Managing Agricultural Nitrogen
Outline

- CDFA- Fertilizer Research and Education Program (FREP) Initiatives – Asif Maan
- Nitrogen Management Curriculum Development and Training – Dr. Doug Parker
- Certified Crop Advisors Program – Mike Huffman
FREP Initiatives

1. Accessibility of FREP Research
   - Online searchable database
   - Decision making tool

2. Focused Research
   - Special RFP – “Pump and Fertilize”

3. Technical Education & Outreach
   - Precision irrigation and fertigation
   - Nitrogen Management Training Program
1. Accessibility of FREP Research: **Online Searchable Database**

**Database allows users to search by:**
- Keyword(s)
- Type of Crop
- County
- Date Range

**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**: View All
- **County**: View All
- **Date Range**: View All

[http://www.cdfa.ca.gov/is/frep/Default.aspx](http://www.cdfa.ca.gov/is/frep/Default.aspx)
1. Accessibility of FREP Research: Online Searchable Database

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<th>Study Title</th>
<th>County</th>
<th>Crop Type</th>
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<td>Monterey</td>
<td>Lettuce</td>
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<td>Demonstration Program for Reducing Nitrate Leaching through Improvements to Irrigation Efficiency and Fertilizer/Cover Crop Management</td>
<td>Monterey</td>
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<td>Determination of Best Nitrogen Management Practices for Broccoli Production in the San Joaquin Valley</td>
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<td>Development and Demonstration of Nitrogen Best Management Practices (BMP’s) for Sweet Corn in the Low Desert</td>
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<td>Development of a Model System for Testing Foliar Fertilizers, Adjuvants and Growth Stimulants</td>
<td>Site independent</td>
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<td>Development of a Nitrogen Fertilizer Recommendation Model to Improve N-Use Efficiency and Alleviate Nitrate Pollution to Almond Production in Yolo and Colusa Counties</td>
<td>Yolo, Colusa</td>
<td>Almond</td>
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1. Accessibility of FREP Research: Online Searchable Database

STUDY RECORD

Demonstration of Pre-Sidedress Soil Nitrate Testing as an N Management Tool

Hartz, T.K., Department of Vegetable Crops, University of California, Davis

Project Highlights

- Sidedressing to lettuce can be delayed as long as residual soil NO₃-N in the top foot of soil exceeds 20 ppm.
- Maximum yields can be achieved in fields with lower soil NO₃-N levels by sidedressing only enough to raise soil NO₃-N concentration to 20 ppm.
- Nitrate-N levels can be raised to this threshold by applying 80 to 100 lbs N/acre minus 4 lbs N/acre per ppm of soil NO₃-N.
Fertilization Guidelines for Major Crops Grown in California

These guidelines are based on research results from studies carried out in California and elsewhere. For an optimal fertilization program, site-specific information on soil type, climate and crop management need also to be take in into account.

After choosing a crop from the list below, detailed information can be accessed by moving the mouse over any shape with the symbol 📚.
Special RFP: “Pump and Fertilize” proof of concept

- Six project proposals
- FREP-TASC and peer reviews
- Two proposals have been selected for funding of over $700,000
- Three years field level research in Tulare Lake Basin and Salinas Valley
- Both proposals are from UC
3) Technical Education: Precision Irrigation and Fertigation

- Collaboration with Center for Irrigation Technology, CSU Fresno
- Minimizing groundwater nitrate loading by proper irrigation and fertigation
  - right equipment, right amount, and uniform distribution
  - how much, how long, and how often
- Presentation and demonstration
3) Technical Education: *NMT for CCAs*

The Need and Demand

- Enhance economic and environmental benefits through improved management of agricultural use of nitrogen and irrigation water
- Regional water boards requirement - growers to implement nitrogen management plans
- Need professionals to assist growers with nitrogen management plans
- Grower survey at ESJWQC meeting
3) Technical Education: **NMT for CCAs**

- **Crop Management**
- **Nitrogen Management Plan**
- **CDFA-FREP**
  - Nitrogen Management Training Program
- **CCA Exam and Certification**
- **California CCA Program**
- **American Society of Agronomy**
Curriculum Development and Training in Nitrogen Management

Doug Parker Ph.D.
Director, California Institute for Water Resources
Strategic Initiative Leader, UC ANR Water Initiative
doug.parker@ucop.edu
Purpose of the Program

• Enhance economic and environmental benefits through improved management of agricultural use of nitrogen and irrigation water.
Initial Target Audience

- California Certified Crop Advisors (CCAs)
- Regional Trainings
  - 4 in Central Valley
  - 1 in Salinas Valley
Program

• 2-Day Program
  – Day 1: General Session
  – Day 2: Concurrent Sessions (May Repeat Morning and Afternoon)
    • Annual Crops
    • Permanent Crops
Curriculum Outline: Day 1: General Session

1) Objectives of the course
2) Nitrogen Cycle in Crop Production Systems
3) Nitrogen Sources
4) Irrigation and Nitrogen Management
5) Nitrogen Budgeting
6) Future Resources
Curriculum Outline: Day 2: Annual and Permanent Crops Sessions

Concurrent Sessions:
A) Current Practices
B) The Use of BMPs
C) Nitrogen Management Planning Exercise
Timeline

• October 2012
  – Initial discussion UC and CDFA

• November 2012 – March 2013
  – Create Steering Committee
  – Set program goals
  – Draft curriculum outline
  – Draft list of potential team members

• April – May 2013
  – Form Curriculum Development Teams
    • 50+ Potential Individuals Identified
      – UC, CSU, USDA, Private Sector, Coalition Groups
Timeline

• May – October 2013
  – Create Draft Curriculum
    • PowerPoints with Notes
    • Reference materials

• November – December 2013
  – Edit and Finalize Curriculum

• January – March 2014
  – Provide Trainings

• Beyond March 2014
  – Video of Trainings
  – Publications
  – Assess Additional Needs
CALIFORNIA CERTIFIED CROP ADVISORS

Mike Huffman
Vice Chairman
July 23, 2013
CALIFORNIA CCA PROGRAM

• Voluntary Crop Advisor Certification Program
• Established 1992
• Certification Standards established by ICCA of the American Society of Agronomy
• CCA Requirements Pass International & CA exam requirements, minimum of two years of consulting experience, 2 letters of recommendation from growers and 40 hours of CEUs every two years to maintain certification standards
• CA CCA Board oversees programs
Sound advice for those feeding the world.
Current Number of CCAs in California

- Current – 719
- Candidates taking August exam– 157 total
- Exam given twice a year – February & August
- About 80% of California CCA are PCAs
Find a CCA/CPAg

California CCA Expertise

- Nutrient Management
- Soil & Water Management
- Diversified Crop Consulting/Management
- Dairy Manure Management
- Pest Management (must be a PCA to make pest management recommendations)
- Regulatory Requirements for Crop Protection
CCAs and Growers

• Most CCAs work for or with growers
• Soil, Water, Tissue Testing
• Provide cropping advice, nutrient recommendations based on tests, crop needs
• Usually long standing relationship with growers
• Independent consultants, input sales personnel, agency employees
CALIFORNIA CCA Educational Project Recognition

• The CDFA FREP has been a long time funding supporter of the California CCA Program.
• August 1, 2007 – December 31, 2008
• January 1, 2009 – December 31, 2011
• January 1, 2012 – December 31, 2014

Thanks for Your Support
Communications

Become a FAN of California Certified Crop Advisers

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CA Certified Crop Advisors

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