

# **Plant Science Research Program Specifications**

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# PLANT SCIENCE RESEARCH PROGRAM SPECIFICATIONS

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# **PLANT SCIENCE RESEARCH PROGRAM SPECIFICATIONS**

## **BACKGROUND**

Citing Oklahoma's "need [for] an institution which combines the resources of public and private sectors to encourage the development of new products, new processes and whole new industries" (74 O.S., Section 5060.2), the Economic Development Act of 1987 (H.B. 1444) authorized the creation of the Oklahoma Center for the Advancement of Science and Technology (OCAST). OCAST's mission is to "foster innovation in existing and developing businesses by supporting basic and applied research, by facilitating technology transfer between research laboratories and firms and farms, and by providing seed-capital for new innovative firms and their products . . . [and] to foster enhanced competitiveness in the national and international markets by small and medium-sized manufacturing firms located in Oklahoma by stimulating productivity and modernization of such firms" (74 O.S., Section 5060.3).

The Economic Development Act created a variety of mechanisms to promote productive higher education/industry partnerships which could increase the rate of technological innovation and knowledge transfer and thereby improve economic competitiveness and spur economic growth. The Plant Science Research Program administered by OCAST is one of these mechanisms (74 O.S. 5060.53 and O.S. 5060.54). The program may sponsor basic or applied research activities. Basic research awards will be awarded based on scientific and technical merit. Applied research funded under this program must "lead to innovation, new knowledge or technology" (74 O.S., Section 5060.53) and must have "reasonable probability to increase jobs within Oklahoma" (74 O.S., Section 5060.53). Award funding is contingent on the availability of funds, and with the advice of the Plant Science Research Committee.

## **PROGRAM ADMINISTRATION**

OCAST shall administer the OPSR Program under the governance of the statutorily created Oklahoma Science & Technology Research and Development Board (OSTRaD) Board (74 O.S., Section 5060.6). As the administrative agency, OCAST shall be responsible for the development of program specifications, production and distribution of proposal solicitations, organization and implementation of peer reviews, award of contracts, and monitoring of contract performance.

The Board-appointed Plant Science Research Committee (PSRC) shall act in an advisory capacity to the OSTRaD Board and OCAST staff. The PSRC shall develop recommendations for program policies and procedures and shall advise and assist in the organization and implementation of the peer review of Plant Science Research proposals and in the performance evaluation of Plant Science Research contracts.

## **PROGRAM PURPOSE**

The purpose of the Plant Science Research Program shall be three-fold. First, it shall assist in the accelerated development of technology in the State by supporting applied plant science research activities in existing and emerging technical areas in which the results have: (1) a high probability of leading to commercially successful products, processes or services within a reasonable period of time; and, (2) a significant potential for stimulating economic growth within the State of Oklahoma that encourages and sustains partnerships among institutions of higher education, non-profit research organizations, and private enterprises by encouraging collaborative projects that are designed to promote increased knowledge and technology transfer; and, (3) the program will promote basic plant science research.

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## PROGRAM DESCRIPTION

Plant Science Research funds shall be awarded through external, peer-reviewed funding competitions, and preference will be given to plant research projects which have potential commercial application and concern plant productivity, renewable biomass, plant-based environmental applications and chemical platforms, plant-based solutions to improve nutrition, human and/or animal health or performance, process applications, and seed management and the development of new products and services that shall form the basis of new, high-technology plant science/agriculture industry for this state. (74 O.S. 5060.4, as amended **XXXXXX, vv**, 2006).

Collaborative research, which brings together personnel from multiple organizations, from multiple disciplines and with varied experiences and perspectives, frequently enhances the prospects successful research. Collaborative projects among institutions of higher education, non-profit research organizations, and private enterprises are encouraged, and proposals involving co-principal investigators from more than one organization are strongly encouraged.

OCAST will prepare a Plant Science Research Proposal Solicitation for each competition which will include in general (1) information concerning the specifications of the program, (2) requirements regarding the proposal contents and format, (3) copies of the required application forms, and (4) instructions for completing the required forms. Eligible applications shall include all required completed forms and proposal contents and shall utilize the required proposal format as specified in the solicitation. Page limitations will be established by the PSRC and specified in the solicitation. No application fee shall be required.

## APPLICANT ELIGIBILITY

An eligible applicant shall be organizations located primarily in Oklahoma and be (1) an institution of higher education (2) a non-profit research foundation, or (3) a private enterprise (74 O.S., Sections 5060.53/54). The “investigators are residents of the state or become residents of the state before the ninetieth day after a professional service contract has been funded by OCAST” (74 O.S., Sections 5060.54). An investigator is defined as "a person who proposes research projects and is primarily responsible for the execution of the proposed projects" (74 O.S., Section 5060.4).

If, prior to the initial contract period, the Principal Investigator of a proposed project becomes unable to perform the research due to disability or other condition, OCAST will not allow a change in P.I. When a P.I. on a proposed project becomes unable to perform, the applicant organization(s) must inform OCAST within ten (10) days. At the discretion of OCAST, any awarded monies may revert to the Plant Sciences Research fund.

Any applicant organization or principal investigator who, in OCAST’s judgment, has failed to correct a material breach of a contract previously awarded under any of OCAST programs will not be eligible to be awarded a new funding contract. Any Investigator or Co-Investigator with a delinquent progress report at the time of submission will not be eligible to submit. Any Investigator or Co-Investigator with a delinquent progress report at the time of review will not be eligible for review. Any Investigator or Co-Investigator with a delinquent progress report at the time of award will not receive a contract until the progress report has been submitted and received a satisfactory review. If the delinquent report has not been submitted within 60 days of the award date, the award will be nullified and the monies returned to the Plant Science Research fund.

Neither members of the OSTRaD Board nor the PSRC shall be precluded from participating directly in a Plant Science Research program proposal. However, any director, officer, agent or employee of OCAST, including any

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member of an advisory committee or review panel, shall comply with the provisions of the conflict of interest provision from the OCAST Act. The statute reads as follows:

If a member of the board of directors, officer, agent or employee of the Oklahoma Center for the Advancement of Science and Technology [Center] has any direct or indirect interest in any approval, contract or agreement upon which the member, officer, agent or employee may be called upon to act or vote, the board member, officer, agent or employee shall disclose the same to the secretary of the Center prior to the taking of final action by the Center concerning such contract or agreement and shall so disclose the nature and extent of such interest and his or her acquisition thereof, which disclosure shall be publicly acknowledged by the Center and entered upon the minutes of the Center. If a board member, officer, agent or employee holds such an interest, he or she shall refrain from any further official involvement in regard to such contract or agreement, from voting on any matter pertaining to such contract or agreement, and from communicating with other board members, officers, agents or employees concerning said contract or agreement. . . .

Indirect interest shall include pecuniary or competitive advantage which exists or could foreseeably accrue as a result of the act or forbearance of the Center (74 O.S., Section 5060.7).

### **BASIC PLANT SCIENCE RESEARCH**

#### **Level of Funding**

Basic Plant Science Research projects are funded at a minimum of \$10,000 and a maximum of \$50,000 per year.

#### **Length of Funding**

Basic Plant Science Research awards are approved for one- to three-year projects.

Although a Basic Plant Science Research project, which is approved for funding, is approved for up to three years, funding awards are made on a year-by-year basis. Neither the approval of a multiple-year award nor the funding of any year of a contract shall automatically lead to funds being available for subsequent years. Funding for each subsequent year shall be dependent upon the following: (1) a satisfactory, annual performance evaluation, (2) the availability of funds, and (3) the allocation of resources on the advice of the PSRC and approval by the OSTRaD Board.

#### **Budget Requirements**

For each requested year of funding, applicants shall submit a total project budget, which accounts for all project funds, on the form provided. Indirect costs shall not be allowable.

Salaries or stipends for researchers including technicians, postdoctoral associates, students or other staff important to the success of the project are appropriate personnel costs, which may become part of a contract. Fringe benefits may be requested to the extent that they are treated consistently by the applicant organization as a direct cost to all research sponsors.

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In computing charges to an Oklahoma Basic Plant Science Research contract, the base salary must exclude income that an individual may be permitted to earn outside of full-time duties to the applicant organization. If an investigator is appointed on a less than full-time basis for the base salary period, the applicant organization must show the percentage of a full-time equivalent for which he or she is appointed.

The costs of building construction per se shall not be permissible charges. If the costs of alterations of facilities essential to the proposed project (i.e. repairs, painting, removal or installation of partitions, shielding, or air conditioning) are requested, they shall be itemized by category and fully justified. When applicable, the applicant should indicate the square footage involved, provide the basis for the costs, such as an architect's or contractor's detailed estimate, and submit a line drawing of the proposed alterations.

## Basic Plant Science Research Legislative Directives

The authorizing statute for this program, which establishes terms under which the OSTRaD Board shall award professional service contracts to support Basic Plant Science research projects, states that OCAST shall "ensure that funding to support basic plant science research projects is awarded only on the basis of scientific and technical merit" (74 O.S., Section 5060.53).

The authorizing statute for this program (74 O.S., Section 5060.53), which establishes terms under which the OSTRaD Board shall award funding of professional service contracts, reads as follows:

- A. The Board shall award funding or professional service contracts for basic plant science research, contingent on the availability of funds and based upon the proposal submitted; external peer review (the majority of the reviewers must reside outside of Oklahoma); and such additional investigation as the staff of OCAST shall make only after:
  1. Developing, adopting and publishing the criteria it shall use when evaluating research proposals; and
  2. Ensuring that funding to support basic plant science research projects is awarded only on the basis of scientific and technical merit.

## Review Process

All proposals are reviewed by scientists, a majority of whom, reside outside the State of Oklahoma who are nominated and approved by the PSRC. Proposals are ranked for funding only on the basis of the scientific merit of the proposed research (74 O.S., Section 5060.16) as ascertained by these reviewers. The OSTRaD Board must approve all recommended awards for funding. Proposed project budgets shall be evaluated and adjusted, if deemed appropriate, by the reviewers at the time the review panels convene. The budget total for each year of funding of each project, which is recommended and ranked for funding, shall be established by the reviewers.

## Economic Impact Potential

Part of the legislative mandate for the Oklahoma Plant Science Research program is to stimulate economic growth by facilitating technological development. Although a new program may require many years to have a meaningful impact, the PSRC and the OSTRaD Board and staff will make a serious effort to develop this aspect of the program through the annual OCAST impact survey process. The information provided is vital to assess the Program's impact on the economy of Oklahoma. The aggregate survey information has been a decisive factor in supporting OCAST's increased budget requests to fund more research in the state.

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## Research Evaluation Criteria

In general peer reviewers, along with evaluating the reasonableness of the budget, will evaluate applications for scientific merit according to the following specific criteria:

1. **Significance.** Does this study address an important problem? If the aims of the application are achieved, how will scientific knowledge be advanced? What will be the effect of these studies on the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?
2. **Approach.** Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well integrated, well reasoned, and appropriate to the aims of the project? Does the applicant acknowledge potential problem areas and consider alternative tactics?
3. **Innovation.** Is the project original and innovative? For example: Does the project challenge existing paradigms; address an innovative hypothesis or critical barrier to progress in the field? Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies for this area?
4. **Investigators.** Are the investigators appropriately trained and well suited to carry out this work? Is the work proposed appropriate to the experience level of the principal investigator and other researchers? Does the investigative team bring complementary and integrated expertise to the project (if applicable)?
5. **Environment.** Does the scientific environment in which the work will be done contribute to the probability of success? Do the proposed studies benefit from unique features of the scientific environment, or employ useful collaborative arrangements? Is there evidence of institutional support?
6. **Funding Preference.** OPSR gives preference to collaborative efforts amongst researchers, research institutions, and private sector interests.

**OVERALL EVALUATION:** In one paragraph, briefly summarize the most important points of the Critique, addressing the strengths and weaknesses of the application in terms of the five review criteria. Recommend a score reflecting the overall impact of the project on the field, weighing the review criteria, as you feel appropriate for each application. An application does not need to be strong in all categories to be judged likely to have a major scientific impact and, thus, deserve a high merit rating. For example, an investigator may propose to carry out important work that by its nature is not innovative, but is essential to move a field forward.

## Evaluation Modifications for New Investigators

**IMPLEMENTATION:** When reviewing these applications, reviewers should keep in mind the experience of and the resources available to the new investigator. When considering an application from a new investigator the five new review criteria must be evaluated in a manner appropriate to the expectations for and problems likely to be faced by a new investigator. Specifically, when considering:

**Approach:** more emphasis should be placed on demonstrating that the techniques/approaches are feasible than on preliminary results.

**Investigator:** more emphasis should be placed on their training and their research potential than on their track record and number of publications.

**Environment:** there should be some evidence of institutional commitment in terms of space

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and time to perform the research.

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## APPLIED PLANT SCIENCE RESEARCH

The Applied Plant Science Research program shall provide a maximum of one State dollar of funding for each non-State dollar of matching funding (74 O.S., Section 5060.53) for research projects that are (1) technically sound, (2) have a high probability of leading to commercially successful products, processes, or services within a reasonable period of time, and (3) have a significant potential for stimulating economic growth in Oklahoma. The following shall not be eligible for funding: (1) market surveys, (2) projects which focus upon training or technical assistance for business firms, and (3) research or research activities that create fundamental or basic information without the promise of reasonably short-term commercialization. Preference will be given to proposals in which all or some of the matching monies--industrial, private or federal--are provided under terms which explicitly encourage future commercialization.

### Level of Funding

Applied Plant Science Research contracts will be awarded for projects for which the minimum approved request for OCAST funds are \$10,000 per year. The recommended maximum request for State funds for an Applied Plant Science Research project is \$300,000 per project, however, larger-scale projects will be considered.

### Length of Funding

Applied Plant Science Research awards will be approved for one- to three-years depending on the competition solicitation requirements. Funding will be contingent upon satisfactory, annual performance evaluations (see Performance Evaluation), and availability of funds.

### Matching Requirements

In order to qualify for funding in the Applied Plant Science Research program, the applicant must verify, "that not less than fifty percent (50%) of the total direct cost of the proposed project will be provided by sources other than the Center [OCAST] and other than state-appropriated money" (74 O.S., Section 5060.53). Monies or equipment, which has been committed by the applicant organization(s) as match on an OCAST contract or on a grant or contract from another funding organization, shall not be allowed as matching. If the proposal is from an institution of higher education or nonprofit research foundation, machinery or equipment used for the project may be considered as part of the matching funds (74 O.S., Section 5060.53) provided that the required documentation has been submitted (see Award Provisions). Whether the full value of the equipment or a lesser amount is taken into account for purposes of the match will depend upon (1) the useful life of the equipment relative to the term of the project, (2) the relevance and intensity of the proposed use of the equipment in the project and (3) the predicted residual value of the equipment at the end of the project. If the proposal is from a private enterprise, no portion of the fifty percent (50%) may be provided by in-kind services performed by the enterprise (74 O.S., Section 5060.53). Matching funds shall be monies provided specifically for the proposed OCAST Applied Plant Science Research project.

When a proposal is approved for funding, the awardee may have sixty (60) days from the date on the award document to submit a final verification of receipt of matching funds, or a fully-executed agreement representing a federal or private grant or contract, for at least the first year of the award period. If an existing grant(s) or contract(s) is to be considered for match, the notification(s) of award must be included if the proposal is to be

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reviewed. The start date of the initial contract shall be no later than the first (1st) day of the month which immediately follows the sixty (60) day period. OCAST may grant an extension of an additional sixty (60) days if the OSTRaD Board ascertains that sufficient effort in securing the matching funds has been made by the applicant during the first ninety (90) day period. If an extension is approved, the start date of the initial contract shall be no later than the first (1st) day of the month which immediately follows the second sixty (60) day period.

If an awardee has submitted final verification of matching funds, or a fully-executed agreement representing a federal or private grant or contract, for the first year of the award period in the application, the initial start date of the contract shall be no later than the first (1st) day of the month, which immediately follows the thirty (30) day verification of eligibility period, which begins on the date on the OCAST award document.

### **Budget Requirements**

Applicants shall submit a total project budget for each requested year of funding which accounts for all project funds--monies awarded from the Plant Science Research fund and the required matching monies and/or equipment. Indirect costs shall not be allowable.

When an investigator is employed by an academic institution, the budgeted funds may cover either summer salary or release time during the academic year. Salaries or stipends for research professionals including technicians, postdoctoral associates, students, or other staff important to the success of the research effort are allowable personnel costs. Ancillary personnel not directly related to research performance such as marketing, sales, accounting, and custodial staffs are not allowable budget items.

The costs of building construction per se shall not be permissible charges. If the costs of alterations of facilities essential to the proposed project (i.e. repairs, painting, removal or installation of partitions, shielding, or air conditioning) are requested, they shall be itemized by category and fully justified. When applicable, the applicant should indicate the square footage involved, provide the basis for the costs, such as an architect's or contractor's detailed estimate, and submit a line drawing of the proposed alterations.

**Application Requirements.** In general, applications will be required to contain the material specified below:

1. Cover Pages: Applicants will complete all items on the required forms contained in the Applied Plant Science Research Solicitation.
2. Table of Contents: Applicants will provide in the usual form and should include all items in the submitted application.
3. Executive Summary: Applicants will submit a summary which includes (1) a description of the proposed research project including a statement of the specific objectives and the methods to be employed and (2) a description of the potential commercial application and an analysis of its commercial potential including the possible significance to Oklahoma business or industry.
4. Commitment of Support: In general, applicants shall be required to (1) detail all sources and amounts of matching funds and/or equipment on the designated form; (2) assess the potential for attracting future federal or private funds; and (3) a required letter of recommendation/commitment from the applicant organization. This letter shall include a statement of organizational commitment to the proposed project beyond the required matching monies and/or equipment. Such commitment could include such items as equipment, computer services, facilities, release time for key personnel, and secretarial and technical support which the organizations will provide for the project.

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5. Potential Economic Impact Statement: In general, applicants shall be required to (1) assess the proposed project's potential for leading to a commercially successful product, process and/or service and, (2) analyze the project's potential for contributing to the State's economic development over the next two-years, five-years and ten-years, taking into consideration the growth potential of this area of research nationally and internationally, and assess the potential to enhance employment opportunities in Oklahoma.
6. Research Plan: Applicants will prepare a detailed statement of the work to be undertaken. In general, the following format will be required:
  - a. Objectives for the period of the proposed work: State concisely what the research described in the application is intended to accomplish or what hypothesis is to be tested.
  - b. The significance of the research: Briefly sketch the background of the present proposal, evaluate existing knowledge in this area, and identify the gaps which this project intends to fill. State the importance of this research by relating its aims to longer term objectives.
  - c. Preliminary and related studies: Describe prior research by the investigator that led to formulating the proposal, as well as any other information that will assist reviewers in assessing the competence of the investigator who is to perform and complete the proposed project.
  - d. Research methodology and time table: Discuss in detail the experimental design and the procedures to accomplish the objectives of this project. Describe the tentative sequence of the investigation within a calendar framework. Include the means by which the data will be analyzed and interpreted. Discuss the methodologies and any potential limitations of the proposed procedures and alternative approaches that may be used to reach the objectives of this proposal. Note any procedures that may be dangerous to personnel and the precautions that will be used in these situations. Complete required forms regarding human subjects, vertebrate animals, recombinant DNA, radioactive substances, narcotics and dangerous drugs, and biological hazards and submit accompanying institutional reviews where applicable (see Special Precautionary Measures).
  - e. Collaborative relations: Include the work statements or research obligations of each investigator. In addition, any substantial collaboration with individuals not referred to in the budget should be described and documented with a letter from each collaborator.
  - f. Facilities and instrumentation: Describe the available facilities and instrumentation that will be utilized in this project.
  - g. Bibliography: Include a bibliography of the pertinent literature referenced in the proposal.
7. Biographical Information: Applicants shall (1) provide a short biographical sketch or resume for each of the key personnel; (2) list separately the 10 most recent and/or significant publications and/or patents for each of the above; (3) provide a table summarizing the major participants' current and pending research support from all sources--research grants and contracts including current year's amount, future commitments, source of funding and title of project; pending proposals should also be listed. (Use forms provided.)
8. Budget: Applicants shall (1) Complete required budget forms and (2) submit an accompanying explanation of the budget.

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9. Appendices: In general, applicants shall be required to (1) submit required documentation listed under Award Provisions in the Solicitation as Appendix I, (2) in additional appendices, limit materials to those relevant and essential to the review of the proposal, and (3) not include detailed vitae or resumes in the appendices; applicants should provide only those biographical materials requested in Item 7 above.

### Special Precautionary Measures

Work with human subjects, vertebrate animals, recombinant DNA, radioactive substances, narcotics and dangerous drugs, and biological hazards require special approval or license, and in some cases, specialized training in order to engage in certain research. In addition, many chemicals require special handling or equipment. It is the responsibility of the Investigator and the applicant organization to ascertain that State, as well as applicable Federal requirements, are met. The Investigator and applicant organization shall supply evidence of compliance, qualification, or license as specified on the required forms.

### Patent and Licensing Statement

Each application must include a description of how the patent and licensing agreements will be effectuated between Co-investigators, applicant organizations, and sponsoring entities. A patent and licensing statement to which the above parties agree shall be submitted prior to award of contract. The purpose is to assure OCAST that the collaborating parties have adequately addressed the ownership and disposition of patents, royalties and all other intellectual property rights related to the proposed research project. Further, the applicant will describe the plan to protect intellectually property developed in this project.

### Applied Plant Science Research Legislative Directives

The authorizing statute for this program (74 O.S., Section 5060.53), which establishes terms under which the OSTRaD Board shall award funding of professional service contracts, reads as follows:

- A. The Oklahoma Center for the Advancement of Science and Technology, contingent on the availability of funds, and with the advice of the Plant Science Research Committee, shall establish and operate a state program designed to secure and impartially distribute funds credited to the Research Support Revolving Fund to support professional service contracts for applied plant science research projects.
- B. The OSTRaD Board shall award funding or professional service contracts for applied plant science research only after:
  1. Developing, adopting and publishing the criteria it shall use when evaluating research proposals; and
  2. Reviewing applied plant science research proposals which present:
    - a. documentation, if the proposal is from an institution of higher education or nonprofit research institution, that not less than fifty percent (50%) of the total direct cost of the proposed project will be provided by sources other than OCAST and other than state-appropriated money; machinery or equipment may be considered as part of the matching funds for the research, but must be accompanied by a statement:
      - (1) that the institution of higher education or nonprofit research institution has possession of the machinery or equipment and that it is appropriate and useful to the program under review, and either

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- (2) verifying that the equipment or machinery is donated and has only been used in testing to ensure quality control, or used by a wholesaler or retailer for demonstration purposes only and verifying the fair market value of the machinery or equipment on the date of the gift, or
  - (3) detailing the price paid by the institution of higher education or nonprofit research institution, with an invoice showing the amount paid for the machinery or equipment;
- b. documentation, if the proposal is from a private enterprise, that not less than fifty percent (50%) of the total direct cost of the proposed project will be provided by sources other than OCAST and other than state-appropriated money. No portion of the fifty percent (50%) may be provided by in-kind services performed by the enterprise,
  - c. a description of the potential commercial application of and the industrial sectors that will likely benefit from the applied plant science research project and the potential to enhance employment opportunities in Oklahoma,
  - d. an itemized research budget, time line and research methodology,
  - e. a recommendation from the sponsoring institution of higher education, nonprofit research institution or business enterprise, and
  - f. other information that may be required by the OSTRaD Board.
- C. The OSTRaD Board may approve such applied plant science research proposals, contingent on the availability of funds, after the Board finds, based upon the proposal submitted; external peer review (the majority of the reviewers must reside outside of Oklahoma); and such additional investigation as the staff of OCAST shall make and incorporate in its minutes, that:
1. The proposed project is research that leads to innovation, new knowledge or technology and is not training or technical assistance for business firms;
  2. The project has a reasonable probability to enhance employment opportunities within Oklahoma; and
  3. The project is technically sound and will produce a specified measurable result.

### **Applied Plant Science Research Evaluation Criteria**

Proposals submitted for the Applied Plant Science Research funding competitions shall be reviewed for technical merit, for the ability to perform the research and for the potential economic impact using the following set of criteria:

1. Technical merit of the research. In general, this criterion will evaluate
  - the creativity and inventiveness of the proposed research; and
  - significance of the research to generate intellectual property to meet Oklahoma's technology goals.
2. Ability to perform the research. In general, this criterion will measure

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- the quality and probability of success of the research plan;
  - the degree to which state-of-the-art techniques and processes are to be used;
  - the competence of the research personnel;
  - the adequacy of the existing or proposed resources including facilities;
  - the commitment of the applicant organization; and
  - the adequacy of matching funding or other project support.
3. Potential for economic impact. In general, this criterion will assess
- the proposed project's potential for leading to a commercially successful product, process and/or service;
  - the degree of interest shown by industry;
  - the national and international growth potential in the proposed area; and
  - the potential of short-, medium- and long-term impact on the Oklahoma economy including the potential for enhancing employment opportunities in Oklahoma.

### **Applied Plant Science Research Award Provisions**

Award of contract shall be contingent upon the following documentation having been submitted as specified in the application:

1. Documentation that not less than fifty percent (50%) of the total direct cost of the proposed project will be provided by sources other than OCAST and other than state-appropriated money (74 O.S., Section 5060.19).
2. Documentation as specified in items a-c below if (1) the proposal is from an institution of higher education or nonprofit research institution and (2) machinery or equipment is to be considered as part of the matching funds for the research.
  - a. Verification that the applicant organization(s) has received the machinery;
  - b. Verification that it has been used for nothing more than testing to ensure quality control or for demonstration purposes by a wholesaler or retailer prior to its being received by the applicant(s);
  - c. Verification of (1) the fair market value, if a gift, or (2) the amount paid for the machinery or equipment by the applicant organization(s), as verified by invoice (74 O.S., Section 5060.19). Equipment eligible for matching purposes shall not have been purchased by State funds.
3. A patent and licensing statement to which all Co-investigators, applicant organization and sponsoring entities demonstrate agreement (see PROPOSAL SOLICITATION, Patent and Licensing Statement ).

### **FUNDING PREFERENCE**

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OPSR gives preference to plant research projects that have potential commercial application and concern plant productivity, renewable biomass, plant-based environmental applications and chemical platforms, plant-based solutions to improve nutrition, human and/or animal health or performance, process applications, and seed management and the development of new products.

OPSR also gives funding preference to proposals in which all or part of the matching monies – industrial, private or federal – are provided under terms that encourage future commercialization.

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## BASIC AND APPLIED PLANT SCIENCE RESEARCH SUBMISSION REQUIREMENTS

OCAST shall require all eligible proposals to adhere to the following guidelines:

Eligible applicants may be requested or required to provide a Statement of Intent prior to application submission. Applications must be typed in black, using space and one-half, on 8 1/2 x 11 white paper. Any type size between 10 and 13 characters per inch may be used. The proposal may not exceed the number of pages, including appendices, specified in the solicitation. Photographs, oversized documents or materials which do not reproduce well should be submitted as appendices.

All applicants must submit an original (identified as "original" in the upper right corner) and the number of copies and appendices specified in the solicitation. Originals and copies must be stapled in the upper left-hand corner; binders or notebooks and rubber bands may not be used.

The OSTRaD Board has authorized the Plant Science Research Committee to establish the deadline for proposal submission for each competition. This date shall be published in the proposal Solicitation. All materials pertaining to the application must be received by 5:00 p.m. on the designated date except evidence of institutional approval of research projects using human subjects, vertebrate animals or recombinant DNA. No applications or supplemental materials shall be accepted after this time except at the request of OCAST. Incomplete or inappropriately completed applications may be returned without review.

Applications shall be delivered to OCAST as stated in the solicitation.

## SOLICITATION DISTRIBUTION

Annually OCAST will request that the president of each institution listed in the Oklahoma Higher Education Directory designate a person to be responsible for distributing copies of the Plant Science Research Proposal Solicitation within the institution. OCAST will provide copies of the Solicitation to those so designated.

Copies will be mailed to the nonprofit research foundations who, in an annual inquiry of all nonprofit research foundations listed in the Directory of Oklahoma Foundations, indicate that they wish to receive OCAST proposal solicitations.

Copies of the solicitation will be direct-mailed in response to all mail and phone requests. Solicitations will be posted on the OCAST web site and copies also will be available at the OCAST office for all interested persons.

Announcements of funding competitions will be published in newspapers as determined by the OSTRaD Board. Public announcements of funding competitions shall be posted at the OCAST principal office and on the OCAST web site at least thirty (30) days prior to the application submission dates.

# PLANT SCIENCE RESEARCH PROGRAM SPECIFICATIONS

## PROPOSAL SELECTION

All proposals will receive reviews by technically qualified individuals, a majority of whom reside outside the State of Oklahoma, who are nominated and approved by the PSRC. All proposals will then be reviewed and ranked for funding by a panel of individuals, a majority of whom reside outside the state of Oklahoma whose expertise shall include significant research and development experience in an industrial or academic setting. More than one panel shall be organized if required by the number of submitted proposals and/or the range of scientific expertise necessary for their adequate review.

## CONTRACT PROVISIONS

The mechanism for funding approved applications shall be a professional services contract between OCAST and the applicant organization (s). The Contractor shall be the applicant organization(s) that (1) shall be the employer(s) of, or affiliated with, the Principal Investigator or Co-Investigators and (2) shall be providing research services or facilities for the funded project and executing the contract. All applicant organizations which shall be providing research services or facilities for the funded project shall be signatories to the contract. The contract shall include commitments on the part of the contractor(s) to perform the activities described in the application and funded by OCAST. However, the obligations of each party to a Plant Science Research contract shall be limited to that portion of the contract which it has committed to perform. If more than one applicant organization is involved, one of the parties shall be designated as the fiscal agent to receive and account for all funds.

Contractor shall notify OCAST within ten (10) days of the occurrence of any of the following:

1. The official notification of resignation by the Principal Investigator or Co-Investigator as an employee of one of the parties to the contract.
2. The official decision to terminate the Principal Investigator or Co-Investigator as an employee of one of the parties to the contract.
3. Inability of the Principal investigator or Co-Investigator to perform the research due to disability or other condition(s).
4. Any occurrence which the Contractor or Agent determines will affect the successful completion of the research project.
5. If a Principal Investigator or Co-Principal Investigator leaves Oklahoma.
6. The majority of the research is not performed in Oklahoma.
7. Receipt of notification of award of concurrent funding by the Principal Investigator or Co-Investigator, which is not part of the approved matching monies requirement, to support any portion(s) of the research which is supported by OCAST funds.

Any of the conditions 1-7 above may result in the termination of the contract at the discretion of OCAST. Receipt of concurrent funding, as described in 7 above, shall result in the termination of the contract at midnight of the day prior to the beginning date of the concurrent funding.

## **PLANT SCIENCE RESEARCH PROGRAM SPECIFICATIONS**

If the principal investigator or co-investigator is employed by, or affiliated with, another eligible applicant organization in the State of Oklahoma, and if that organization agrees to support the research project, OCAST may consider issuing a new contract negotiated between OCAST and the new organization to fund the research project initiated under the original contractor. If a Principal Investigator or Co-Investigator can not perform on a contract, the applicant organization may request that OCAST consider continuing the contract with a new investigator.

The Contractor, or designated fiscal agent, shall be responsible for assuring and documenting compliance with state and federal requirements pertaining to human subjects, vertebrate animals, recombinant DNA, radioactive substances, and narcotics and dangerous drugs, which require special approval or license, before issuing a subcontract for any portion of the project funded by OCAST.

The Contractor, or designated fiscal agent, shall maintain records and accounts that properly document and account for the source and application of all project funds. All such records and accounts shall be made available on demand by OCAST for inspection and use in carrying out its responsibilities for administration of the funds. The Contractor, or designated fiscal agent, shall comply with the audit policy of OCAST and, as OCAST deems necessary, permit authorized representatives of OCAST and the State of Oklahoma full access, and the right to fully examine, all project records and accounts. The Contractor, or designated fiscal agent, shall provide OCAST timely copies of reports on any audits that include funds received from OCAST. In the event an audit results in the determination that the Contractor, or designated fiscal agent, has expended contract funds on unallowable costs, the Contractor, or designated fiscal agent shall reimburse OCAST in full for all such costs.

### **RELEASE OF INFORMATION**

The meetings of the OSTRaD Board of the Oklahoma Center for the Advancement of Science and Technology shall be subject to the Open Meeting Act and the Open Records Act. However, Oklahoma Statute exempts the following:

Any information submitted to or compiled by the Oklahoma Center for the Advancement of Science and Technology with respect to marketing plans, financial statements, trade secrets, research concepts, methods or products, or any other proprietary information of persons, firms, associations, partnerships, agencies, corporations, institutions of higher education, nonprofit research institutions or other entities shall be confidential, except to the extent that the person or entity which provided such information or which is the subject of such information consents to the disclosure. Executive sessions may be held to discuss such materials if deemed necessary by the board of directors (74 O.S., Section 5060.7).

Unless specifically requested, OCAST may use the contents from Intent to Submit Forms and Executive Summaries from the proposal and subsequent annual progress reports, for the required OCAST Annual Report or other publications without obtaining permission from the applicant or applicant organization. OCAST does not guarantee that the contents of any application will remain confidential.

### **PERFORMANCE EVALUATION**

Acceptance of a professional service contract obligates the Principal Investigator or Co-Investigators to submit an annual progress report sixty (60) days prior to the ending date of each contract period except for the end of the final contract period. The final report shall be submitted thirty (30) days after the end of the final contract period.

Annual project performance shall be evaluated by reviewers, the majority of whom reside outside Oklahoma. Continued funding will be contingent upon satisfactory, annual performance evaluations and availability of funds.

## PLANT SCIENCE RESEARCH PROGRAM SPECIFICATIONS

A satisfactory report shall verify that the investigator(s) is complying with the terms of the contract and achieving project objectives in a timely manner. Specifically, Plant Science Applied Research Project progress reports shall (1) identify budget expenditures to date, (2) provide a detailed budget for the subsequent contract period, (3) evaluate progress on the project to date, and (4) detail plans for the subsequent contract period. Failure to submit an annual progress report, as specified, could result in the termination of funding.

Efforts to evaluate the Oklahoma Plant Science program require periodic collection of information from investigators and/or contractors. The PI and contractor are required to provide OCAST with the requested information during and after the funding period. This information may include, but is not limited to, Impact Survey Information; Site Visits and/or Reverse Site visits where the PI will be required to present his/her research accomplishments to OCAST staff, the OSTRaD Board of Directors, members of the Oklahoma Legislature and other interested parties.

### GENERAL PLANT SCIENCE RESEARCH LEGISLATIVE DIRECTIVES

The authorizing statute for this program (74 O.S., Section 5060.54), which establishes further terms under which the OSTRaD Board shall award funding or professional service contracts, reads as follows:

No professional service contract shall be awarded by the Oklahoma Center for the Advancement of Science and Technology (OCAST) to support a basic or applied plant science research project unless:

1. The investigators are residents of this state or become residents of this state before the ninetieth day after a professional service contract, pursuant to which they will be functioning as an investigator, has been funded by OCAST;
2. The institutions that administer the professional service contracts are primarily located in this state and are able to assume financial responsibility for professional service contracts; and
3. The professional service contract will not be transferred to any other institutions within the state without the approval of OCAST and will not be transferred to an institution outside of the State of Oklahoma at any time.