



California Department of Food and Agriculture FERTILIZER RESEARCH AND EDUCATION PROGRAM SPECIAL REQUEST FOR FULL PROPOSALS

2012 SPECIAL REQUEST FOR FULL PROPOSALS

The Fertilizer Research and Education Program (FREP) within the California Department of Food and Agriculture's (CDFA) Division of Inspection Services is currently accepting full proposals to address the issue of nitrates in groundwater in environmentally sensitive areas of California. A recent report from the University of California suggests a "pump and fertilize" approach for making beneficial use of nitrates in irrigation groundwater as a source of plant nutrition. This method accounts for nitrates in groundwater before the groundwater is used as irrigation water. Subsequently, the applied nitrogen fertilizer is reduced based on the nitrates available in the groundwater used for crop irrigation. However, the value of nitrates in irrigation water as a plant nutrient source is influenced by crop, environmental, soil, irrigation, and other management factors. Therefore, this technique of reducing nitrates in groundwater is a key factor in nitrogen management plans or nitrogen budget worksheets. The full proposal should focus on research that utilizes the "pump and fertilize" method in concert with nitrogen budget worksheets to show proof-of-concept.

Full proposals should include experimental field research on establishing proof-of-concept on the pump and fertilize best management practice and establish a research based method of estimating the potential for plant utilization of nitrate dissolved in the irrigation supply for selected key crops, irrigation systems, and soils. The proposal should also include nitrogen budget worksheets, soil/water/plant nitrogen testing analysis using novel techniques such as the nitrogen quick test, consideration of weather conditions (e.g., use of CIMIS), salinity effects of the pump and fertilizer method, timing of irrigation, influence of irrigation water nitrates on different plant growth stages, measurement of nitrogen using novel analytical techniques to understanding plant and field distribution (e.g., nitrogen isotope method) and a comprehensive method for comparing nitrates at different concentrations in groundwater to commercial and organic fertilizers on a weight to weight basis (e.g., **is a pound of nitrate in irrigation water equivalent to one pound of properly managed nitrogen fertilizer?**). The use of hydraulic and plant nutrition simulation models would be desirable to facilitate transfer of the research results to other California conditions.

FREP will not support proprietary product development projects. Grant funding of \$75,000 per year for up to three years is typical for projects, but **projects over \$75,000 per year could be considered depending on the experimental approach and scope of the proposal**. Multiple full proposals will be accepted from different combinations of applicants. A full proposal leveraging other sources of funding is strongly encouraged and welcomed. The full proposals may originate from outside California, but the proposals must be relevant to California growing conditions. The experimental work described in the full proposal must take place in either the Central Valley or Central Coast of California, both of which have environmentally sensitive areas as indicated by nitrates in groundwater. Crops under the experimental conditions should be crops commonly found in the two regions (e.g., for Central Coast – vegetable crops such as broccoli, celery, strawberries, cauliflower, lettuce; for Central Valley – tree crops and field crops). Since studies with permanent crops will involve several years of measurement, a multi-year proposal is anticipated.

WHO MAY APPLY

Given the scientific needs of this grant solicitation, this request for full proposal is open to research institutions (e.g., University of California system, California State University system, USDA research entities such as ARS, and other similar institutions as well as private firms). Coordination among research institutions and private firms to leverage expertise is strongly encouraged. A research team that includes experts in hydrology, soil physics, plant nutrition, and irrigation management would be desirable.

HOW TO APPLY

Applicants must submit a full proposal to FREP by the date specified below. Please consult Full Proposal Submittal Requirements (attached).

Full proposals are due by 5:00 p.m. Wednesday, August 29, 2012. **FREP WILL NOT GRANT ANY EXEMPTIONS.**

Full proposals that are incomplete or late will be returned and eliminated from consideration. Full Proposals must be submitted in Microsoft Word and the budget must be submitted in EXCEL.

The FREP has a Technical Advisory Subcommittee (TASC), which consists of growers, representatives of institutions of higher education, the fertilizer industry, CDFA, U.S. Department of Agriculture and other governmental agencies. The TASC reviews the submitted full proposals to determine whether they are aligned with the special request for full proposals. The TASC will select one full proposal to be developed into a project. The TASC sends their recommendation to the Fertilizer Inspection Advisory Board (FIAB).

The FIAB deliberates and discusses the TASC recommendations and decides in an up/down vote whether to accept the TASC recommendation of special request for full proposals. The FIAB then forwards their decision to the Office of the Secretary. CDFA staff then initiates a grant agreement with the grantee to begin the grant approval process and project.

TIMELINE

Special request for full proposals announced.....	July 5, 2012
Full proposals due.....	August 29, 2012
Award notification.....	1 st week October 2012
Project start date.....	January 2013

SEND FULL PROPOSALS TO

Fertilizer Research and Education Program
California Department of Food and Agriculture
1220 "N" Street
Sacramento, CA 95814-5607
Tel: (916) 900-5022 • Fax: (916) 900-5349
E-mail: frep@cdfa.ca.gov

ADDITIONAL INFORMATION

FREP funds and coordinates research to advance the environmentally safe and agronomically sound use and handling of fertilizer materials. FREP serves growers, agricultural supply and service professionals, extension personnel, public agencies, consultants, and other interested parties.

Information about current FREP sponsored projects is available by contacting FREP staff to request proceedings from the 2011 CDFA/FREP conference. This solicitation and other information about FREP are available on the FREP website at <http://www.cdfa.ca.gov/is/fflders/frep.html>.