Almond Perspective on Proposed Irrigated Lands Regulatory Program

Central Valley Regional Water Quality Control Board
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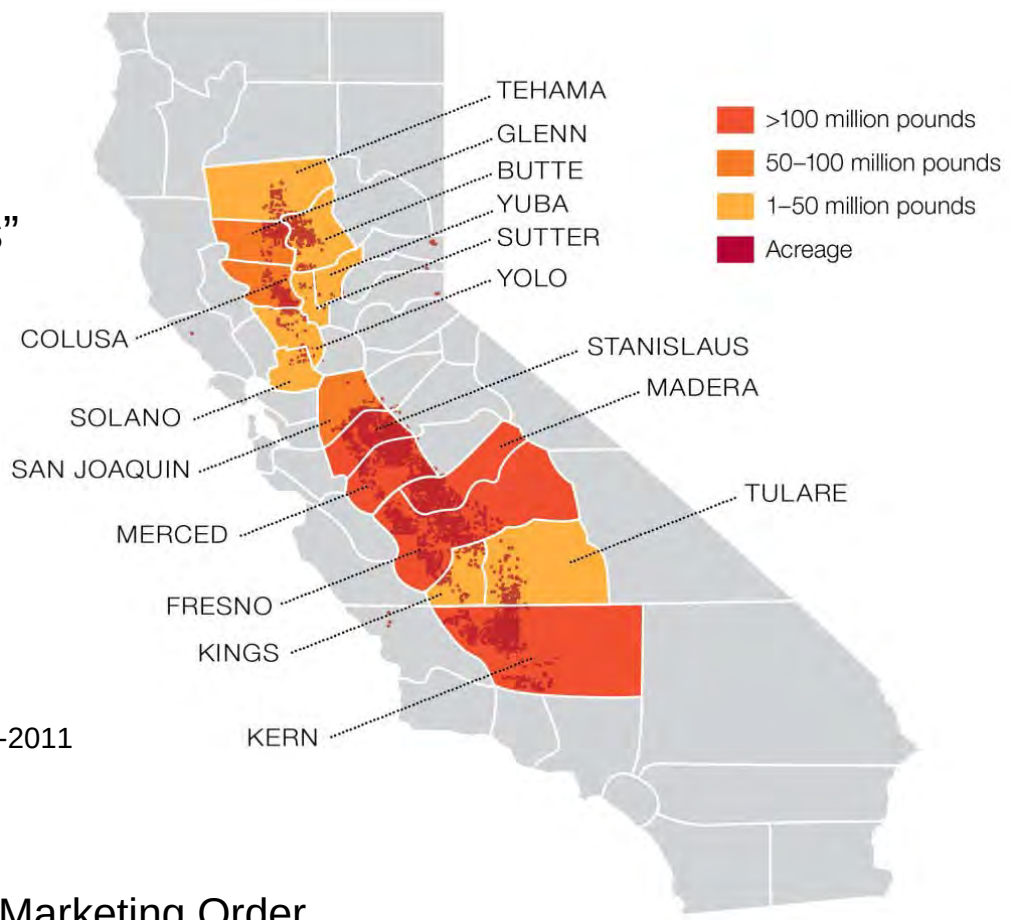
Almond Board of California

The Scope of the Industry

- Spanning 500 miles throughout the Central Valley
- 100% of U.S. production
- 6,000+ growers, 100 “handlers”
- Approximately 75%% of worldwide production
- California’s #1 ag export*
- Top U.S. horticultural export*



*Value Basis**
*Source: Agricultural Issues Center, University of California 2010-2011

The Almond Board of California is a Federal Marketing Order with all almond growers and handlers. It works on global generic marketing, research, and grade standards.

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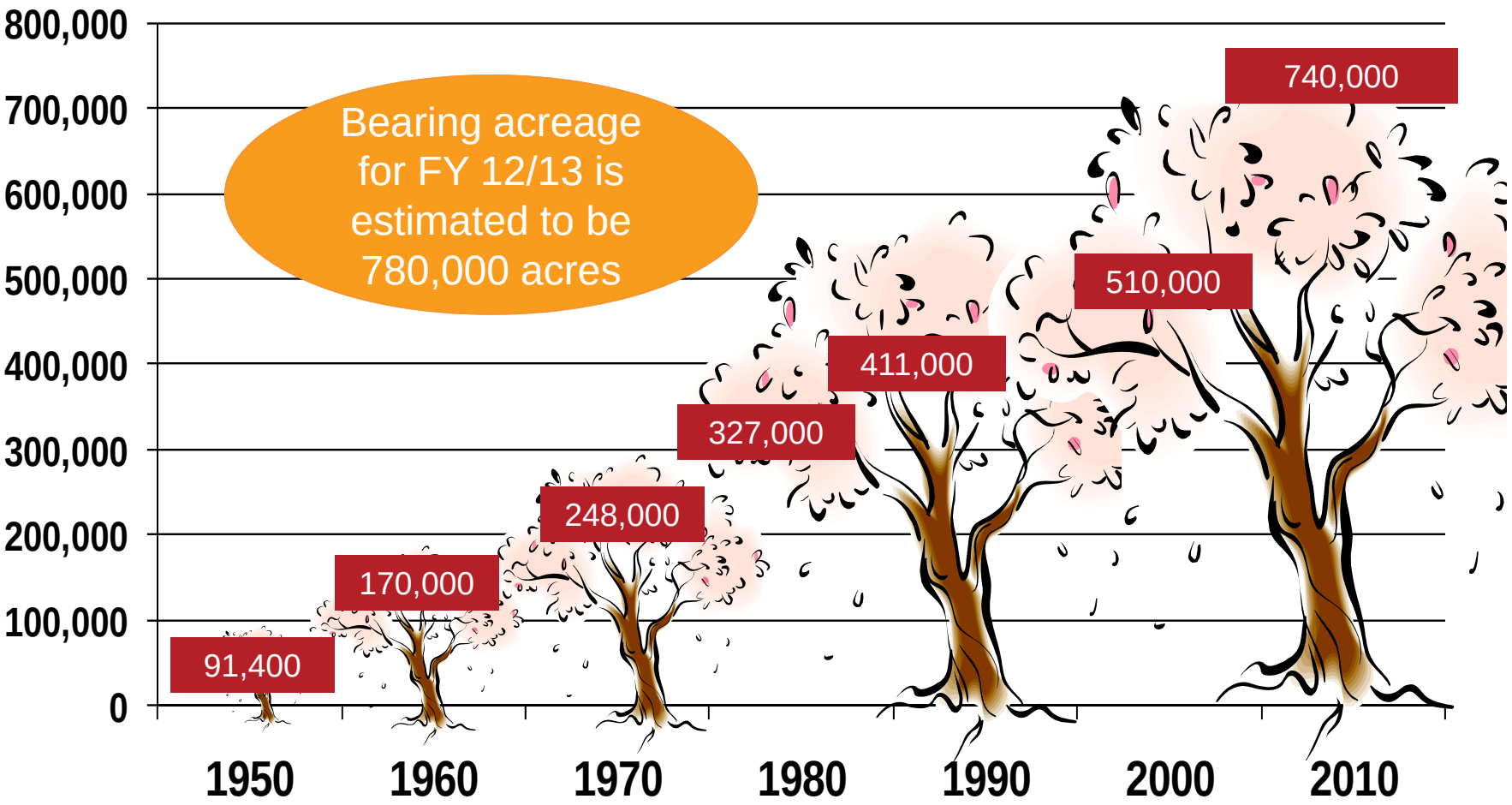
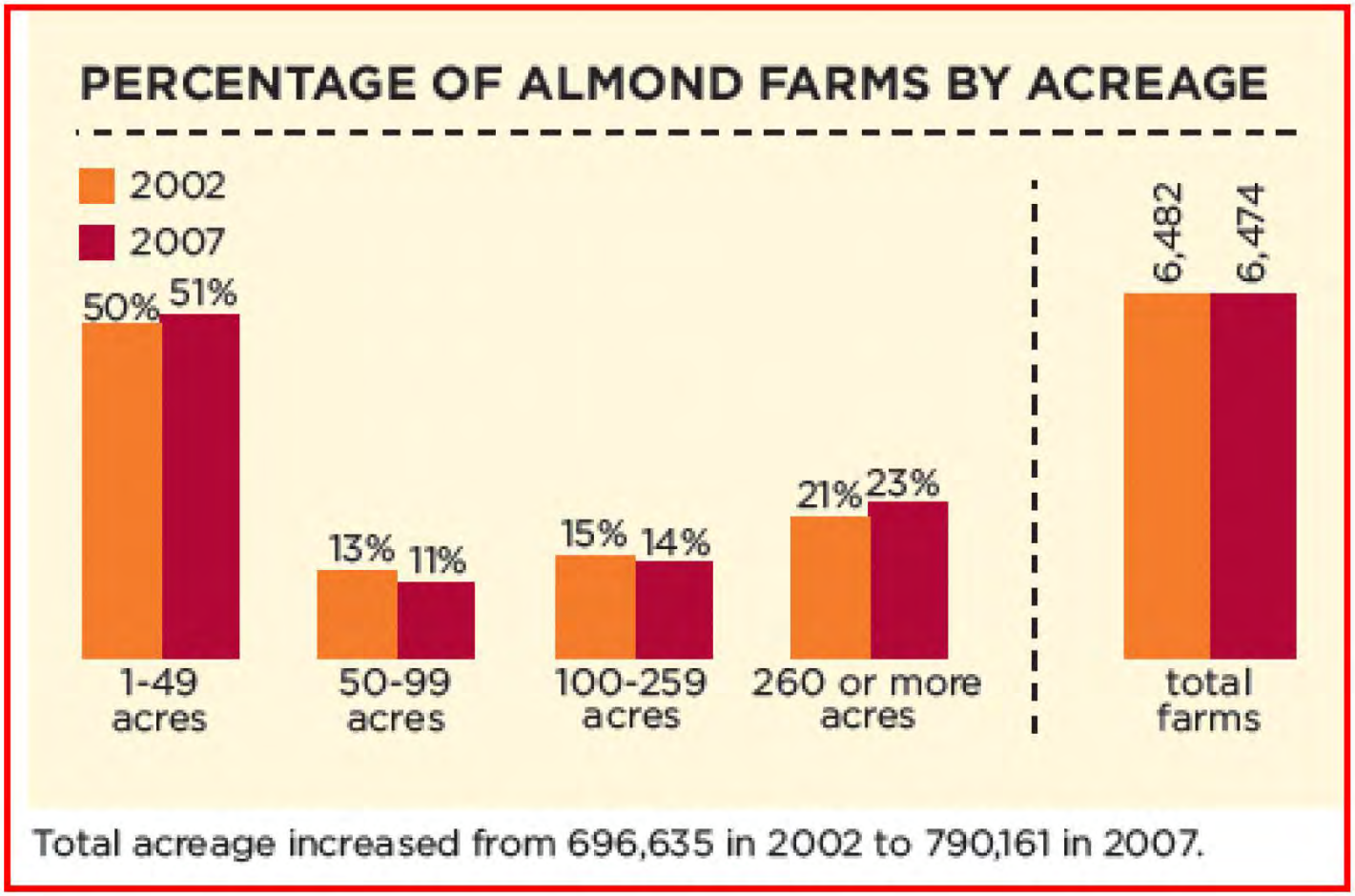
Bearing Acres



Size of Almond Farms by Acreage



Source: USDA Ag Census 2007

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Research and Practices Then (1970s – 1980s) vs. Now (2012)

	1970s-1980s	2000s
Crop demand	•Primary factor dictating N use – crop potential •50 # N removed per 1000 # kernels	• 55 – 70 # N removed per 1,000 # kernels
Yield vs. N use	•Best practice: 2,000 # kernel yield with 200 # N •The norm: 1,200-1,300 # kernel yield with 200 # N	• 4,000 # kernel yield with 275 # N • No benefit from N application above this
Nitrogen Use Efficiency (NUE)*	Best practice: 50% The norm: 42-46%	• 75 – 85% • Among the most efficient measured for any crop

* NUE = N harvested in crop/N applied

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Research and Practices Then (1970s – 1980s) vs. Now (2012)

	1970s-1980s	2000s
Timing	•1 or 2 apps in-season	• "Spoon feeding" – multiple apps, low doses • Match demand during tree growth and crop development
Application	• Broadcast or banded • Flood or impact sprinkler	Fertigation through drip or microsprinkler
Leaf sampling	July leaf sample linked to next year's crop	• Goal: Improved leaf sampling - addresses orchard variability • Goal: Early season leaf sampling - adjustments for this year's crop
Fertility budgeting	N fertilization model	Goal: Updated for more than just N

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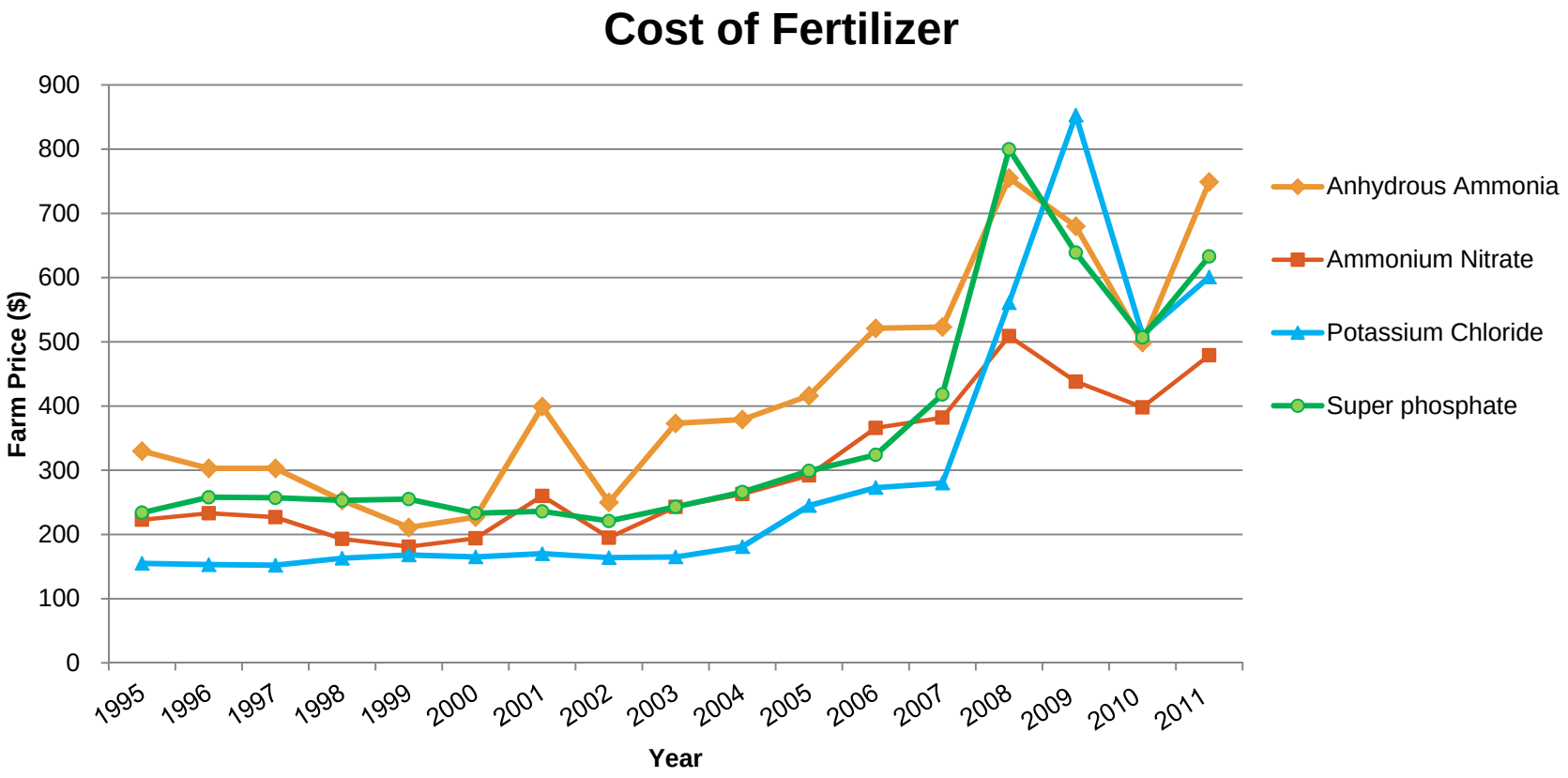
Trends in Cost of N, P & K Fertilizers



Source: http://www.ers.usda.gov/Data/FertilizerUse/

Comments on Proposals in Irrigated Lands Regulatory Program

- Proposed Groundwater Monitoring Efforts
  - Data developed from monitoring efforts should provide meaningful data to improve the environment
  - Focusing on monitoring “first encountered ground water” will not provide meaningful data
    - No good way to link any changes in NO_3 levels to above ground practices given complexity of below ground system (scientifically it doesn’t make sense)
  - Instead suggest focus on assessing leaching (reduction) potential from various practices (measuring just below root zone)
    - Educates both regulators and growers how different practices have the potential to contribute to leaching while maintaining crop production
  - Have some monitoring wells (which may include existing wells) to assess in the long term if changes in ground water quality are occurring
  - Do not try to link changes in ground water concentration levels directly with different management practices
  - Suggest staff and Coalitions take time to better understand existing research (plant and soil) and methods before completing proposal

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Comments on Proposals in Irrigated Lands Regulatory Program

- Proposed Surface Water Monitoring Efforts
  - The proposal is expecting the Coalitions to take on a level of regulatory development that is the regulators responsibility, not the Coalitions.
  - Any efforts focused on pesticides needs to be led by the regulatory agency responsible: Department of Pesticide Regulations.

- Costs to food and fiber producers of this program need to be taken into consideration in the development of the program – not just short term but long term.

- Throughout the proposal ensure there is language that allows for alternative mechanisms than those discussed in the language to be used.

- Appreciate the continued working with the Coalition system
- Appreciate the efforts of staff to work with all parties

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