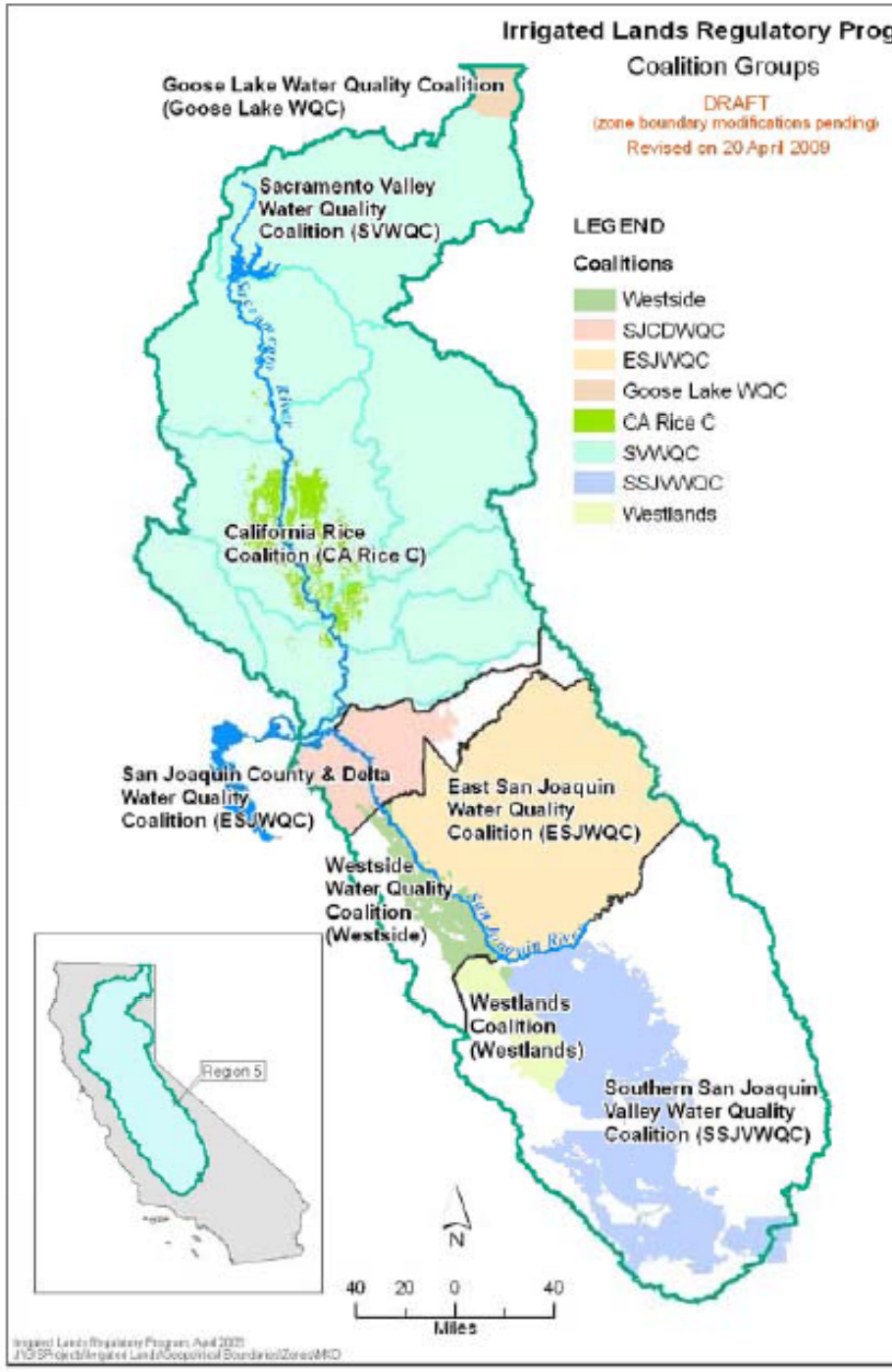
Grower Perspective/Response to Decision Tools

Parry Klassen
Executive Director

Merced River

Central Valley Coalitions

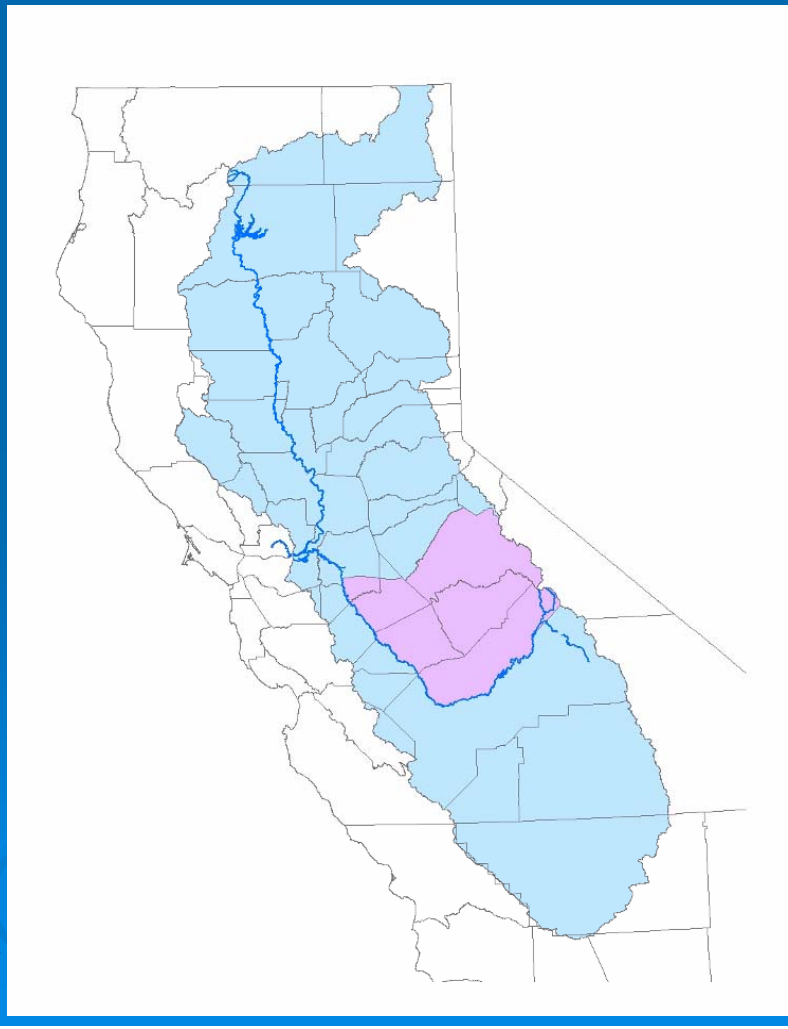
- **Sacramento Valley Water Quality Coalition**
  - Bruce Houdesheldt
- **California Rice Commission**
  - Tim Johnson
- **Goose Lake Water Quality Coalition**
- **San Joaquin County & Delta Water Quality Coalition**
  - Michael Wackman
- **Westside San Joaquin River Watershed Coalition**
  - Joseph C. McGahan
  - David Cory
- **East San Joaquin Water Quality Coalition**
  - Parry Klassen
  - Wayne Zipser
- **Southern San Joaquin Valley Water Quality Coalition**
  - David Orth
- **Westlands Coalition**
  - Sue Ramos



East San Joaquin Water Quality Coalition

Coalition Overview

- In operation since 2003
- **3,950 Landowner / operators**
- **706,336 irrigated acres**
  - Madera, Merced, Stanislaus, Tuolumne, Mariposa counties
- *We manage group permit for our members*



Waste Discharge Requirements
Irrigated Lands Regulatory Program

ESJWQC WDR adopted December 7, 2012

- First of seven “third party” coalitions to get WDR
- Second WDR : South San Joaquin Water Quality Coalition (adopted September 19, 2013
- Remainder of CV Coalitions adopted by March 2013 (?!)

ESJ starting on new requirements

- Apply to be third party (approved January 13, 2013)
- Develop templates with other coalitions, commodity groups
- Perform groundwater assessment (due January 2014)
- Begin new surface water monitoring requirements (2014)

What Will Be Required

Grower Responsibilities

- Complete Farm Evaluation *(everyone)*
- Complete Nitrogen Management Plan
  (In high vulnerability groundwater area)
  - CDFA certification program in development
  - Low vulnerability keep on site; no certification required
- Sediment and Erosion Control Plan
  (In areas identified as high vulnerability for erosion and sediment discharge)
- More time provided for farming operations < 60 acres total

Waste Discharge Requirements
Irrigated Lands Regulatory Program

Latest "wrinkles" in nitrogen reporting from "Recommendations Addressing Nitrate in Groundwater" (SWRCB)

- *State Water Board releases draft order for Central Coast*
  - Refers to formation of Expert Panel (requirement originated from UCD/Harter report recommendation)
  - Panel will answer "questions" posed by advisory group
  - No official timeline in place yet but expect panel formation by September 2013

Task Force/Expert Panel

- *CDFA Formed "Task Force"*
  - Develop "Recommendation for a Nitrogen Tracking and Reporting System"
  - Facilitated by CSU Sacramento, Center for Collaborative Policy
  - Recommendations being finalized
- SWRCB Formed "Expert Panel"
  - Develop " Recommendation for Assessing Existing Nitrate Control Programs"
  - Facilitated by California Polytechnic State University
  - Process underway

Expert Panel

Preliminary indications of makeup & timing

- **7-10 Participants**
  - **Including representative(s) from farming**
- **Cal Poly directed**
- **Advisory Committee will provide reviews**
  - **Including ag, environmental, EJ**
- **Convene 9/13; Draft 1/14; Final 2/14**
  - **3 Public Workshops**

Expert Panel

Issues to be reviewed by the Expert Panel

- Develop or endorse a methodology for determining when a particular farm poses a risk to loading nitrates to groundwater. (p. 34).
- Develop a template for nutrient balance determinations (p. 38).
- Consider the best approaches to evaluate nitrate discharges to groundwater (p.38).

Nitrogen Management Plans

Key mechanism to minimize nitrogen discharge to surface and groundwater

- High Vulnerability Areas
  - CCA certifies nitrogen budgets for members
    - CDFA certification program in development
  - Member self-certification with training
  - Plans kept on site, summary info reported to Coalition
- Low Vulnerability Areas
  - Required but kept on farm

Nitrogen Management Plan Components

- Apply N at crop removal rates
  - Dairies regulated to 140% of crop use (N applications)
- Test well water for nitrogen levels (then adjust N applications accordingly)
- Leaf / tissue testing
- Soil testing

- Deadline for reports
  - High vulnerability: March 2015 for crop year 2014; 2015 planning
  - Low Vulnerability: 2017 (keep on farm)

Nitrogen Management Plan Worksheet

Crop Year 2012

Member ID# 1234 APN: 111-00-222

Owner/mgr Joe Almond Field # A, B, C

CROP NITROGEN DEMAND Crop Nitrogen Needs / Uptake	NITROGEN APPLICATIONS AND CREDITS			
		Recommended N	Actual N	
Crop	**Total N applied to field (lbs/ac)**			
Almonds				
Expected yield (Lbs of production/ acre)	***Nitrogen fertilizers*** (conventional and organic)			
3000 lbs / ac	Dry & Liquid Fertilizers		100	105
Nitrogen Crop Needs to meet expected yield (lbs of Nitrogen per acre)	Foliar N fertilizers		100	90
250	Other N fertilizers		0	0
Total Acres	Organic Material N (manure, compost, etc.)		10	0
178			5	5
	Other N containing materials			
	TOTAL N APPLIED (per acre)		215	200
	Soil Nitrogen Credits	Soil N ppm [3]	Lbs N/acre	Lbs N/acre
	Nitrogen from previous legume crop		0	0
	N residual from manure applications		5	5
	Soil organic matter mineralization		5	5
	Nitrates in irrigation water (annualized)		50	50
	TOTAL N CREDITS (per acre)		60	60
	Total N Credits and Applications:		275	260
	Crop N needs:		250	250
	Balance		**25**	**10**
	Ratio		**1.100**	**1.040**

Proposed reporting of nitrogen management plan information:

- Member submits summary form to Coalition
- Coalition compiles ratios
- Separates ratios into “Township,” crops

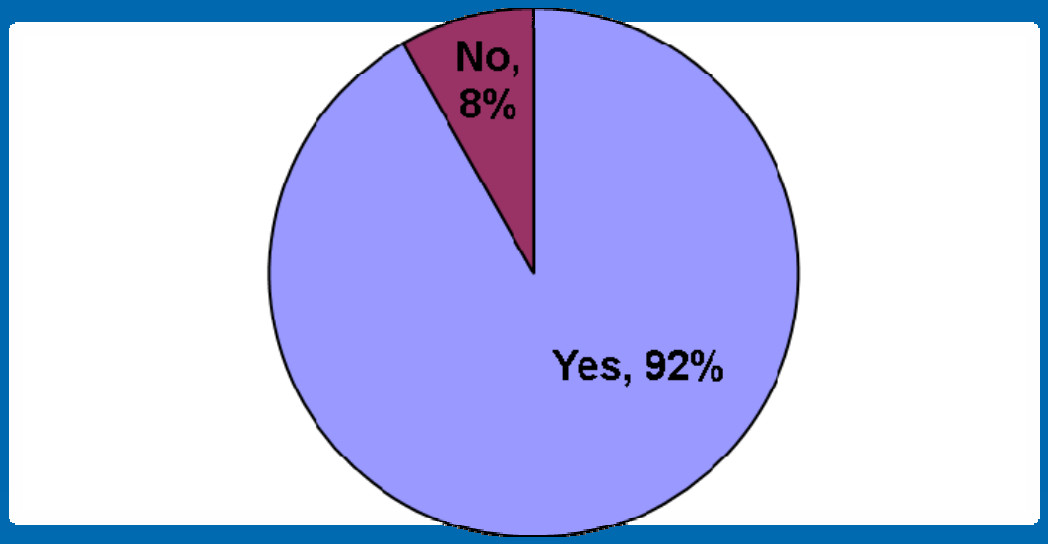
What the area report should show:

- Where most growers are with nitrogen ratios
- The “Outliers:” those who apply too much
- Outliers focus of outreach with commodity specific information/references

Nitrogen Management Plans & Summaries

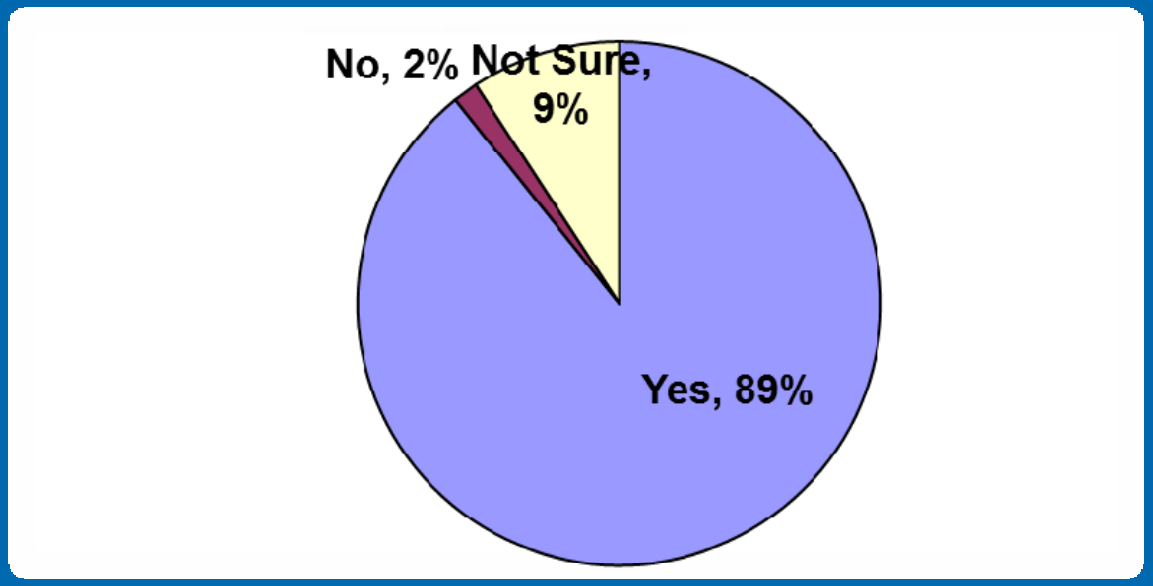
- Goal is working toward improvements in Nitrogen management (when/if needed)
  - Focuses on crop needs – not total applied
  - Helps growers understand their use in context with like crops
  - Helps to identifies “outliers”
  - Will evolve into better management of nitrogen as information is developed

Would you be willing to work with a CCA to complete a nitrogen management plan?



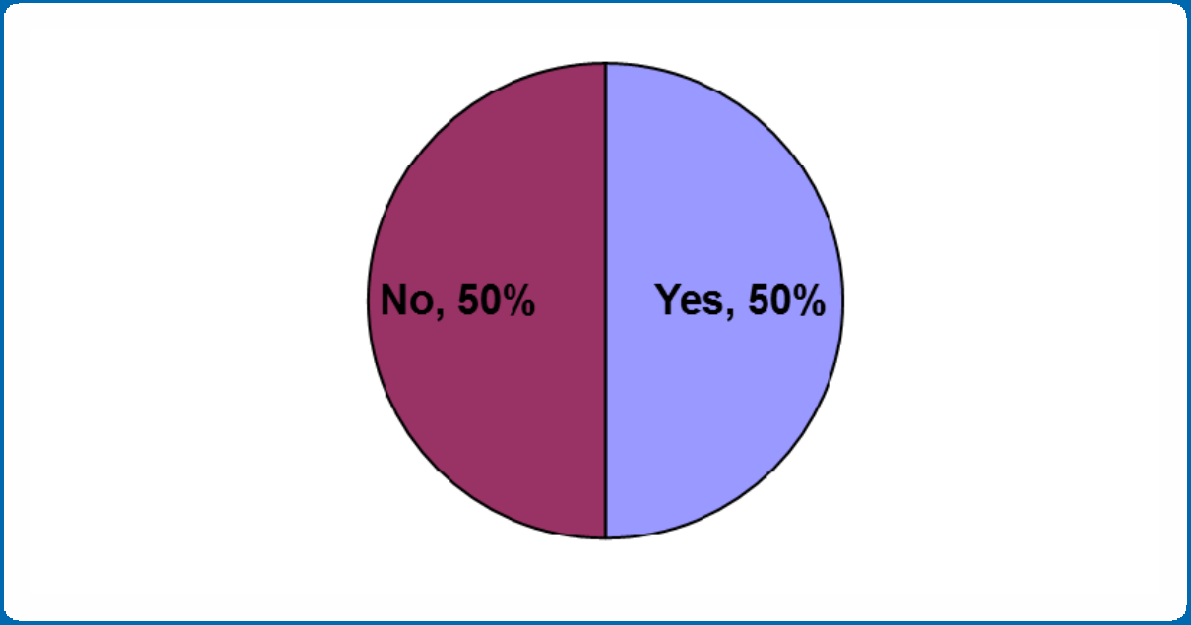
(73 Responses)

Identify company(s) to perform well water testing for N levels? (Deliver own sample)



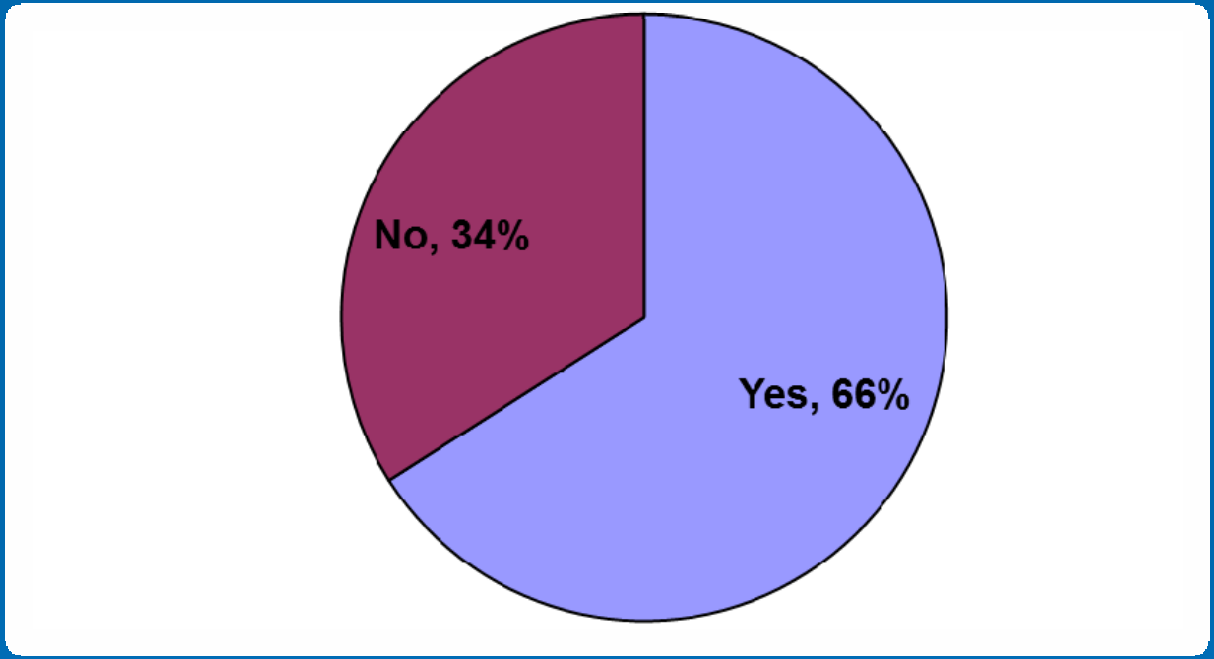
(65 Responses)

Do you sample your supply for nitrate levels?

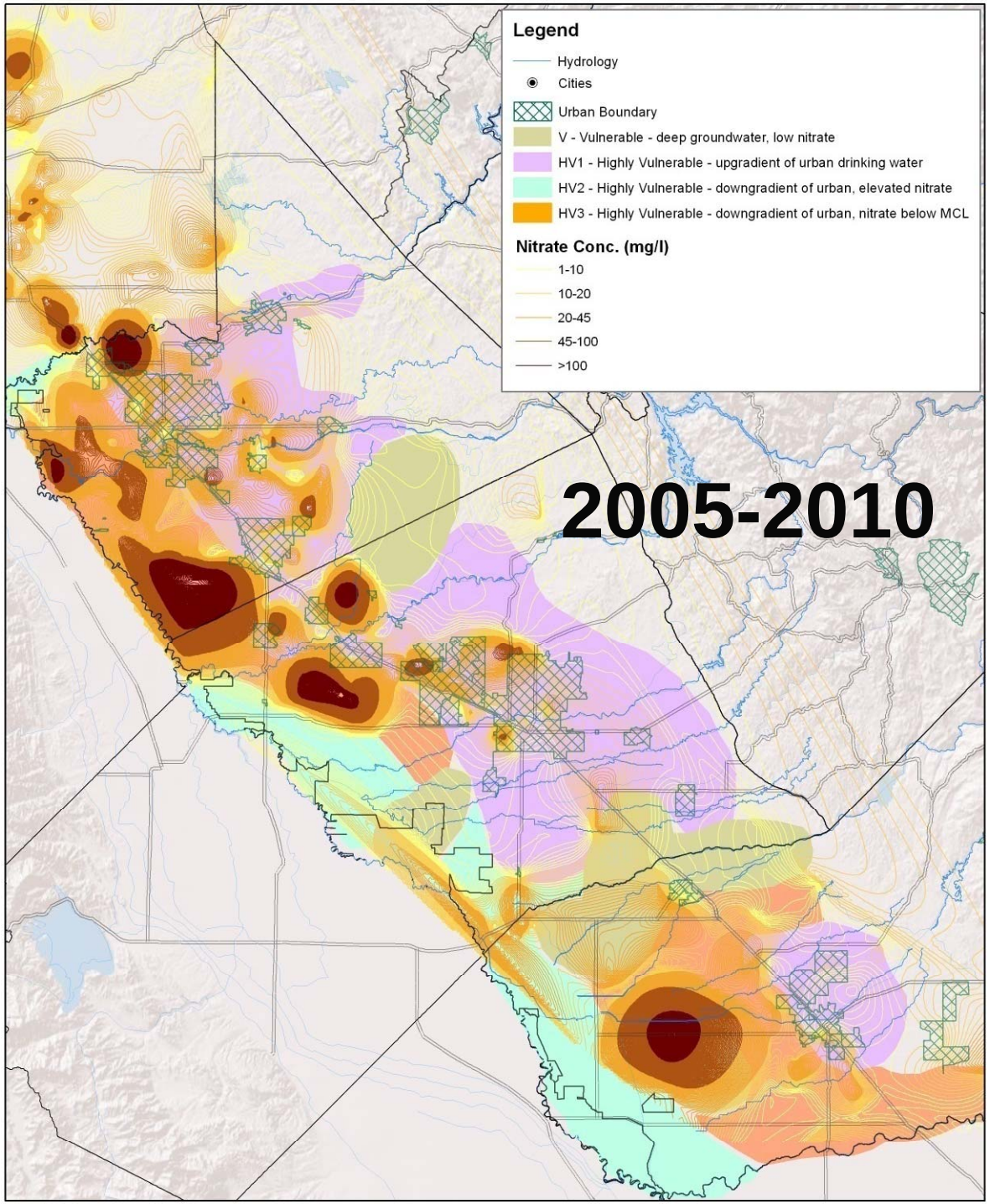


(66 Responses)

Do you adjust your fertilizer applications based on the nitrate levels?



(47 Responses)



ESJWQC Vulnerable Regions & Well NO3 Conc. 2005-2010

Date Prepared: 01/21/12

ESJWQC

ESJWQC_GW_well map 2012

Farm Evaluation Plans

- Template being developed by coalitions, reviewed by Water Board
- Report practices “protective of surface and groundwater quality”
- Periodic Updates

  More frequently in high vulnerability areas

- Deadline for reports
  - High vulnerability: March 2014
  - Low Vulnerability: 2017 (keep on farm)

What Will Be Required

Grower Responsibilities

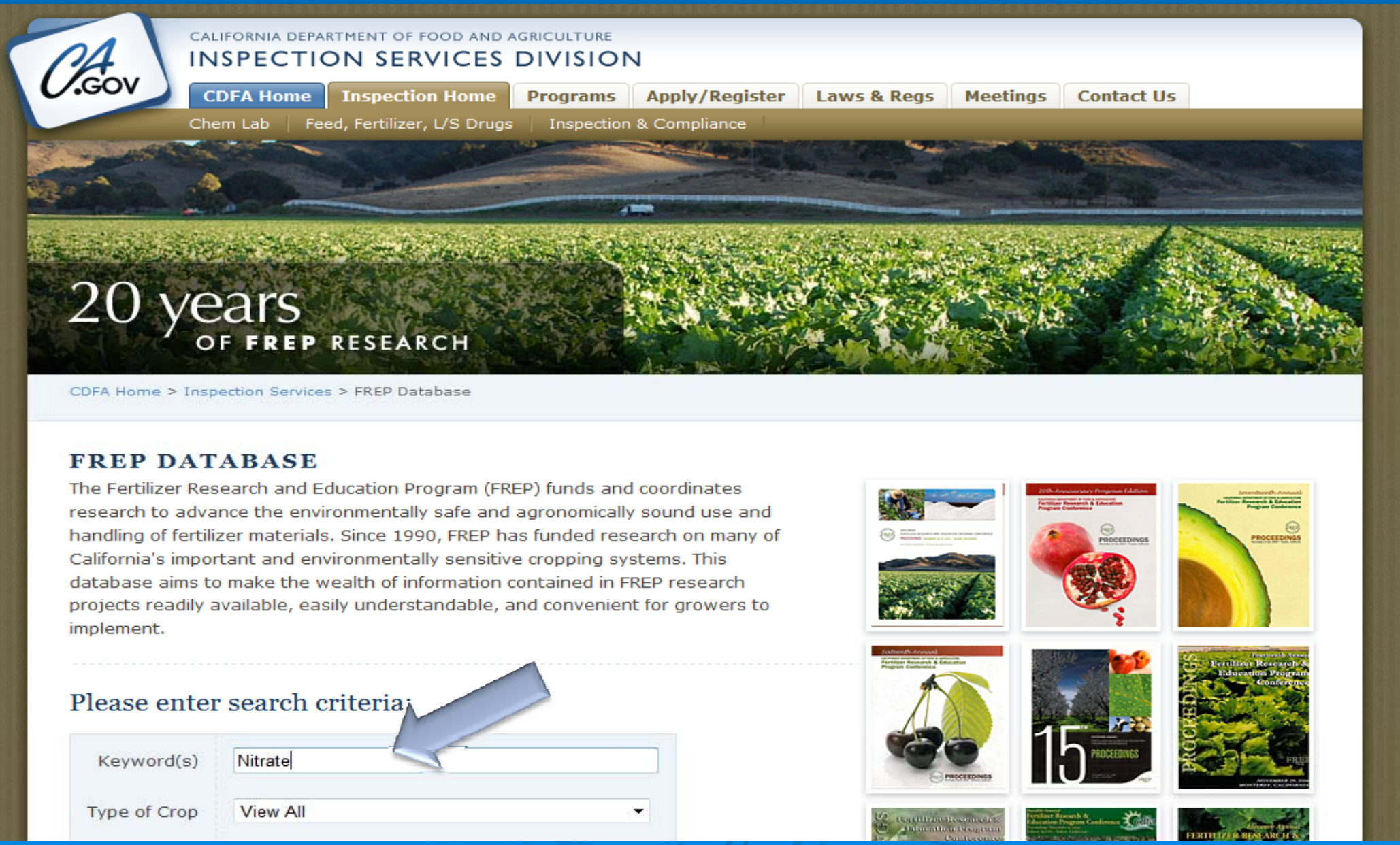
- Install Backflow Prevention (pressurized systems)
- Implement Wellhead Protection
- Participate in Coalition Outreach Meetings
- Allow property access to Regional Board at reasonable hours – For Compliance Inspection Purposes Only!

Farm Evaluation Component

Wellhead Protection BMPs

- Wellhead house keeping
  - Prevent ponding for extended periods
    - Waste can enter if wellhead/casing is cracked or improperly sealed
  - Grade away from wellhead to prevent storm runoff ponding
- Open discharge well
  - Air gap between well discharge and receiving device
- Pressurized systems: Back flow preventers
  - In case of power failures and/or pump malfunction
  - Back siphoning can directly contaminate groundwater
- Abandoned wells
  - Develop plan to manage

CDFA FREP *Online Searchable Database*



CDFA FREP *Online Searchable Database*

CDFA Home > Inspection Services > FREP 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 NO_3-N in the top foot of soil exceeds 20 ppm.
- Maximum yields can be achieved in fields with lower soil NO_3-N levels by sidedressing only enough to raise soil NO_3-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 NO_3-N.

Crop
Lettuce

County
Monterey

Years of Study
1996 - 1999

Future Link

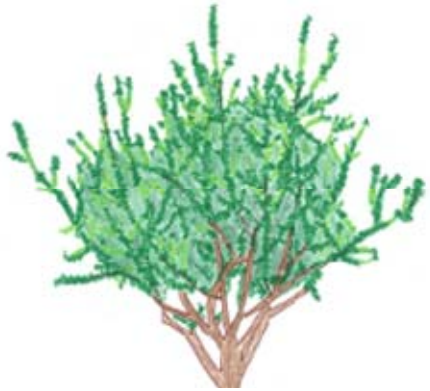
Fertilization Guidelines for Major Crops Grown in California

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 ⓘ.

Cotton

Almonds



Processing Tomatoes

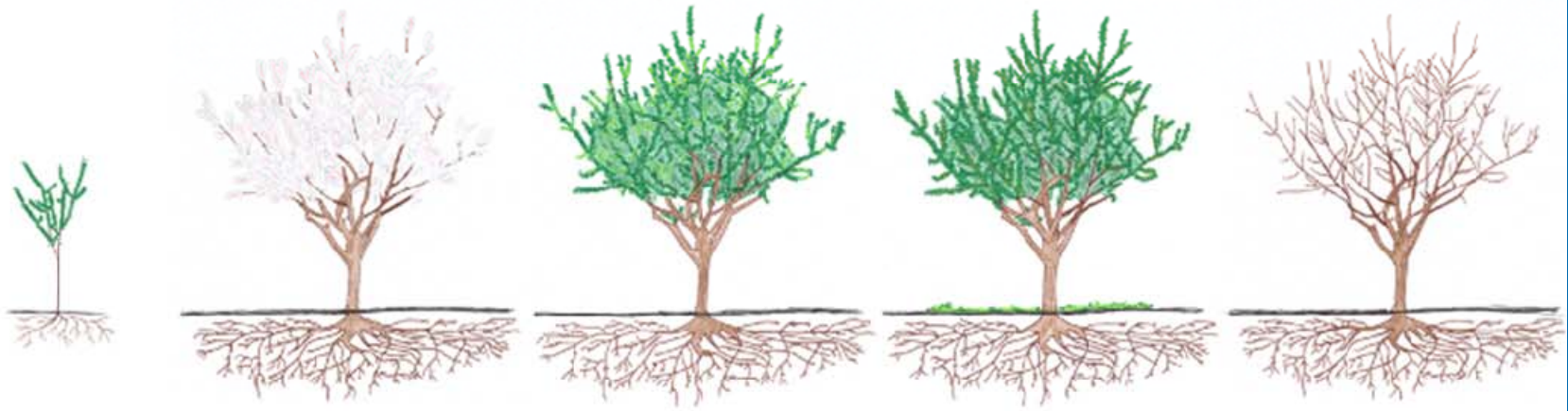
Soil and Plant Tissue Sampling

- Soil Test Sampling Instructions
- Sampling for Soil Nitrate Determination
- Soil Sampling in Orchards
- Plant Tissue Sampling

Almond Fertilization Guidelines

Funding provided by:

FREP



Young Trees | Bloom *Spring* | Fruit Development *Summer* | Post-Harvest *Fall* | Dormancy *Winter*

Nitrogen (N)

- Leaf analysis
- N
- Foliar N | Soil applied N | Foliar N

Phosphorus (P_2O_5)

- Soil Test | Leaf analysis | Soil Test
- P | Foliar P | Soil applied P

Potassium (K_2O)

- Soil Test | Leaf analysis | Soil Test
- K | Foliar K | Soil applied K | Soil applied K

Acknowledgments

Additional Information:

1. Almond Production in California (Historic Background, Production Statistics)
2. FREP Database

Links:

1. University of California – Fruit & Nut Research and Information Center
2. University of California – The Almond Doctor
3. University of California - Nutrient Management for Vegetable, Fruit &

East San Joaquin Water Quality Coalition

Parry Klassen

559-288-8125

www.esjcoalition.org