



RESEARCH ON GHG EMISSION FROM N FERTILIZER USE

**Amrith Gunasekara, Ph.D.
Research Manager
Fertilizing Materials Program
Fertilizer Research and Education Program (FREP)**

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CDFFA

Proactive in our approach to addressing environmental issues related to fertilizer

Plan, fund, and evaluate baseline nitrous oxide levels from agricultural fields with and without fertilizer use

Determine contribution of nitrous oxide from fertilizer use in agriculture

Use FREP as a tool in which to facilitate some of the research

Greenhouse Gas Sectors - Microsoft Internet Explorer

File Edit View Favorites Tools Help



Address <http://www.arb.ca.gov/cc/ghgsectors/ghgsectors.htm>



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- Home
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- Board Meetings
- Laws & Regulations
- Data & Statistics
- Permits, Etc.

Events

ARB'S CLIMATE CHANGE PROGRAM

Tuesday, September 2, 2009

UP LINKS

- ARB Programs
 - Climate Change
 - GHG Sectors Portal

GREENHOUSE GAS SECTORS

- Agriculture
- Energy
- Forests
- High GWP
- Land Use and Local
- Manufacturing
- Oil & Gas/Refining
- Transportation
- Waste/Recycling

CLIMATE LISTSERVERS

- Join Any Climate Change Email List(s)

LIVE WEBCASTS

- Audio/Video

CLIMATE EVENTS CALENDAR



Greenhouse Gas Sectors Portal

The staff of the Air Resources Board (ARB) are currently working on multiple sector specific goals to better define, organize, and control major sources of GHG emissions, these sources have been identified and information regarding sector control measures, reduction strategies, [protocols](#) and other permitting information is in a continuing process so this page will be updated and hyperlinked as new information becomes available.

Agriculture:



[Agriculture Stakeholder Working Group on Scoping Plan Development](#)

[General Manure Management Activities](#)

[Manure Management Strategies](#)

[Manure Management Protocols](#)

[Research on Emissions from Nitrogen Fertilizer](#) **NEW!**

[Agricultural Offroad Equipment](#)

[Electrification of Stationary Agricultural Engines](#)



**EXPANDED LIST OF EARLY ACTION
MEASURES TO REDUCE GREENHOUSE
GAS EMISSIONS IN CALIFORNIA
RECOMMENDED FOR BOARD
CONSIDERATION**



Lyell Glacier, Yosemite National Park, California, USA circa 1903 (upper) and 2003 (lower)

OCTOBER 2007



Staff Analysis of Proposed Early Action for Climate Change Mitigation in California

1. Early Actions Strategy Name and Proponent

SUMMARY # C12
ID NUMBER: N/A
TITLE: COLLABORATIVE RESEARCH TO UNDERSTAND HOW TO REDUCE
GHG EMISSIONS FROM NITROGEN LAND APPLICATION
PROPONENT: STAKEHOLDERS SUGGESTIONS

2. Staff Recommendation

This measure is recommended for addition to the list of early actions. The Board date for consideration of this item is anticipated in 4th quarter of 2010.

3. Early Action Description

Staff analysis suggests that nitrogen land application may be a significant source of nitrous oxide, which is a potent greenhouse gas. In order to reduce greenhouse gases while benefiting agricultural systems, landscaping and other uses staff needs to identify methodologies for better characterizing California's nitrogen cycle.

An important first step to better characterizing the relationship between nitrogen land application and nitrous oxide formation in California agriculture, landscaping and other uses as well as opportunities for emission reductions is a collaborative research effort with stakeholders. The research is expected to focus on identifying optimal ways to reduce nitrous oxide emissions while increasing soil retention of nitrogen for plant uptake. Factors such as the total acreage of

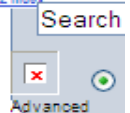


INVOLVEMENT

- ❖ Early 2008 - was requested to get involved with this issue by Dr. Asif Maan, Branch Chief of FFLDERS (Branch level).
- ❖ Tonnage reporting data was used to predict nitrous oxide emissions from fertilizer use. Some concerns with using this data.



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Events

SCOPING PLAN - AGRICULTURE SECTOR

Tuesday, September 2, 2008

UP LINKS

- ARB Programs
 - Climate Change
 - GHG Sectors
 - Scoping Plan
 - Agriculture

LOCAL LINKS

- Contact Us
- Economic and Technology Advancement Advisory Committee (ETAAC)
- Join Email List
- Live Webcasts
- Work Group Meetings

This page last reviewed February 26, 2008

Agriculture Scoping Plan Workshops and Meetings

Date/Time	Description
Feb. 26, 2008 9:00am-12:30pm <i>(New Time)</i>	Agriculture Stakeholder Working Group on Scoping Plan Development <i>Sierra Hearing Room, CalEPA Building, Sacramento</i> <ul style="list-style-type: none">• Announcement• Agenda• Staff Presentation• Link to Webcast
Jan. 23, 2008 10:00am-1:00pm	Agriculture Stakeholder Working Group on Scoping Plan Development <i>Sierra Hearing Room, CalEPA Building, Sacramento</i> <ul style="list-style-type: none">• Announcement• Agenda• Presentations



INVOLVEMENT

- ❖ Contacted scientists in ARB about fertilizer tonnage data being used per fertilizer industry concerns - Renee Pinel, WPHA (January 30, 2008)
- ❖ Decided scientific research needed to be completed to find out what "real" N₂O emissions from fertilizer use are since go through microbial cycle
- ❖ Identified key questions that research needs to answer (baselines)
- ❖ FREP funding announcement
Nitrogen and Phosphorus efficiency in high production systems with consideration to environmental quality
- ❖ Identified researchers with instrumentation and capabilities to conduct research and asked them to submit 2 page pre-proposal (February-March, 2008)



INVOLVEMENT

- ❖ Worked with CARB to identify researchers (February 25, 2008)
- ❖ Three pre-proposals related to N₂O submitted for review by TASC (March 3, 2008)
- ❖ TASC requested full proposal for all three including five others on benefits of fertilizer use in different crops (April 1, 2008)
- ❖ In collaboration with CARB, determined same work being proposed to by several different research labs. Worked to bring them together so that more funding for more research parameters such as different crops (April 18, 2008)
- ❖ CARB also put forth RFP to address knowledge gaps in N₂O research (May, 2008)



INVOLVEMENT

- ❖ Researchers agree to work together (May, 2008)
- ❖ Proposal put forth by Cal State University, Fresno to FREP
- ❖ One proposal put forth by UC, Davis researchers to CARB
- ❖ Both will collaborate so parameters maximized for dollars invested.
- ❖ Research is for three years at \$150,000 from FREP (if approved).
- ❖ TASC will review September 17 and result on September 18 after FIAB meeting.



FREP

The Fertilizer Research and Education Program promotes agronomically sound and environmentally safe use of fertilizing materials

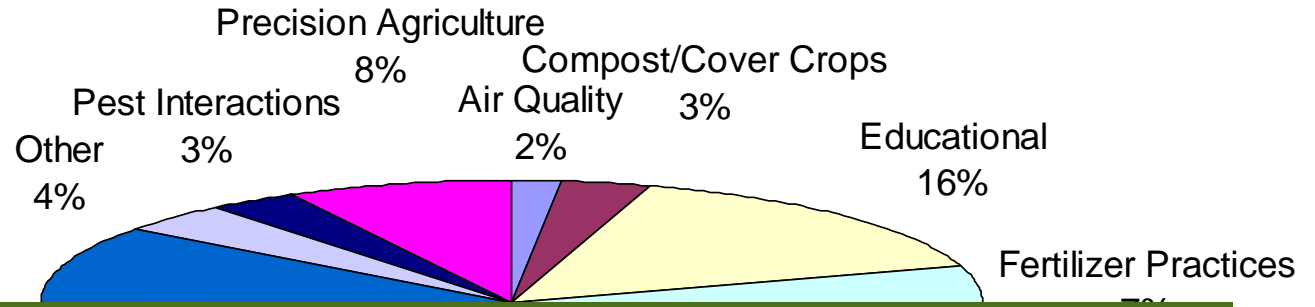
Half mil (\$0.0005) per dollar of sales of fertilizing material

About \$ 800,000 in Research and Education annually

Anywhere from \$ 200,000 to \$ 400,000 in new proposals



FREP

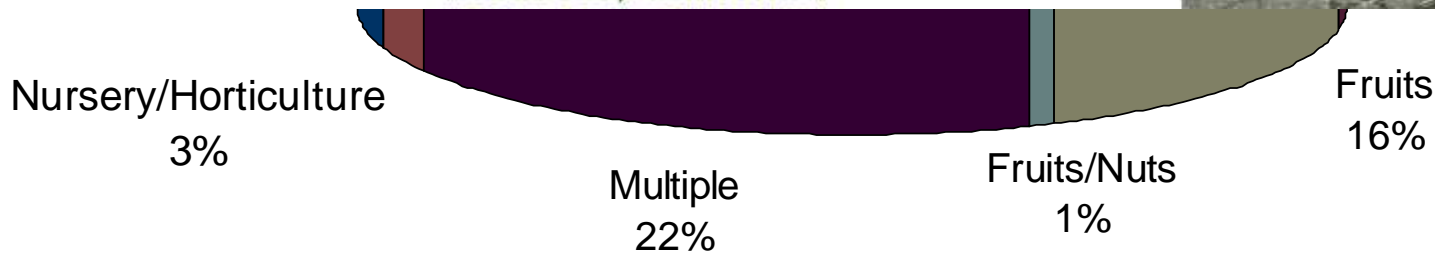


A JOINT EVENT! 16th Annual Fertilizer Research and Education Conference & Western Plant Health Association Central Valley Regional Nutrient Seminar



fresh
approaches to fertilizing techniques
 2008

November 12-13, 2008
 Doubletree Hotel Modesto
 Modesto, California





FREP

From 1990-2007, FREP has supported over 130 research and education projects

Key Research Areas

Crop nutrient requirements

Fertilization practices

Fertilizer & water interactions

Site-specific fertilizer technology

Diagnostic tools for improved fertility fertilizer recommendations

Education and public information (~16%)

Research Priorities set forth by TASC

Nitrogen and phosphorus efficiency in high production systems with consideration to environmental quality



TASC

Technical Advisory Sub-Committee (created by FIAB)

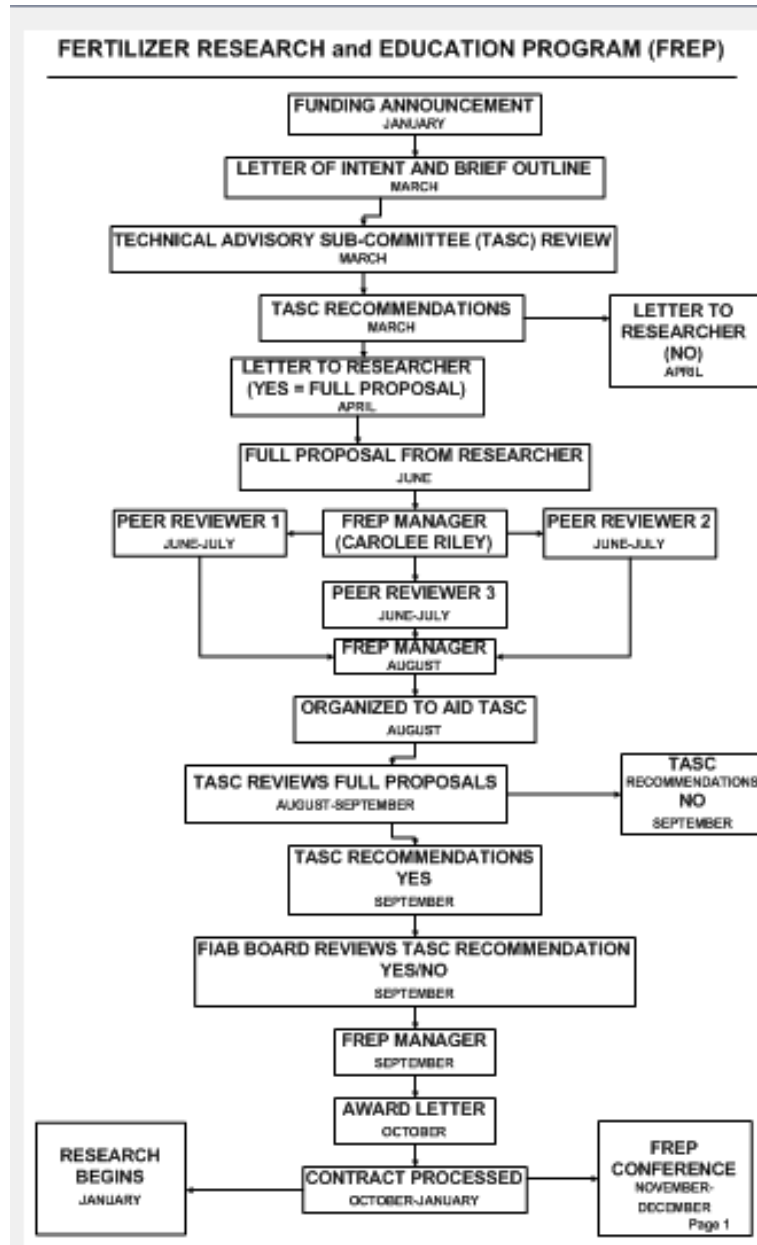
Reviews and recommends proposal for funding to
FIAB



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



TASC





TASC

Dr Michael Cahn

UC Extension (University)

Mr. Robert Fry

USDA/NRCS (Government)

Mr. Tom Gerecke

Actagro (Industry)

Mr. David McEuen

JG Boswell (Farming)

Dr. Robert Mikkelsen

Int. Plant Nut. Ins. (not-for-profit)

Dr. Jerome Pier

Western Farm Service (Industry)

Mr. Al Vargas

CDFA (Government)

Mr. Jack Wackerman

Haifa Nutritech (Industry)