

Sustainable Agricultural Solutions to Climate Change



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Climate Change Impacts on Agriculture

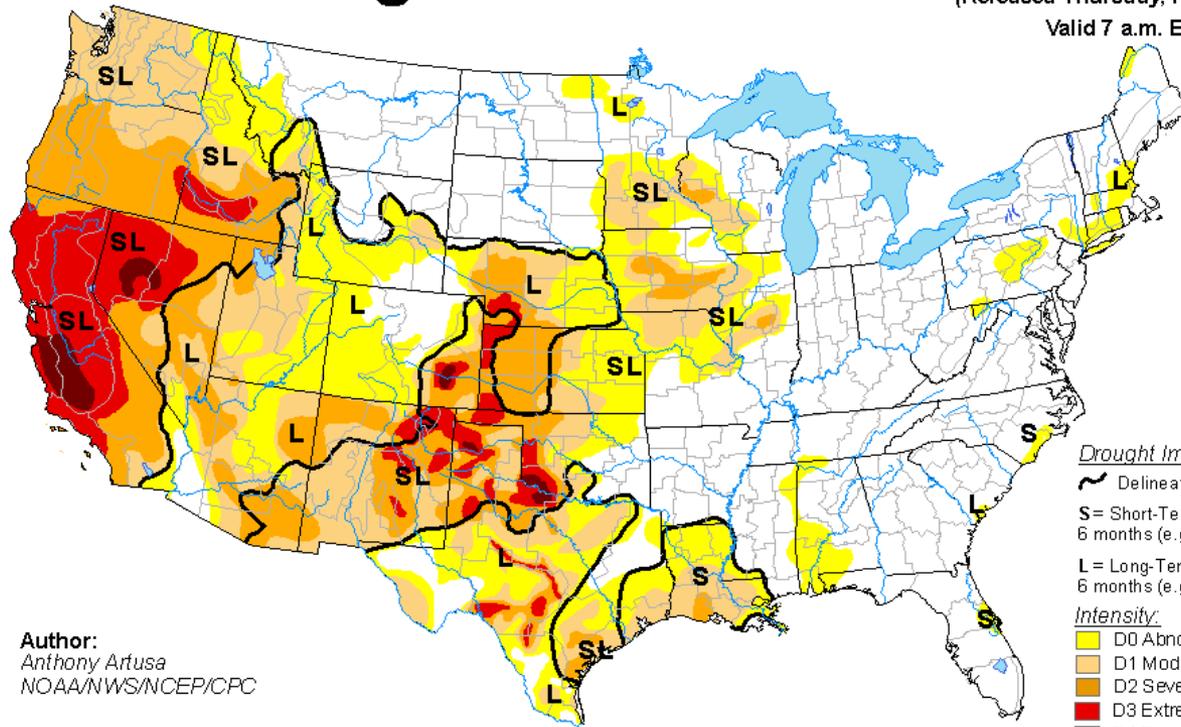
- * Constrained Water Resources
- * Crop Yield Reductions; Shifting Crop Patterns
- * Increased /Shifting Pest & Disease Pressures
- * Reduced Winter Chill Hours
- * Heat Stress for People and Livestock
- * Erratic & Extreme Weather Events
- * Increased Food Prices



Increases in Extreme Weather: Impacts on Agriculture

U.S. Drought Monitor

February 4, 2014
(Released Thursday, Feb. 6, 2014)
Valid 7 a.m. EST



Author:
Anthony Artusa
NOAA/NWS/NCEP/CPC

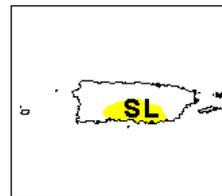
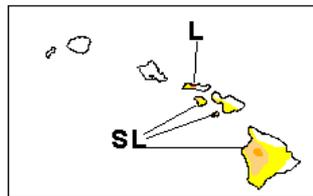
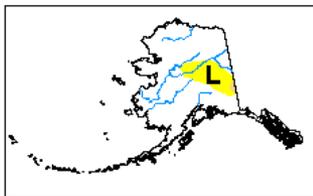
Drought Impact Types:

- ~ Delineates dominant impacts
- S= Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L= Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



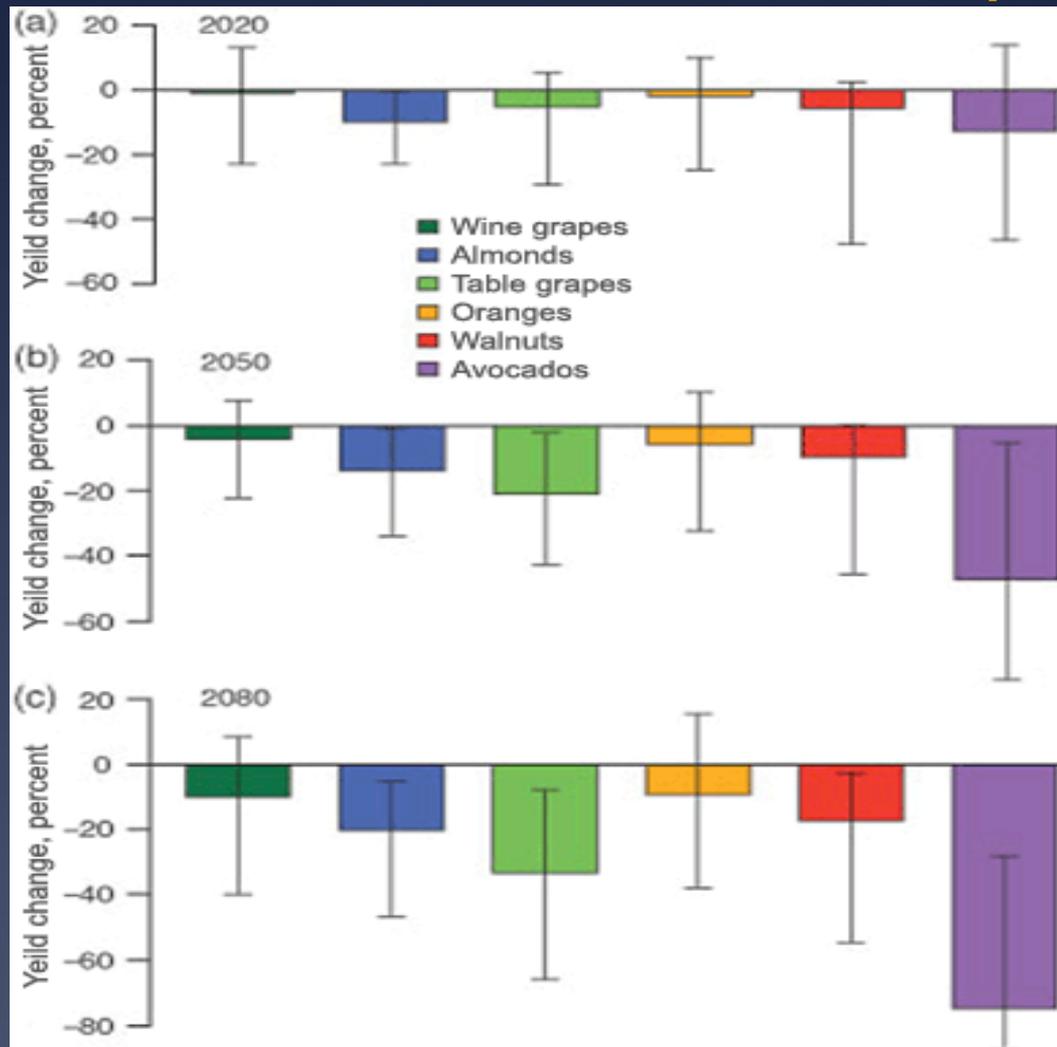
<http://droughtmonitor.unl.edu/>

Snowpack Projections in CA

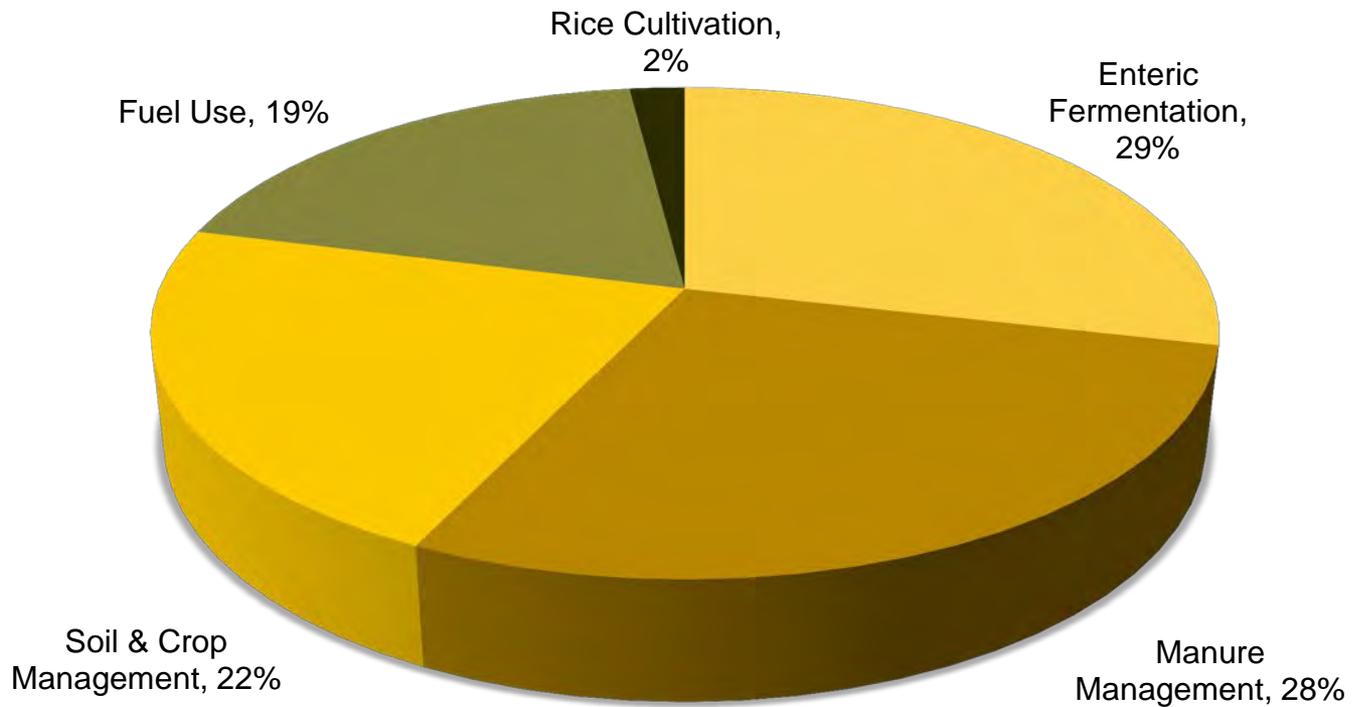


Computerized projections of western United States snowfall levels in 2050 compared to present day. Scripps Institute of Oceanography. 2008

Crop Yields: Impacts of Rising Temperatures, Loss of Winter Chill Hours, Variable Precipitation



CA Agriculture Greenhouse Gas Emissions



Source: California Air Resources Board

http://www.arb.ca.gov/app/ghg/2000_2006/ghg_sector_data.php

Sustainable Agricultural Solutions to a Changing Climate

- Build Soil Health
- Increase Biodiversity
- Reduce Off-Farm Inputs
- Organic Transition
- Rangeland Management
- Water Stewardship
- Renewable Energy/ EE



Ready...Or Not?

An assessment of California agriculture's readiness for climate change (March 2011)

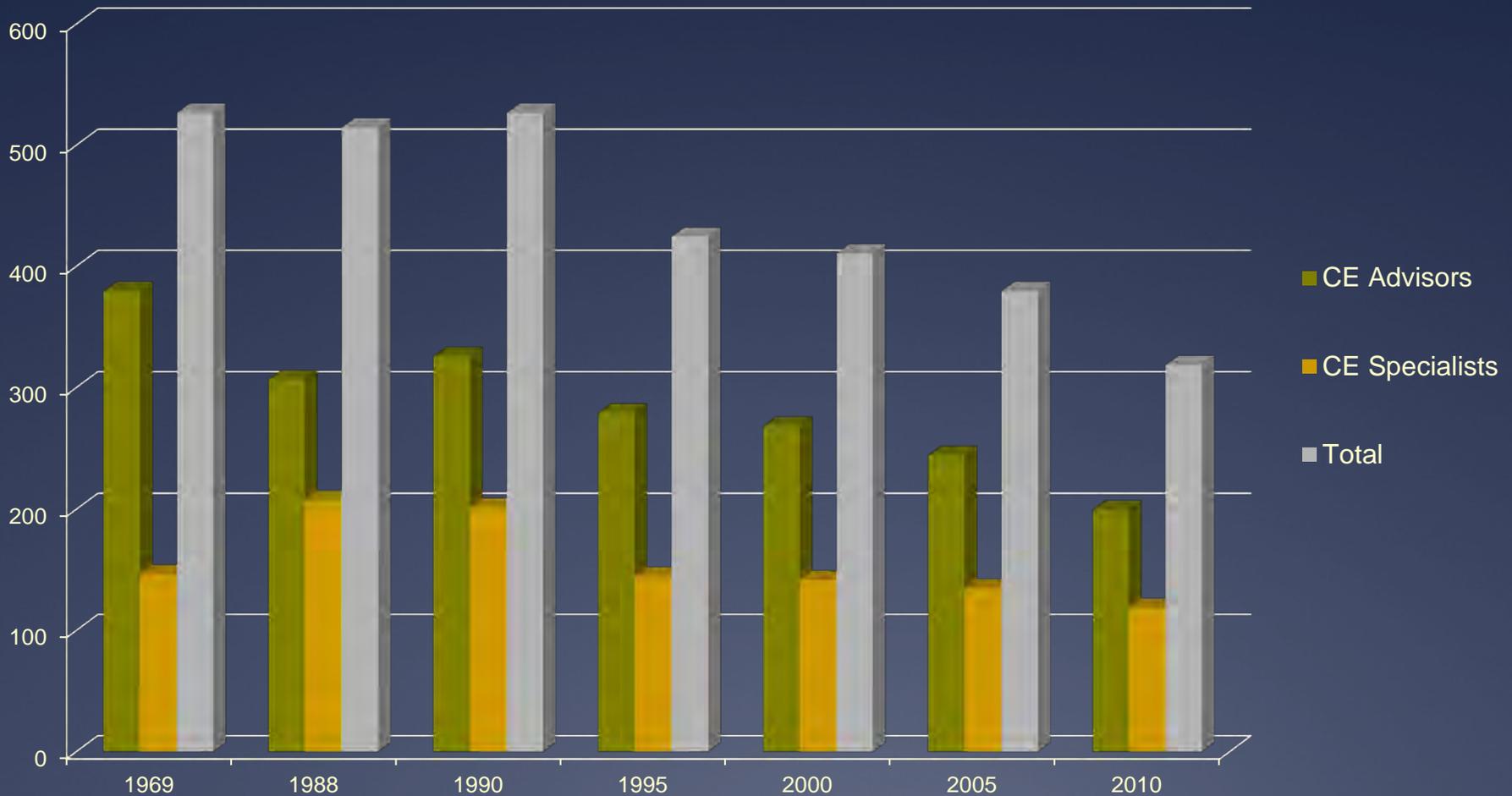
- Research

Since 2007, identified only 39 publicly funded research projects that focused on CA agriculture-specific climate mitigation and adaptation activities.

- Direct Conservation Incentives

Unlike other states, CA lacks direct incentive programs for producers to adopt on-farm conservation programs.

Technical Assistance for California Farmers and Ranchers



Supporting California Agriculture in Addressing Climate Change

- California-specific research on mitigation & adaptation solutions
- **Technical assistance**
- On-farm conservation incentives: Whole farm approach
- **On-farm renewable energy/energy efficiency**
- Farmland protection
- **Adequate, whole farm insurance**



Cap-and-Trade & California Agriculture

1. Carbon credits

- **Protocols determining eligible farming practices are still being designed (currently dairy digester protocol approved)**
- **Potentially high transaction costs for small and mid-sized producers**
- **Not California-specific**

2. Investment of allowance auctions funds

- **California-specific: Invest in our communities**
- **Multi-benefits: GHG emission reductions along with environmental and health co-benefits**

Governor's FY 2014-15 Budget Proposal

- * **\$100 million** to implement regional Sustainable Community Strategies (SCS) that include **agricultural land preservation** as a component of integrated land use and transportation planning to be coordinated by the Strategic Growth Council (SGC).
- * **\$50 million** for **water infrastructure and watershed projects**, which will support water use efficiency in agriculture and watershed protection to be coordinated by the Department of Water Resources and Department of Fish and Wildlife (\$20 million and \$30 million respectively).
- * **\$20 million** for **agricultural management** strategies that improve energy efficiency and reduce greenhouse gas emissions to be coordinated by CA Dept of Food and Ag.

Climate Change Policy: Embracing Sustainable Agriculture?

- * AB 32 Scoping Plan Update (Feb. 2014)
- * Safeguarding California: Adaptation Strategy Report Update (2014)
- * CDFA Climate Consortium – Adaptation Strategies for Agriculture (2013)
- * National Climate Assessment (2013)
- * USDA report: Climate Change and Agriculture in the United States (Feb. 2013)

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