



CDFA FREP Nitrogen Management Efforts

May 23, 2012



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California Department of Food and Agriculture



FREP Background

- Established in 1990 through legislative action
- Funds and coordinates research to advance the environmentally safe and agronomically sound use of fertilizing materials
- Funded by a mill assessment on the sale of fertilizing materials
- FREP serves:
 - Growers
 - Agricultural advisors and consultants
 - Extension personnel
 - Agricultural supply and service professionals
 - Public agencies
 - The public
 - Other interested parties



FREPP Priorities

- Fertilizer Inspection Advisory Board and Technical Advisory Subcommittee advises FREPP on research and education priorities and project selection
- 2012 priorities include:
 - Fertilizer use efficiency
 - Irrigation and water management
 - Nutrient requirements for specialty crops in environmentally sensitive areas
 - Education and outreach



Funding Process

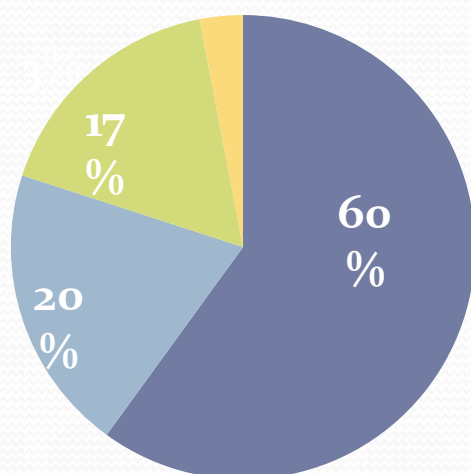
- | | |
|---------------|--|
| December 2011 | • Request for project proposals announced |
| February 2012 | • Concept proposals due |
| March 2012 | • Advancement of concept proposals announced |
| May 2012 | • Full proposals due |
| August 2012 | • Award notification |
| January 2013 | • Project start date |



FREP Focus

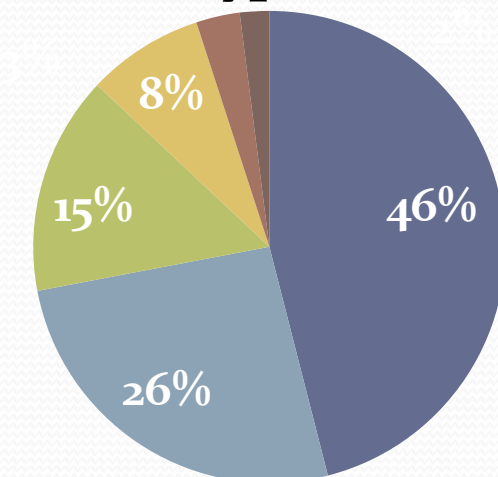
- Over \$12 million spent on 160 technical, research, and education projects across California over the last 20 years

Location



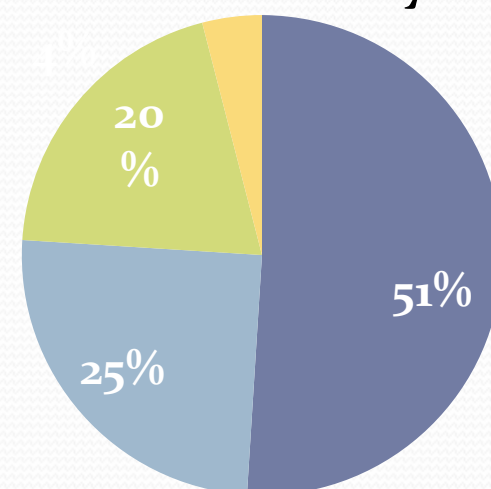
- Central Valley, 60%
- Statewide, 20%
- Coastal Regions, 17%
- Desert, 3%

Type



- Nutrient/Soil Testing/Fertilizer Practice, 46%
- Irrigation/Fertigation/Precision Agriculture, 26%
- Educational, 15%
- Other (Pest Interactions, Heavy Metals), 8%
- Compost/Cover Crop, 3%
- Air Quality, 2%

Commodity



- Tree and Field Crop, 51%
- Other (Soil, Multiple Commodities), 25%
- Vegetable Crop, 20%
- Nursery/Horticulture, 4%



New Initiatives

- Three major initiatives are taken up by FREP
 1. Online searchable FREP database
 2. Nutrient Management Plan (NMP) training and certification program
 3. Field demonstration of FREP research



Searchable Database



Searchable Database

- Goal is to make FREP research readily available, easily understandable, and convenient to use
- Timeline:
 - Input template and user interface – COMPLETED
 - Summarize research reports and enter into the database UC Davis – ONGOING
 - Stakeholders feedback – June 2012
 - Rollout (continue adding data) – July 1, 2012

Current Information



CDFA > Inspection Services > FFLDERS > Fertilizer Research and Education Program - Windows Internet Explorer

http://www.cdfa.ca.gov/is/fflders/frep.html


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CDFA > Inspection Services > FFLDERS > Fe...

GENERAL INFORMATION

- Our Mission
- Laws & Regulations
- Search Staff Directory


Visit the New
Online FFLDERS Database -
<https://inspect.cdca.ca.gov>



Fertilizer Research and Education Program

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INFORMATION ABOUT FREP



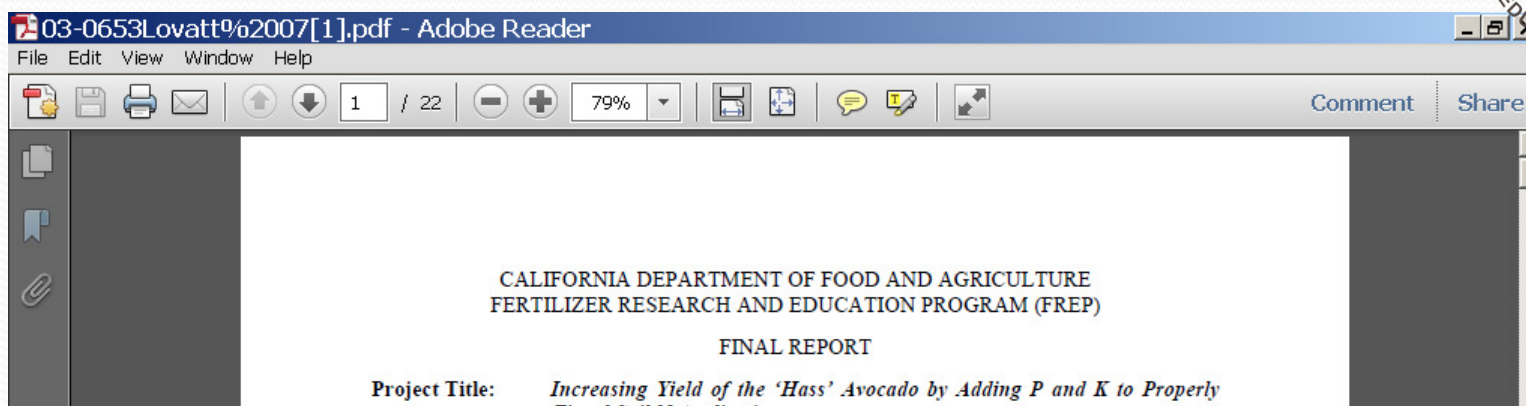
- 2011 RFPS Submission Guidelines
- NEW 2011 RFPS
- 2010 FREP/WPHA November 17 & 18 Conference
- 2009 FREP/WPHA Conference Recap
- FREP Conference Proceedings
- FREP Competitive Grants Program
- FREP Research Projects – Completed
- FREP Research Projects – Ongoing
- FREP Publications
- FREP Videos
- About Fertilizer

→ Other Related Links

http://www.cdca.ca.gov/is/fflders/frep_conference_2010.html

Internet 105%

Current Information



FULL “TECHNICAL” REPORT


22 PAGES

NOT EASY FOR A GROWER OR CCA TO
COMPREHEND AND APPLY

yield of commercially valuable large size fruit (packing carton sizes 60+48+40, i.e., fruit weighing 178-325 g/fruit) for the 4 years of the study than multiple N treatments supplying 68% more N. The research was conducted in orchards with optimal nutrition based on standard leaf analysis and located in two climatically and edaphically different avocado-growing areas of California to determine whether strategies work across avocado-producing areas of the state. With identification of the proper time to apply N fertilizer, the next logical question was whether a greater response to N soil applications would be obtained if P and K were supplied simultaneously. Due to its immobility, P is commonly limiting. K runs a close second due to its high mobility and loss by leaching. In addition, avocado trees have a high demand for K because

Future: accessing FREP data






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20 years
OF FREP RESEARCH

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FREP DATABASE

The Fertilizer Research and Education Program (FREP) funds and coordinates research to advance the environmentally safe and agronomically sound use and handling of fertilizer materials. Since 1990, FREP has funded research on many of California's important and environmentally sensitive cropping systems. This database aims to make the wealth of information contained in FREP research projects readily available, easily understandable, and convenient for growers to implement.




Please enter search criteria:

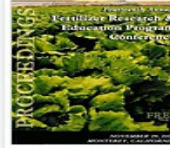


Keyword(s)

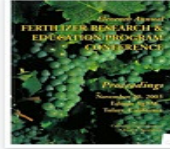
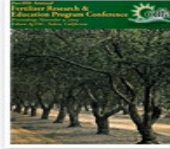

Type of Crop


County

Date Range









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FREP DATABASE

Search results:

Study Title	Project County	Crop Type
Ammonia Emission Related to Nitrogen Fertilizer Application Practices	Fresno	Alfalfa, Almond, Barley, Citrus, Corn, Cotton, Grape, Pasture, Tomato, Turf, Walnut
Can We Predict K Fixation in the San Joaquin Valley from Soil Texture and Mineralogy?	Fresno, Kings, Tulare, Kern	Cotton
Crop Nitrate Availability and Nitrate Leaching under Micro-Irrigation for Different Fertigation Strategies		Tomato, Strawberry, Grape, Citrus
Demonstration Program for Reducing Nitrate Leaching through Improvements to Irrigation Efficiency and Fertilizer/Cover Crop Management	Monterey	Lettuce
Detecting and Correcting Soil Calcium Limitations	Monterey, Yolo, Fresno	Lettuce, Honeydew, Cantaloupe
Determination of Nursery Crops Yields, Nutrient Content, and Water Use for Improvement of Water and Fertilizer Use Efficiency		Nursery crops

Summary of the Report

STUDY RECORD



Can We Predict K Fixation in the San Joaquin Valley from Soil Texture and Mineralogy?

G.S. Pettygrove, R.J. Southard, Department of Land, Air and Water Resources, University of California, Davis

Vermiculite is the soil mineral present in San Joaquin Valley soils that is responsible for making potassium (K) unavailable or less available to the cotton plant during flowering and boll fill. In spite of much research to relate this problem to field symptoms and to develop diagnostic criteria, no one has described the location of K-fixing soils.

The objective of this research was to use information from digitized USDA country soil survey databases to map the location of soils in the San Joaquin Valley cotton production areas that potentially possess a high capacity to fix K in mineral inter layer's.

The study covered the cotton production areas of Fresno, Kings, Tulare, and Kern counties in the southern San Joaquin Valley.

Generally speaking there are two conditions that result in K fixation: Weakly developed soils with high mica content (when derived from granitic parent materials) and intermediately developed soils having high vermiculite clay mineralogy. We were able to infer the potential for K fixation based on degree of soil development and other properties, which were extracted from soils database using taxonomic criteria. The resulting map shows that the total area of potentially K-fixing soils is approximately 1.4 million acres.

Crop:
Cotton

Counties:
Fresno, Kings, Tulare, and Kern

Years of study:
1997-1999

FREP Article:
<http://www.cdfa.ca.gov/4s/docs/Pettygrove-oo.pdf>



Related reports:

External links:



NMPs Certification Program



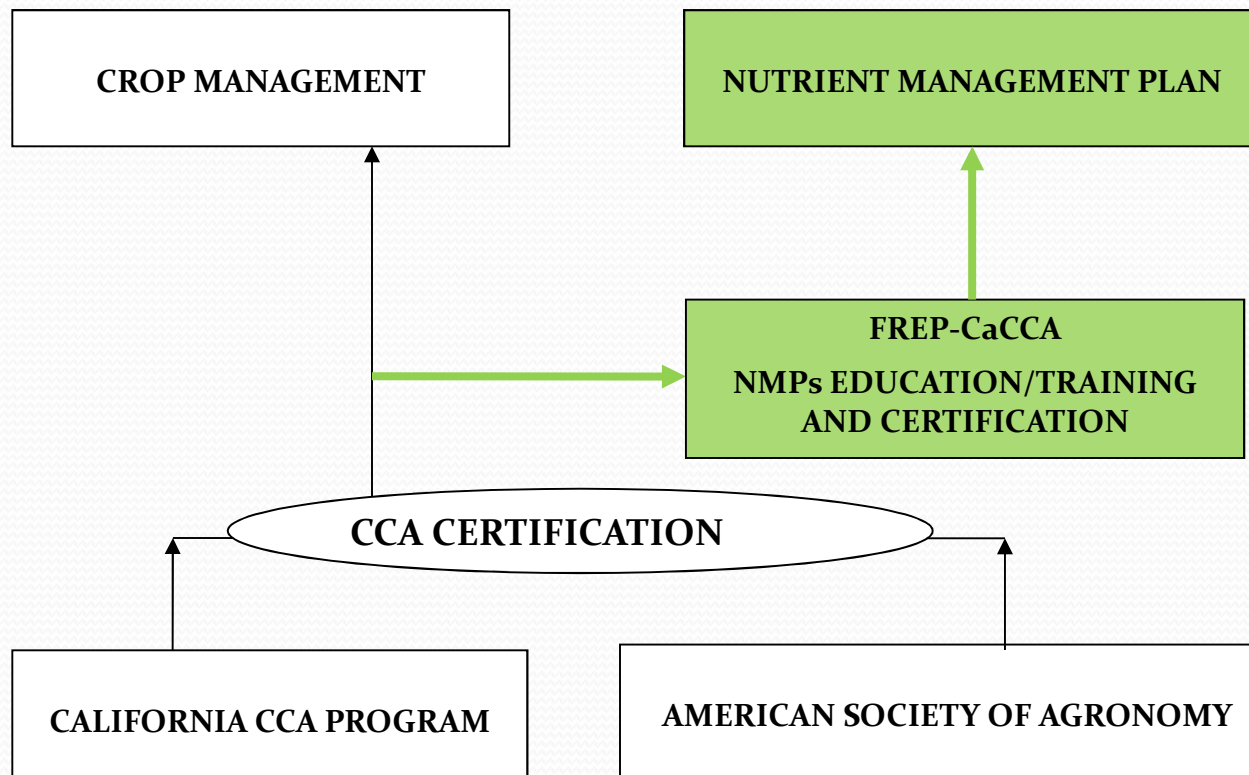
NMPs Certification Program

FREP is working with California Certified Crop Advisors (CCA) Board of Directors to implement NMPs Training and Certification Program

- CCAs have been identified as a primary resource to help growers implement NMPs
- Already certified through the CaCCA program and American Society of Agronomy
- Qualified to make nutrient recommendations
- However...would need training specific to NMPs



NMPs Certification Program



FREP was established in 1990 when California Food and Agricultural Code Section 14611(b) authorized a mill assessment on the sale of fertilizing materials, “to provide funding for research and **education regarding the use and handling of fertilizing material**, including, but not limited to, any environmental effects.”



NMPs Certification Program

- FREP and CaCCA are developing training modules
- Stakeholders advisory group will be formed to seek feedback on the training modules
- FREP will issue a certificate to CCAs who have successfully completed NMPs training and education
- CCAs will be required to have CEU (Continuous Education Units) to maintain NMPs certification
- Implementation target date: December 2012



From Research to the Field



Research Transfer

- FREP has applied for USDA-NRCS-CIG grant
- A collaborative one million dollar project:
 - \$500,000 CIG grant;
 - \$250,000 in kind, and \$250,000 in cash contribution from FREP
- In collaboration with Central Coast Water Quality Coalition
- Objective is to apply FREP research at the field/farm level
- 4 crops at 3 or 4 locations in the Salinas Valley
- Organize field days
- Final decision of the grant application is expected by July 20, 2012



Through these initiatives the FREP
is striving to enhance the
environmental performance in
agriculture



Thank You