDA NIFA can be found at USDA Indirect Cost. USDA NIFA does not have a cap on Indirect Costs for SBIR grants. Applicants that have a federal negotiated Indirect Cost Rate already established are eligible to take their federally negotiated indirect cost rate.

Field J. Fee - Applicants must reference the Application Guide for directions. If an applicant requests a fee, the combined total of "Section I - Total Direct and Indirect Costs" and "Section J – Fee" on the Research & Related (R&R) Budget form must not exceed the ceiling of this program solicitation. Please see Field K (6) below.

Field K. Budget Justification – 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 and Related Budget Form is submitted. Budget Justification categories are as follows:

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 NIFA 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 must have appropriate facilities and have them suitably furnished and equipped. However, funding for items of equipment may be requested if they are specifically identified with the dollar amount and adequately justified. Such requests should normally not exceed 10 percent of the budget. Only American-made items should be purchased when possible. 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 NIFA 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 and will require prior approval from NIFA per 2 C.F.R. 200.439 with respect to need, reasonableness, and appropriateness for the research proposed.

3. *Materials and Supplies.* The types of expendable materials and supplies required are indicated in this section in general terms with estimated costs.
4. *Travel*. The type and extent of travel and its relationship to the project must be specified. Funds may be requested for fieldwork or for travel to professional meetings. Requests for foreign travel may be approved by USDA NIFA based on the justification provided in the application and the terms and conditions for the grant. 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.
6. *All Other Direct Costs.* Other anticipated direct costs not included above must be itemized. Examples include, but are not limited to, subcontracts and consultants. See Field 12 "Other Attachments" of the R&R Other Project Information form for required documentation associated with subcontracts and consultants. A budget and budget justification stating sub-contractual and consulting costs and the rationale for the costs are required. In Phase II, a minimum of fifty (50) percent of the research or analytical work, as determined by budget expenditures, must be performed by the proposing organization. Consultants' rate of pay normally cannot exceed $629/day for an 8-hour day*Fee*. A reasonable fee, not to exceed seven percent of total Federal funds awarded (.07527 of Field I, Total Direct and 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 NIFA. If a fee is requested, the amount should be indicated in Field J "Fee" on the R&R Budget form. If an applicant requests a fee, the combined total of "Section I - Total Direct and Indirect Costs" and "Section J – Fee" on the Research & Related (R&R) Budget form must not exceed the ceiling of this program solicitation. Budget requests that exceed the ceiling of this program solicitation will be excluded from review.
7. *Indirect Costs*. See Part V § 7.9 of the Application Guide for information about requesting indirect cost.
8. *Cost Sharing*. Cost sharing is permitted for applications under this program solicitation; however, cost sharing is not required nor will it be an evaluation factor in considering the competitive merit of applications submitted.

See Part V § 8 of the Application Guide. By statute, the USDA NIFA SBIR program can only allow up to one-third (1/3) of the grant funds to be used for subcontracting and consulting purposes.

. See Part VI § 1 of the Application Guide.

1. Field 2. Program to which the applicant is applying. This refers to the SBIR topic area to which you are submitting your USDA NIFA SBIR application and should be numerical only. For example, if you are applying to the 8,3 topic area, the program code name would be *Animal Production and. Protection* and the program code would be *8.3*. Accurate entry is critical.

You must submit your Phase II application to the same SBIR topic area as your Phase I award. This requirement is non-negotiable, and it is extremely important that the Program Code Name and Program Code are spelled correctly and exactly match one of the topic areas for which you are applying. Failure to complete these fields correctly may jeopardize the review of your application.

2. Field 8. Conflict of Interest List. See Part VI § 1.8 of the Application Guide.

Representations Regarding Felony Conviction and Tax Delinquent Status for Corporate Applicants. This is required for corporate applicants. See Part VI § 2 of the Application Guide for a description of the term, "corporation."

. *See* Part VI § 3 of the Application Guide, unless noted below.

Program Type-Select SBIR. USDA NIFA does not offer a STTR program SBIR/STTR Type – Select Phase II

Field 7. Commercialization Plan. (PDF format only) – This is required for a Phase II application submission.

The plan must only include information pertaining to the items listed below. The Commercialization Plan shall not exceed 10 pages of written text using font no smaller than 12 point with at least 1-inch margins, regardless of whether it is single- or double-spaced.
Labels for figures and tables may use a font no smaller than 10 point.

Include the following sections and information in the commercialization plan:

1. Introduction of the SBIR Project and Expected Outcomes: Describe, in layperson's terms, the proposed project and its key technology objectives. Clarify the need addressed, specifying weaknesses in the current approaches to meet this need. In addition, describe the commercial applications of the research and the innovation inherent in the application.

2. Company Information: Give a brief description of your company including corporate objectives, core competencies, size (annual sales level), and number and types of employees for the last 5 years (if company has existed for more than 5 years), and any current products/services that have significant sales. Those grantees existing for less than five years should provide this information for the years they have been operational. Indicate your vision for the future and how you will grow/maintain a sustainable business entity. Include a short description of the origins of the company.

3. The Market, Customer, and Competition: Describe the national and/or global market and/or market segments (for the product, technology or service) you are targeting. Provide information on the size of the market(s) and a brief profile of the potential customer(s). State what significant advantages your innovation will bring to the market(s) (e.g., better performance, lower cost, faster, more efficient or effective, new capability). Explain the hurdles you will need to overcome in order to gain market/customer acceptance of your innovation. Briefly explain the plans you have for approaching your potential customers (i.e., your marketing and sales strategy).

Describe the current competition and any potential competitors over the next several years. Include a schedule showing the projected needs (e.g., amount of additional investment, timeframe) from the end of Phase II until commercialization. Indicate any other potential commercial factors that are not described above.

4. Intellectual Property: Describe how you will protect the intellectual property that results from your innovation. Note any actions you may consider to attain at least a temporary competitive advantage. What is the company's prior record in this area? Comment on the company's strategy to build a sustainable business through protection of intellectual property.

5. Revenue Stream: Describe the plans for generating a revenue stream and include the assumptions that form the basis for revenue projections. Address how the revenue stream will be profitable to the company or at least sustain the product through its life cycle.

6. Financing: How will you raise the necessary financing for Phase III commercialization? Provide evidence of the plan for this funding in one or more of the following ways: A letter of commitment* for follow-on funding;

a. A letter of intent* or evidence of negotiations to provide funding, should the Phase II project be successful and the market need still exists;
b. A letter of support* for the project and/or some in-kind commitment; and
c. A specific plan to secure Phase III funding.

*Any formal letters of commitment, intent or support are not to be included here but instead in Field 12, Other Attachments of the Other Project Information Form (see section C.6.c of this Part).

– The Phase II applicants must provide:

1. Attachment 1: A small business firm that submits a Phase II 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 NIFA must 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 indicated above, the applicant must provide an attachment stating that less than 15 Phase II awards have been granted to this organization/company during the preceding five fiscal years.

   USDA NIFA SBIR will collect and retain the information for its internal use. Any data provided under this section of the application may lead to USDA NIFA contacting the applicant to coordinate the development of additional information that can serve to inform the public and the Federal Government on the benefits of the USDA NIFA SBIR program to Small Businesses.

If the applicant does not have any prior USDA NIFA SBIR Phase II awards, the applicant must provide an attachment stating, "No prior USDA NIFA SBIR Phase II awards have been issued to [Insert Company Name]."

. A Data Management Plan (DMP) is NOT required for this program.

It is anticipated that the evaluation of SBIR Phase II applications will require approximately six months from submission deadline, 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 via email within approximately 6 months after the submission deadline.

D. Funding Restrictions

Fully negotiated rate. Applicants must use the current negotiated Indirect Cost (IDC) rate established by its cognizant Federal agency (the agency that provides the most funds). If awarded, the applicant will be required to produce a negotiated IDC rate agreement from the cognizant agency in order to recover IDC. If unable to obtain a negotiated rate from its cognizant agency, the applicant is not permitted indirect cost reimbursement. Rather, the applicant may only be reimbursed for allowable direct costs. Violation of cost accounting principles is not permitted when re-budgeting or charging costs to awards. Rather, costs must be consistently charged as either indirect or direct costs.

If the applicant wants full IDC, but does not have a negotiated rate, and NIFA is the cognizant agency, the applicant must calculate an IDC rate in order to request IDC (see Sample IDC calculations). Applicants are not required to complete the IDC package during the application process. Applicants need only to calculate an IDC rate to serve as a basis for requesting IDC. If awarded, the applicant will be required to submit a complete IDC proposal package in order to obtain a negotiated rate.

An organization that has never received a negotiated indirect cost rate may elect to change a de Minimis rate of 10% of modified total direct costs (MTDC), which may be used indefinitely (2 CRR 200.414(f)) MTDC excludes equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of the first $25,000.

For more information on IDC see https://nifa.usda.gov/indirect-costs

Successful applicants must not use grant funds awarded under the authority of this RFA to renovate or refurbish research, education, or extension space; purchase or install fixed equipment in such space; or to plan, repair, rehabilitate, acquire, or construct buildings or facilities.

E. Submission Dates and Times

We recommend that you conduct an administrative review of the application before submission of it via Grants.gov to ensure that it complies with all preparation instructions including page limits and pdf format. An application checklist is included in Part VII of the NIFA Grants.gov Application Guide to assist with this review.

We are highlighting that an application will be excluded from the competitive review for the following reasons (list is not all inclusive):

- Projects that seek funding solely for product development where no research is involved;
- Budget requests that exceed the ceiling of $600,000 or $650,000 including TABA;

- Summary/Abstract exceeds one page and/or is not in pdf format; and
- Project Narrative exceeds 20 pages of written text and/or is not in pdf format
- Application is submitted after the 5 p.m. Eastern deadline.

Instructions for submitting an application are included in Part IV, Section 1.5 of the NIFA Grants.gov Application Guide.

Applications must be received by Grants.gov by 5 p.m. Eastern Time on May 3, 2021. Applications received after this deadline will normally not be considered for funding.

If you have trouble submitting an application to Grants.gov, you should FIRST contact the Grants.gov Help Desk to resolve any problems. Keep a record of any such correspondence. See Part IV. A for Grants.gov contact information.

It is recommended that applicants begin submitting their completed application at least one day prior to the deadline in order to allow time to address submission issues since late applications may only be considered in situations involving an exceptional circumstance (e.g., hurricane, flood, fire, Grants.gov issue that impacts the entire applicant community) (see Part III, 6.1 of the NIFA Grants.gov Application Guide) occurring prior to the deadline. Note that registration issues with Grants.gov are not valid reasons to request USDA-NIFA accept a late application submission. Applicants who have problems with their submissions to Grants.gov must call the Grants.gov help desk to resolve the problems and keep a record of the following:

1. Grants.gov Tracking Numbers
2. Case numbers provided by Grants.gov
3. Any correspondence with Grants.gov regarding the submission problem.
4. Any correspondence with SAM and Dunn and Bradstreet during the registration process

Documentation of the problem will be required. Applicants facing extenuating circumstances who miss the deadline must submit their application as soon as possible. Once the application is successfully submitted to Grants.gov, the applicant must forward the information above via email to sbir@usda.gov. This information, as well as the timing of its receipt, will be used in determining whether or not to accept the late application.

We send email correspondence to the AR regarding the status of submitted applications. We strongly encourage you to provide accurate email addresses, where designated, on the SF-424 R&R Application for Federal Assistance.

If the AR has not received correspondence from NIFA regarding a submitted application within 30 days of the established deadline, contact the Agency Contact identified in Part VII of the RFA and request the application number assigned to the application. Failure to do so may result in the application not being considered for funding by the peer review panel. Once the application has been assigned an application number, you should cite this number on all future correspondence.

PART V. APPLICATION REVIEW REQUIREMENTS

A. NIFA's Evaluation Process

NIFA evaluates each application in a two-part process. First, we screen each application to ensure that it meets the administrative requirements as set forth in this RFA. Second, a scientific peer- review process will be used to technically evaluate applications that meet the administrative requirements using a review panel
(see NIFA Peer Review Process).

Scientific Peer Review Process:
NIFA selects reviewers for the review panel based upon their training and experience in relevant scientific, extension, or education fields, taking into account the following factors:

- the level of relevant formal scientific, technical education, or extension experience of the individual, as well as the extent to which an individual is engaged in relevant research, education, or extension activities;
- the need to include experts from various areas of specialization within relevant scientific, education, or extension fields;
- the need to include other experts (e.g., producers, range or forest managers/operators, and consumers) who can assess relevance of the applications to targeted audiences and to program needs;
- the need to include experts from a variety of organizational types (e.g., colleges, universities, industry, state and Federal agencies, and private profit and non-profit organizations) and geographic locations;
- the need to maintain a balanced composition with regard to minority and female representation and an equitable age distribution; and
- the need to include reviewers who can judge the effective usefulness of each application to producers and the general public.

After each peer review panel has completed its deliberations, the responsible program staff of NIFA will recommend that your project is either approved for support from currently available funds or declined due to insufficient funds or unfavorable review.

NIFA reserves the right to negotiate with the PD/PI and/or the submitting organization or institution regarding project revisions (e.g., reductions in the scope of work, funding level, period, or method of support) prior to recommending any project for funding.

After the review process has been completed, NIFA sends copies of reviews, *not* including the identity of reviewers, and a summary (if applicable) of the review panel comments to the PD.

Conflicts of interest. NIFA takes extreme care to prevent any actual or perceived conflicts of interest that may influence the review or evaluation (see NIFA Peer Review Process for Competitive Grant Applications).

USDA-NIFA SBIR staff understand that applicants may at times disagree with the outcome of the panel deliberations, review comments, panel summary, recommendations or the funding line. Applicants may request a debriefing from the National Program Leader for the SBIR topic area to discuss the review and outcome.

Due to the competitive nature and limited funding for this program, *recommendations to fund or not fund an application will remain final, regardless of the outcome of the debriefing and applicants cannot contest the decision.*

USDA-NIFA SBIR staff will not move any application above another application that ranked higher in the panel recommendations unless an applicant that was recommended for an award has failed to meet eligibility requirements for the program or cannot pass the administrative review. In these rare cases, USDA-NIFA SBIR staff have the right to not fund any additional projects, or based on the panel recommendation select the next Phase II application that fell below the funding line and was next in line for funding.

B. Evaluation Criteria

NIFA anticipates that the evaluation of SBIR Phase II applications will require approximately six months from submission deadline. No information on application status will be available until NIFA makes the final selections. NIFA will notify both successful and unsuccessful applicants of final award decisions via email. For information about the status of a submitted application, see Part III § 6 of the Application Guide.

Initial Screening Criteria. Applicants should be aware that applications that do not satisfy 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:

1. The proposing firm must qualify as a small business concern and have received an SBC Control Number. USDA NIFA uses the Small Business Administration (SBA) SBIR company registry certification that the applicant is to provide with the application to confirm the applicant is a small business concern;
2. The application must meet the Application Content and Format requirements as described in this RFA. This includes page length requirements, all required forms and all files in PDF;
3. The proposed budget must be within the dollar ceiling identified in this RFA;
4. The proposed Phase II research must fall within the topic area that the project was originally funded under Phase I;
5. An application must contain adequate scientific/technical and market opportunity information that clearly states the project plan and objectives. USDA NIFA reserves the right not to submit for review any application that it finds to have insufficient information;
6. It is clear that the project director will work a minimum of 51 percent of his/her time for the small business firm during the period of the grant and that the small business firm will conduct a minimum of one-half of the research effort. However, the project director may spend less than 50 percent of his/her time on the Phase II project.

Phase II Application Evaluation Criteria. The evaluation criteria that will be used by reviewers to evaluate all applications are listed below. NIFA uses an electronic Peer Review System (PRS) that allows reviewers of the application the ability to provide comments, scores and recommendations to SBIR staff. NIFA provides guidance and instructions to the reviewers on how to access PRS and that

the following review criteria serves as the basis for the review. Approximately equal consideration will be given to each criterion, except for items (A), (B), and (C) which will receive twice the value of any of the other items:

1. *Degree to Which Phase I Objectives were Met and Technical Feasibility Established*: The extent to which:
    a. Phase I project demonstrated novelty, innovation, uniqueness, and originality; Conceptual adequacy of the research and suitability of the hypothesis, as applicable;
    b. Clarity and delineation of Phase I objectives;
    c. Demonstration of feasibility through preliminary data; and
    d. Probability of success of the project to move into Phase II is appropriate given the level of scientific originality, and risk-reward balance.
2. *Phase II Scientific and Technical Feasibility*:
    a. Project objectives and outcomes are clearly described, adequate, and appropriate. All project components (i.e., research and commercialization) are reflected in one or more project objectives;
    b. Proposed approach, procedures, or methodologies are innovative, original, clearly described, suitable, and feasible;
    c. Expected results or outcomes are clearly stated, measurable, and achievable within the allotted time frame;
    d. Proposed research fills knowledge gaps that are critical to the development of new innovations to address the stated problem of issue; and
    e. Proposed research is up-to-date on the current state of the art (i.e., literature reviews have been completed).
3. *Commercial Potential*: The commercial potential will be assessed based on how well the following criteria are presented:
    a. Demonstration of the company's ability to commercialize the innovation;
    b. Relevant and current market information for the innovation (stakeholder needs for the innovation, size of the market, potential customers, competition, etc.);
    c. Strategy for commercializing the innovation including follow-on commitments from private sector or non-SBIR funding sources;
    d. Plans for protection of intellectual property;
    e. Projected revenue stream and assumptions; and
    f. Record of commercializing new products and/or services during the last 5 years, especially from prior SBIR and STTR projects.

A Commercialization Plan showing that the proposing firm has no prior Phase II awards will not affect the evaluation of an application; the application will be evaluated for commercial potential based on its commercialization strategy.

4. *Importance of the Problem*: How well the application justifies the importance of the problem. The degree the project satisfies a public interest (one or more of the strategic goals listed in the RFA).
5. *Investigator and Resource Qualifications*:
    a. Roles of key personnel are clearly defined;
    b. Key personnel have sufficient scientific and business expertise to complete the proposed project, and where appropriate, partnerships with other disciplines and institutions are

established;
c. PD and Co-PD biographic information/resumes provide relevant employment history;
d. Support personnel, facilities, and instrumentation are sufficient;
e. A clear plan is articulated for project management, including time allocated for attainment of objectives and delivery of products, maintenance of partnerships and collaborations, and a strategy to enhance communication, data sharing, and reporting among members of the project team;
f. Consultants, subcontractors, or CRADA cooperators that are involved in the project have provided letters verifying their willingness to participate in the project; and
g. Personnel on subcontract(s) and consulting agreement(s) have defined roles and responsibilities.

6. *Budget*: The budget is appropriate for the proposed research plan, and the application provides sufficient budget detail to indicate clearly how the funds would be utilized.
7. *Duplication*:
   a. There is no duplication of any ongoing or previous research by the small business firm or by other researchers; and
   b. Application clearly indicates how the proposed technology would differ significantly from existing innovations.

Additional factors that will be considered in the review process are whether an application involves a CRADA with a USDA laboratory or contains a follow-on funding commitment for Phase III. In the event that two or more applications are of approximately equal merit, the existence of a CRADA with a USDA laboratory or a follow-on funding commitment for Phase III will be an important consideration to break the tie. The value of any commitment will depend upon the degree of financial commitment made by non-Federal investors, with the greater value resulting from a signed agreement with reasonable terms for an amount at least equal to the funding requested from USDA in Phase II.

C. Proprietary Information

Information contained in unsuccessful applications will remain the property of the applicant. The Government may 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 in an application, to include a trade secret, proprietary commercial or financial information, confidential personal information, or data affecting the national security, NFIA will treat it in confidence, to the extent permitted by law. This information must be clearly marked and inserted 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 because 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 (insert 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 NIFA, by law, is required to make the final decision as to whether the information is required to be kept in confidence. USDA NIFA will retain for three years one file copy of all applications received. 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 twenty years after the end of the grant period (See § 8(b)(4) of the SBIR/STTR Policy Directive). 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 that, 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. USDA NIFA may find applications or reports that attempt to restrict dissemination of large amounts of information unacceptable.

D. 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.
Rights in Data Developed Under SBIR Funding Agreement.
The Act provides for "retention by an SBC of the rights to data generated by the concern in the performance of an SBIR award."

1. Each agency must refrain from disclosing SBIR technical data to outside the Government (except reviewers) and especially to competitors of the SBC, or from using the information to produce future technical procurement specifications that could harm the SBC that discovered and developed the innovation.

2. SBIR agencies must protect from disclosure and non-governmental use all SBIR technical data developed from work performed under an SBIR funding agreement for a period of not less than four years from delivery of the last deliverable under that agreement (either Phase I, Phase II, or Federally-funded SBIR Phase III) unless, subject to paragraph (3) of this section, the agency obtains permission to disclose such SBIR technical data from the awardee or SBIR applicant. Agencies are released from obligation to protect SBIR data upon expiration of the protection period except that any such data that is also protected and referenced under a subsequent SBIR award must remain protected through the protection period of that subsequent SBIR award. For example, if a Phase III award is issued within or after the Phase II data rights protection period and the Phase III award

refers to and protects data developed and protected under the Phase II award, then that data must continue to be protected through the Phase III protection period. Agencies have discretion to adopt a protection period longer than four years. The Government retains a royalty-free license for Government use of any technical data delivered under an SBIR award, whether patented or not. This section does not apply to program evaluation.

3. SBIR technical data rights apply to all SBIR awards, including subcontracts to such awards, that fall within the statutory definition of Phase I, II, or III of the SBIR Program, as described in §4 of this Policy Directive. The scope and extent of the SBIR technical data rights applicable to Federally-funded Phase III awards is identical to the SBIR data rights applicable to Phases I and II SBIR awards. The data rights protection period lapses only:

(i)Upon expiration of the protection period applicable to the SBIR award; or

(ii) By agreement between the awardee and the agency.

E. Copyrights

Grantees also should assert copyright in scientific and technical articles based on data produced under the grant where necessary to effect journal publication or inclusion in proceedings associated with professional activities. Journal or other copyright practices are acceptable unless the copyright policy prevents the grantee from making copies for its own use.

Proper acknowledgement of public funding in published scientific articles, manuscripts, presentations and press releases is critical for the success of the agency's programs. Please use the following language to acknowledge NIFA support in such publications and associated presentations, as appropriate:

"This research was supported [in part] by the intramural research program of the U.S. Department of Agriculture, National Institute of Food and Agriculture, [insert program type Small Business Innovative Research, etc., and accession number, if applicable]."

The recipient must also include a disclaimer in all publications and presentations stating the following:

"The Findings and Conclusions in This Preliminary [Publication/Presentation/Blog] Have Not Been Formally Disseminated by the U. S. Department of Agriculture and Should Not Be Construed to Represent Any Agency Determination or Policy."

Presentations should include this disclaimer on the title slide in similar font and size to the name and title of the presenter.

If the grantee plans to issue a press release concerning the outcome of NIFA grant-supported research, they should notify NIFA in advance to allow for coordination. Publications resulting from work performed under a NIFA grant-supported project must be included as part of the annual or final progress report submitted to NIFA. When publications are available electronically, electronic access information should be provided.

F. 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 C.F.R. Part 401. These regulations provide that small businesses normally may retain the principal worldwide patent rights to any invention developed with USDA NIFA support. USDA NIFA 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 NIFA 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:

Michael Fitzner, Acting Director of Planning, Accountability, and Reporting

U.S. Postal Mailing Address:
National Institute of Food and Agriculture
U.S. Department of Agriculture
P.O. Box 419205, MS 10000
Kansas City, MO 64141-6205

Courier/Package Delivery Address:
National Institute of Food and Agriculture
United States Department of Agriculture
2312 East Bannister Road, MS 10000
Kansas City, MO 64141-3061
Telephone: (816) 926-1942,
Email: Michael.Fitzner@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 (iEdison). Specific instructions for invention reporting are contained in the agency's terms and conditions, a copy of which can be provided upon request.

G. 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 found in section IV. 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:

1. *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. An Institutional Review Board must approve all nonexempt research projects involving human subjects prior to commencing actual substantive work.

2. *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, 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.

H. Grantee Commitments

Upon issuance of a research grant by USDA NIFA, 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.

Additional Information

1. This RFA 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 and conditions of the funding agreement are controlling.

2. Before the award of an SBIR funding agreement, USDA NIFA requires the submission of certain organizational management, personnel, and financial information to assure responsibility of the applicant, including certification that the proposing organization complies with the Civil Rights Act of 1964. The Office of Grants and Financial Management, NIFA will provide these forms to the small business concern, 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. It is anticipated that all Phase II awardees will be required to submit the above information. Please note that USDA NIFA 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.

   Under Federal law, it is USDA NIFA's responsibility to ensure Federal funds are disbursed in accordance with Federal regulations. USDA NIFA reserves the right to enact additional oversight controls on awardees deemed high risk based on organizational management, personnel, and financial information provided.
3. 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 Part VII of the RFA) for knowledge of how the transaction may affect a potential grant or the grant, as applicable.
4. USDA NIFA is not responsible for any monies expended by the applicant prior to the award of any funding agreement.

5. This RFA is not an offer by USDA NIFA and does not obligate USDA NIFA to make any specific number of awards. In addition, awards under this program are contingent upon the availability of funds.
6. Unsolicited applications will not be accepted under the SBIR program.
7. The applicant must provide the total number of employees for the organization and its subsidiaries and/or parent company, if applicable.

I. Organizational Management Information

Applicants must submit specific management information relating to an applicant prior to an award and update the information as needed. Applicants may only have to update their information if they had previously provided the information under this or another NIFA program. NIFA provides the requisite forms during the pre-award process. Although an applicant may be eligible for award under this program, there are factors that may exclude an applicant from receiving federal financial and nonfinancial assistance and benefits under this program (e.g., debarment or suspension of an individual, or a determination that an applicant is not responsible).

J. Application Disposition

Applicants may withdraw at any time before NIFA makes a final funding decision. NIFA will retain all applications for 3 years, including withdrawn applications and unfunded applications.

PART VI. AWARD ADMINISTRATION

A. General

Within the limit of funds authorized, the NIFA awarding official will make grants to responsible and eligible applicants whose applications are judged most meritorious under the procedures set forth in this RFA. The date specified by the NIFA awarding official as the effective date of the grant must be no later than September 30 of the federal fiscal year in which the project is approved for support and funds are appropriated for such purpose, unless otherwise permitted by law. The project need not be initiated on the grant effective date, but as soon thereafter as practical so that project goals may be attained within the funded project period. All funds granted by NIFA under this RFA may be used only for the purpose for which they are granted in accordance with the approved application and budget, regulations, terms and conditions of the award, applicable federal cost principles, USDA assistance regulations, and NIFA General Awards Administration Provisions,7 CFR part 3430, subparts A through E.

Award Notice. The award document will provide pertinent instructions and information as described in 2 CFR 200.211 (see NIFA's Terms and Conditions).

B. Administrative and National Policy Requirements

Several federal statutes and regulations apply to grant applications and the projects outlined in this RFA (some are listed here: Federal Regulations). Unless specifically noted by statue or award-specific requirements, NIFA Policy Guide applies to all NIFA awards.

C. Expected Program Outputs and Reporting Requirements

SBIR Phase II Technical Reports. All Phase II awards will be required to submit an interim technical progress report at approximately the mid-point in the project which, upon acceptance and approval will release the final 50% increment of funding on the project (in most cases 50% of funding is released in first half of project period). In addition, a comprehensive final technical report will be required. Each Phase II project will schedule an out briefing with SBIR staff to discuss the results of the grant and provide an impact statement document that USDA-NIFA can use for communicating success of the program and its funded projects. Additional information on the deliverables and schedules can be found in the terms and conditions provided with the award.

Note: All technical reports will be held confidential for a period covering four years after the termination of the project. As such, proprietary information may be included in the interim and final technical reports when necessary to provide the USDA-NIFA SBIR staff adequate information to evaluate the outcome of the project. For the out briefing, USDA SBIR staff may request permission from the grantee to use some of the information to communicate the success of the grant and the USDA SBIR program.

REEport. Grantees must submit initial project information and annual and summary reports to NIFA's electronic, Web-based inventory system, REEport, that facilitates both grantee submissions of project outcomes and public access to information on federally funded projects. The details of these reporting requirements are included in the award terms and conditions (see REEport Guide for Project Directors). Reports submitted via REEport will be placed in the USDA Current Research Information System (CRIS) database. CRIS is an online public database meant to provide information to the public on all awards made by USDA NIFA. As such, proprietary information should not be included

in these reports. REEport only accepts text and grantees should not try to upload graphics, file, or non-text information. Additionally, a REEPort submission does not meet the requirements for the interim and final technical report, as these are additional reports required under the terms and conditions for the grant.

Federal Financial Management Requirements. Grantees must comply with applicable federal financial management requirements included in the award's terms and conditions, 7 CFR 3403, 48 CFR part 31 and 2 CFR part 200. Below is a list of major requirements. Failure to comply could trigger significant audit liability and require global reconstruction of the grantees accounting system.

Separation of Funds. To avoid commingling of funds, grantees must establish a unique account(s) in their accounting system to capture and accumulate funding and related costs of the grant, apart from other federal and non-federal grants, projects and cost centers.

Timekeeping. To support direct and indirect labor charges, grantees must maintain hourly timesheets that encompass all hours worked and not worked on a daily basis. The timesheet should identify the: (a) grant, project or cost center being worked on; (b) number of hours worked on each; (c) description of work performed; and (d) Paid Time Off (PTO) hours. The total hours recorded each day should coincide with an individual's employment status in accordance with established policy (i.e., full-time employees work 8 hours each day, etc.).

Paid Time Off (PTO). Grantees must not charge a grant for time if the time was not spent directly working on the grant. Therefore, PTO (i.e., vacation, holiday, sick and other paid leave) is not recoverable directly from grants, but may be allocated to all grants, projects, and cost centers over an entire cost accounting period.

Full-Time University and other Organization Appointments. The effort and compensation of individuals budgeted to work on grants, but whom also hold full-time appointments at a university or another organization, may not exceed 100 percent. If applicable, it is necessary to:
(a) obtain a letter releasing the individual from their full-time appointment. The release should be reflected in the organization's official payroll distribution system; (b) limit effort on the grant to time periods not covered by the full-time appointment; (c) or remove and replace with alternative research personnel. In addition, the primary employment of the Project Director/Principal Investigator (PD/PI) must be with the small business concern at the time of award and during the conduct of the proposed research. Eligible primary employment means that more than one-half (51%) of the PD's/PI's time is spent in the employ of the small business during the award period of performance. Primary employment with the small business precludes the applicant as a full- time employee with another organization or academic institution. While the PD/PI must work more than one-half (51%) of his/her time for the small business during the entire grant period, there is no time requirement for the PD's/PI's work on the proposed research.

Owners of Closely Held Corporations (Limited Liability Companies, Partnerships, S- Corporations, etc.). Owners of closely held corporations whose compensation are charged directly or indirectly to federal awards, must take their compensations in the form of W-2 supported salaries, or guaranteed payments in order to: (a) trigger expense recognition in the accounting system; (b) ensure all compensation is reflected in grant-specific ledgers; and (c) to create a clear audit trail.

Consistent Treatment of Costs. Grantees must treat costs consistently across all federal and non-federal grants, projects, and cost centers. For example, grantees may not direct-charge federal grants for costs typically considered indirect in nature, unless done consistently. Examples of indirect costs include administrative salaries, rent, accounting fees, utilities, etc. In most cases, the cost to develop an accounting system adequate to justify direct charging of the aforementioned items outweighs the benefits. As a result, use of an indirect cost rate is the most effective mechanism to recover these costs and not violate federal financial requirements of consistency, allocability, and allowability. Additional guidance on indirect cost calculations can be found at USDA Indirect Cost.

PART VII. OTHER INFORMATION

A. Use of Funds and Changes in Budget

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

Changes in Budget or Project Plans. In accordance with 2 CFR 200.308, awardees must request prior approval from NIFA for the following program or budget-related reasons (the awardee is subject to the terms and conditions identified in the award):

1. Change in the scope or the objective of the project or program without prior written approval (even if there is no associated budget revision requiring);
2. Change in a key person specified in the application or the federal award;
3. Disengagement from the project for more than three months, or a 25 percent reduction in time devoted to the project;
4. Inclusion of costs that require prior approval in accordance with 2 CFR 200 Subpart E (Cost Principles), or 45 CFR Part 75 Appendix IX, (Principles for Determining Costs Applicable to Research and Development under Awards and Contracts with Hospitals), or 48 CFR, unless waived by the federal awarding agency,
5. Part 31, (Contract Cost Principles and Procedures);
6. Transfer of funds budgeted for participant support costs to other categories of expense (§200.75 Participant support costs);
7. Sub-awarding, transferring or contracting out of any work under a federal award, including fixed amount sub-awards (see §200.333 Fixed Amount Sub-awards), unless described in the application and funded in the approved federal awards. This provision does not apply to the acquisition of supplies, material, equipment, or general support services;
8. Changes in the approved cost-sharing or matching provided by the non-federal entity; and
9. The need for additional federal funds to complete the project.

B. Confidential Aspects of Applications and Awards

When an application results in an award, it becomes a part of NIFA transaction records, which are available to the public. Information that the Secretary of Agriculture determines to be confidential, privileged, or proprietary in nature will be held in confidence to the extent permitted by law. Therefore, applicants should clearly mark any information within the application they wish to have considered as confidential, privileged, or proprietary. NIFA will retain a copy of an application that does not result in an award for three years. Such an application will be released only with the consent of the applicant or to the extent required by law. An applicant may withdraw at any time prior to the final action thereon.

C. Regulatory Information

This program is not subject to the provisions of Executive Order 12372, which requires intergovernmental consultation with state and local officials. Under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. Chapter 35), the collection of information requirements contained in this notice have been approved under OMB Document No. 0524- 0039.

APPENDIX I: AGENCY CONTACTS

Programmatic Contacts

Dr. Daniel Cassidy 8.1 Forests and Related Resources	Patrick.Casssidy@usda.gov	816-926-1490
Dr. Robert Nowierski 8.2 Plant Production and Protection- Biology	Robert.Nowierski@usda.gov	202-552-9084
Dr. Robert Smith 8.3 Animal Production and Protection	Robert.M.Smith@usda.gov	816-926-2833
Dr. James Dobrowolski 8.4 Conservation of Natural Resources	James.Dobrowolski@usda.gov	816-926-1630
Dr. Deirdra Chester 8.5 Food Science and Nutrition	Deirdra.Chester@usda.gov	202-445-5395
Mr. Richard Elrod 8.6 Rural and Community Development	Richard.Elrod@usda.gov	816-926-2535
Dr. Timothy Sullivan 8.7 Aquaculture	Timothy.Sullivan@usda.gov	816-527-5434
Dr. Timothy Conner 8.8 Biofuels and Biobased Products	Timothy.Conner@usda.gov	202-875-3027
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For administrative questions related to
Grants.gov, see Part IV of this RFA
Other RFA or application questions, please email policy@usda.gov
Awards under this RFA, please email awards@usda.gov

U.S. Postal Mailing Address:
National Institute of Food and Agriculture
U.S. Department of Agriculture
P.O. Box 419205, MS 10000
Kansas City, MO 64141-6205

Courier/Package Delivery Address:
National Institute of Food and Agriculture
United States Department of Agriculture
2312 East Bannister Road, MS 10000
Kansas City, MO 64141-3061

APPENDIX II: GLOSSARY OF TERMS

Name	Acronyms
Agriculture and Food Research Initiative	AFRI
Assistance Listing (formerly known as Catalog of Federal Domestic Assistance)	AL (formerly CFDA)
Authorized Representative	AR
Agricultural Research, Extension, and Education reform Act of 1998	AREERA
Coordinated Agricultural Project	CAP
Catalog of Federal Domestic Assistance	CFDA
Center of Excellence	COE
Cooperative Research and Development Agreement	CRADA
Data Management Plan	DMP
General & Administrative	(G&A)
Historically Underutilized Business Zone	HUBZone
Limited Liability Company	LLC
National Institute of Food and Agriculture	NIFA
Project Director	PD
Principal Investigator	PI
Request for Application	RFA
Research and Development	R/R&D
Research, Education, and Economics	REE
Small Business Concern	SBC
United States Department of Agriculture	USDA
Venture capital operating companies	VCOC

APPENDIX III: DEFINITIONS

Refer to 7 CFR 3430 Competitive and Noncompetitive Non-formula Federal Assistance Programs – General Award Administrative Provisions for additional definitions.

Ad hoc Reviewers	Experts or consultants qualified by training and experience in particular scientific or technical fields to render expert advice on the scientific technical merit of the grant applications in those fields. They review on an individual basis one or several of the eligible applications submitted to this program in their area of expertise and who submit to the Department written evaluations of such applications.
Affiliate	As set forth in 13 CFR Part 121—Small Business Size Regulations, § 121.103. Further information about SBA's affiliation rules and a guide on affiliation is available at SBIR STTR and Size Standards.
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
Authorized Departmental Officer	The Secretary or any employee of the Department who has the authority to issue or modify grant instruments on behalf of the Secretary
Authorized Organizational Representative	The president, director, chief executive officer or other designated official of the applicant organization who has the authority to commit the resources of the organization, also referred to as the AR.
Budget Period	Interval of time into which the project period is divided for budgetary and reporting purposes.
Commercialization	The process of developing marketable products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets.
Continuation Award	An award instrument by which NIFA agrees to support a specified level of effort for a predetermined period with a statement of intention to provide additional support at a future date; subject to satisfactory performance, the availability of funds, and support is in the best interest of the federal government and the public.
Commercialization	The process of developing marketable products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets
Covered Small Business Concern	A small business that is not majority-owned by multiple VCOCs, hedge funds, or private equity firms on the date on which it submits an application in response to a solicitation under the SBIR program or on the date of the SBIR award.
Cooperative Research and Development Agreement	A legal agreement between a federal agency and one or more non- federal parties. Purpose is to foster federal/private collaborations to bring new technology to the marketplace. Used Federal government wide. Allows non-federal party the right to negotiate an exclusive license to CRADA inventions.

Direct Costs	Costs that occur in direct support of a single project or that can be clearly identified, segregated, and billed directly to the project via the companies' accounting system.
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.
Fee	The amount of profit a company will receive from the grant.
Funding Agreement	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.
Grant	A financial assistance mechanism providing money, property or both to an eligible entity to carry out the approved project or activity, and substantial programmatic involvement by Government is not anticipated.
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."
Historically Underutilized Business Zone	A small business concern meeting the following criteria: 1. Located in a "historically underutilized business zone" or HUBZone area located in one or more of the following: a. A qualified census tract (as defined in section 42(d)(5)(C)(i)(l) of the Internal Revenue Code of 1986); b. A qualified "non-metropolitan county" (as defined in section 143(k)(2)(B) of the Internal Revenue Code of 1986); or c. On an Indian Reservation- Land within the boundaries of a federally recognized Indian Reservation. 2. Owned and controlled by one or more U.S. Citizens; and 3. At least 35 percent of its employees must reside in a HUBZone.
Indirect Costs	Costs which occur in support of more than one objective and therefore cannot be identified readily and specifically with a particular project, often called overhead, F&A, or G&A
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.
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.

Joint Venture	An association of concerns with interests in any degree or proportion by way of contract expresses 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.
Manufacturing Related	Encompasses improvements in existing methods or processes as well as wholly new processes, machines, or systems. Four main areas include: 1. Unit process level technologies that create or improve manufacturing processes, including: a. Fundamental improvements in existing manufacturing processes that deliver substantial productivity, quality, or environmental benefits; or b. Development of new manufacturing processes, including new materials, coatings, methods, and associated practices. 2. Machine level technologies that create or improve manufacturing equipment, including: a. 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 b. New apparatus and equipment for manufacturing, including additive and subtractive manufacturing, deformation and molding, assembly and test, semiconductor fabrication, and nanotechnology. 3. Systems level technologies for innovation in the manufacturing enterprise, including: a. Advances in controls, sensors, networks, and other
	information technologies that improve the quality and productivity of manufacturing cells, lines, systems, and facilities; Innovation in extended enterprise functions critical to manufacturing, such as quality systems, resource management, supply change integration and distribution, scheduling, and tracking; or Technologies that enable integrated and collaborative product and process development, including computer- aided and expert systems for design, tolerance development, process and materials selection, life cycle cost estimation, rapid prototyping, and tooling. 4. Environment or societal level technologies that improve workforce abilities, productivity, and manufacturing competitiveness, including: a. Technologies for improved workforce health and safety, such as human factors and ergonomics; or b. Technologies that aid and improve workforce manufacturing skill and technical excellence, such as educational systems incorporating improved manufacturing knowledge and instructional methods.
Matching	The process through which a grant recipient matches awarded USDA funds with cash and in-kind contributions on a dollar-for-dollar basis. The matching funds must derive from non-Federal sources.

New Application	An application not previously submitted to a program.
Outcome	The measure of long-term, eventual, program impact
Output	The measures of near-term program impact.
Peer Review Group	Experts or consultants, qualified by training and experience in particular scientific or technical fields to give expert advice on the scientific and technical merit of grant applications to those fields, who assemble as a group to discuss and evaluate all of the eligible applications submitted to this program in their area of expertise.
Program Solicitation	A formal request for applications whereby a Federal agency notifies the small business community of its R/R&D needs and interests in broad and selected areas, as appropriate to the agency, as appropriate to the agency, and requests applications from small business concerns in response to these needs and interests.
Project Director / Principal Investigator	An individual designated by the applicant to provide the scientific and technical direction to a project supported by the funding agreement
Prototype	A model of something to be further developed, which includes designs, protocols, questionnaires, software, and devices.
Project Period	The proposed duration of Phase II projects will not normally exceed twenty-four (24) months, except in special, justified circumstances. Where a proposed research project requires more than twenty-four months to complete Phase II, a longer project period, not to exceed thirty-six (36) months, may be requested. An applicant of a Phase II project with an anticipated duration beyond twenty-four months should specify and justify the length of duration in the application at the time of its submission to USDA/NIFA.
Renewal Application	A project application that seeks additional funding for a project beyond the period that was approved in an original or amended award.
Research or Research and Development	R/R&D activity 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.
Research Project Grant	The award by the Department of funds to a grantee to assist in meeting the costs of conducting for the benefit of the public 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.
Resubmitted Application	A previously submitted project application that was not funded.
Resubmitted Renewal Application	A project application that requests additional funding for a project beyond the original period of performance.

SBIR Participants	Business concerns that have received SBIR awards or that have submitted SBIR applications.
SBIR Technical Data	All data generated during the performance of an SBIR award.
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.
Small Business Concern	A concern that meets the requirements set forth in 13 CFR 121.702
Small Business Entity	A small business entity is typically defined as a sole proprietorship, partnership, corporation, and S corporation. A LLC is a business structure allowed by state statute.
SBIR	Small Business Innovation Program
Small Farms	Farms or ranches with less than $250,000 in annual agricultural sales.
Mid-sized Farms	Mid-sized farms are farms or ranches with less than $500,000 in annual agricultural sales.
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.
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.
United States	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.
Women-owned Small Business Concern	A women-owned small business concern is an SBC: 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.