



CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE FERTILIZER RESEARCH AND EDUCATION PROGRAM

2026 Request for Pre-Proposals

The California Department of Food and Agriculture’s (CDFA) Fertilizer Research and Education Program (FREP) funds and facilitates projects to advance the environmentally safe and agronomically sound use and handling of fertilizing materials.

FREP is now accepting pre-proposals for projects that will begin in January 2027. Pre-proposals must focus on at least one of the priority areas listed below. Applicants are required to utilize the pre-proposal template (docx). Pre-proposals are due by **5:00 p.m. (PST) on Monday, April 27, 2026.**

Grant funding of up to \$75,000 per year is available for outreach, education and training projects and up to \$100,000 per year for research and demonstration projects.

The maximum grant duration is three years. Requests for projects longer than three years or higher than the award ceiling will be considered on a case-by-case basis contingent on project needs. Projects leveraging other sources of funding are strongly encouraged.

FREP does not support proprietary product development, testing or promotions.

CDFA encourages projects that include demonstrable benefits for socially disadvantaged farmers and farm workers. Socially disadvantaged groups include those whose members have been subjected to racial, ethnic, or gender discrimination. Socially disadvantaged groups are defined in the [Farmer Equity Act of 2017](#).

This solicitation, as well as information about FREP activities and projects, is available by contacting FREP at FREP@cdfa.ca.gov or by visiting www.cdfa.ca.gov/go/FREP.

Grant Timeline

Request for pre-proposals announced.....	March 20, 2026
Pre-proposals due.....	April 27, 2026
Advancement of pre-proposals announced.....	June 2026
Full proposals due.....	July 2026
Award notification by.....	October 2026
Project initiation.....	January 1, 2027

2026 Funding Categories

Outreach, Education, and Training Funding Priority Areas

Up to \$75,000 per year and three years in length

Projects in the outreach, education, and training category focus on increasing the adoption of efficient nutrient and irrigation management practices and technologies. These projects should include an evaluation of project outcomes and impact on practice adoption.

Nutrient and Irrigation Technical Education

The implementation of optimal nutrient and irrigation management practices depends on skilled and knowledgeable growers, managers, and field staff. Technical training and education, as well as demonstration projects, will increase grower and field staff knowledge, leading to improvements in on-farm management practices. All outreach projects should evaluate impacts and effectiveness of educational and outreach methods.

Projects may include, but are not limited to:

- 1) Development of educational or certification programs and outreach materials
- 2) Development of outreach and training materials for non-English speakers and underserved growers
- 3) Demonstration projects focused on increasing awareness and adoption of research-based irrigation and nutrient management practices
- 4) Development of extension materials related to nutrient management in alternative production systems, such as certified organic, regenerative, climate smart
- 5) Specific high priority outreach topics include:
 - A) Irrigation and nutrient management training for nursery production systems
 - B) Promoting soil, water, and plant testing and interpretation and tools to guide nitrogen (N) fertilization and improve crop and soil management
 - C) Assistance with adopting nutrient and irrigation management decision support tools, irrigation scheduling, enhanced irrigation systems and system maintenance, and enhanced efficiency fertilizers
 - D) Adoption of management practices such as cover crops (including legume and non-legume mixes), high carbon amendments, and high nitrogen use efficient varieties

Research and Demonstration Priority Funding Areas

Up to \$100,000 per year and three years in length

Projects in the research and demonstration category focus on investigating innovative practices and technologies and understanding processes related to nutrient and

irrigation management. All research and demonstration projects should have strong scientific merit and must include outreach to end-users.

1. Improving Nutrient and Irrigation Management

A. Evaluating Challenges and Barriers to Adoption of Management Practices

A variety of money and time-saving management practices that improve environmental outcomes are available; however, many of these practices have not been adopted on a large scale. Projects focused on evaluating barriers to widespread adoption of improved management practices may include:

1. Evaluating scalable incentives or programs that increase grower implementation of practices to optimize water and fertilizer use
2. Analyzing the costs (e.g. fertilizer prices), benefits, and economic thresholds associated with adoption of various improved management practices and technologies (e.g. automation)

B. The Role of Organic Input Materials in Soil Nutrient Management

Across California, organic materials are applied to agricultural soils to improve physical, chemical, and biological properties of soil. More information on plant-available nutrients (specifically N) from organic sources is needed for management decisions, and to help growers estimate mineralization rates for nutrient budgeting.

These organic materials include, but are not limited to:

1. Permanent crop biomass (i.e., whole orchard and vineyard recycling)
2. Cover crop residues and high carbon amendments
3. Organic fertilizers and compost
4. Manure by-products

C. Demonstrating and/or Validating Management Practices

Innovative management practices must be implemented on farms to promote agriculture sustainability and address agricultural challenges in California. Outreach efforts that improve nutrient and/or irrigation management practices in growers' fields are a high priority. Examples include but are not limited to:

1. Field-scale demonstration of improved management practices
 - a. Demonstration of episodic vs high frequency fertigation events to implement the 4 R's principle
 - b. Demonstration and/or evaluation of irrigation monitoring tools, automated systems, maintenance, and practices compared to conventional systems

2. Field validation of or improvements to existing decision support tools and approaches (e.g. variable-rate fertilization)
3. Evaluation of remote and proximal sensing tools and/or exploring the use of Artificial Intelligence and other techniques, such as hyperspectral techniques, to better sense nutrient status and overall field spatial variability

D. Filling Knowledge Gaps for Nutrient and Irrigation Management

Identifying and filling knowledge gaps related to irrigation and nutrient management is a key factor to increasing efficiency. Although irrigation and nutrient management guidelines are well established for some California crops, there are still several crops for which guidelines are outdated or lack sufficient data specific to California's climate and cropping systems.

The following include but are not limited to some of the crops/topics that need to be studied:

1. Crop rotation impact on nutrient availability: information is needed to optimize fertilizer applications for crops in rotation, and how the previous crop affects nutrient availability to the succeeding crop (including N scavenging, mineralization etc.)
2. Permanent crops: specifically related to timing and application rates, at the beginning and end of the growing season
3. Irrigation and nutrient use efficiency in alternative production systems (e.g. soil health, regenerative etc.)
4. Emerging and under-studied crops including, but not limited to, agave, citrus, fertilized alfalfa and pasture, berries, hesperalo, and avocado
5. BMPs in small scale, diversified cropping systems, including determining average values and ranges for N applied in diversified systems such as mixed vegetable production to inform N removal values
6. Development of N removal coefficients for crops that do not have existing data (i.e. multi-crop diversified farming systems, cut flower varieties, container nursery stock) through research trials and/or literature review
7. Development of N uptake patterns for crops that currently do not have sufficient existing data based on the CDFA FREP California Fertilization Guidelines

2. Evaluating Nutrient Loss Pathways

A. Understanding Nutrient Movement and Transformations

Our understanding of nutrient flux is insufficient (e.g., N losses to groundwater and atmosphere). This lack of information has resulted in incomplete modeling of the transport and fate of nutrients through agroecosystems and uncertainties in quantification of nutrient losses.

Research may include, but is not limited to:

1. Managed aquifer recharge: timing and effect on nutrient/salt management and losses
2. Research using instruments and sensors to measure nutrient losses supporting the use of vadose zone, soil-water crop, and hydrogeological models to better understand and quantify nutrient loss pathways at local, regional, or groundwater basin scale with soil type and cropping system consideration
3. Research addressing gaseous or other loss pathways that comprehensively evaluates N soil transformations from fertilizer sources
4. Studying surface nutrient losses through runoff (e.g., N, phosphorus) and/or understanding other potential loss pathways
5. Understanding and characterizing risk of nutrient loss in nursery, floral, and soilless production systems

B. Mitigation Strategies to Reduce Nutrient Losses

There are technologies and practices that may mitigate nutrient losses via various loss pathways. Research is needed to better understand the technologies and strategies that can minimize nutrient losses and maximize nutrient use efficiency.

Examples include but not limited to:

1. Testing and verification of management practices and alternative delivery systems and products to reduce nitrate leaching and gaseous losses (e.g., nitrous oxide, ammonia)
2. Novel and emerging fertilization and irrigation technologies, including but not limited to: biostimulants, microbial based products, enhanced efficiency fertilizers (e.g., urease inhibitors, nitrification inhibitors, and slow and controlled release fertilizers), and more N efficient crop varieties
3. Characterizing and understanding differences in N leaching rates between conventional, regenerative, organic and other alternative cropping systems

How to Apply

Applicants are required to utilize the Pre-Proposal Template (.docx) available on [FREPs' grant webpage](#). Follow the prompts in each section to complete the pre-proposal and the below formatting requirements:

- Use 12 pt. Arial font throughout the pre-proposal.
- Set paragraph line spacing to single space and double space between paragraphs. Do not indent the first lines of paragraphs.

Pre-proposals are due by 5:00 p.m. (PST) on **April 27, 2026**; no exceptions granted. Pre-proposals must be submitted via email to: cdfa.frepgrants@cdfa.ca.gov . Please

submit the Word version and do not convert it to pdf.

A confirmation email will be sent when pre-proposals are received. If you have not received a confirmation email within two business days of your submission, contact FREP by calling (916) 900-5022 or emailing FREP@cdfa.ca.gov. FREP is not responsible for incomplete email transmissions. Pre-proposals that are incomplete, late, or do not utilize the pre-proposal template will be returned and eliminated from consideration.

FREP staff are available to answer questions about the proposal process; however, to ensure fair competition, we do not provide guidance on the development of proposals. Examples of successful pre-proposals from previous years are available on the FREP Grant Program website:

<https://www.cdfa.ca.gov/is/ffldrs/frep/CompetitiveGrantProgram.html>

Evaluation Process

The Fertilizer Inspection Advisory Board's (FIAB) Technical Advisory Subcommittee (TASC) is comprised of subject matter experts who are responsible for the evaluation of submitted pre-proposals. TASC selects pre-proposals to be developed into full proposals based on alignment with the program's priority research and outreach areas, project concept, scientific merit, impact, methodology, and feasibility. FREP staff notifies applicants of the TASC decision and invites selected applicants to submit full proposals. Full proposals are evaluated by TASC and recommended proposals are submitted to FIAB for a funding recommendation to the Secretary.