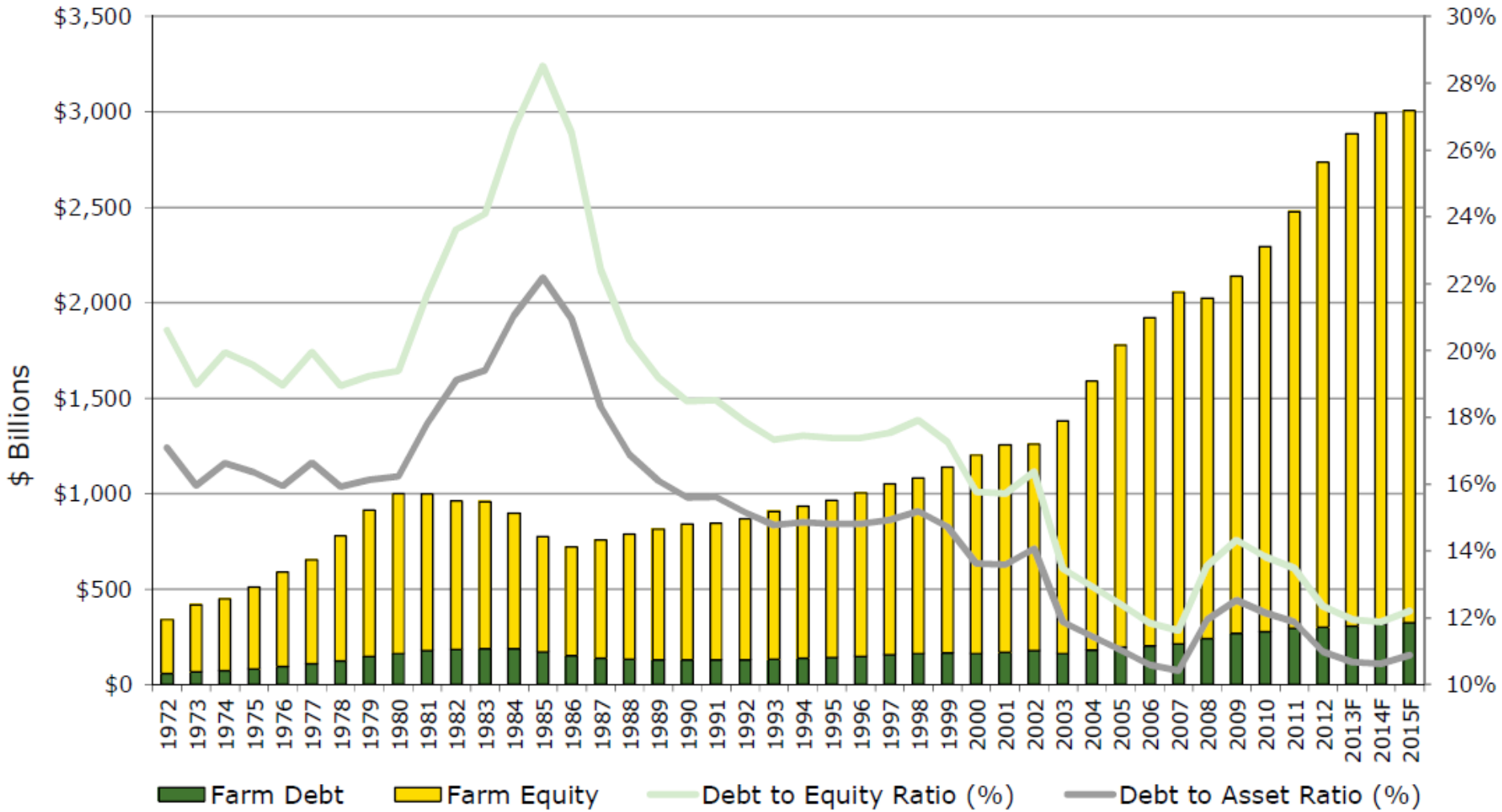
CDFA STATE BOARD OF FOOD AND AGRICULTURE

CORNELIUS “CORNY” GALLAGHER
CHAIR CBA AG LENDING COMMITTEE
SVP, FOOD, AG AND WINE EXECUTIVE

July 7, 2015

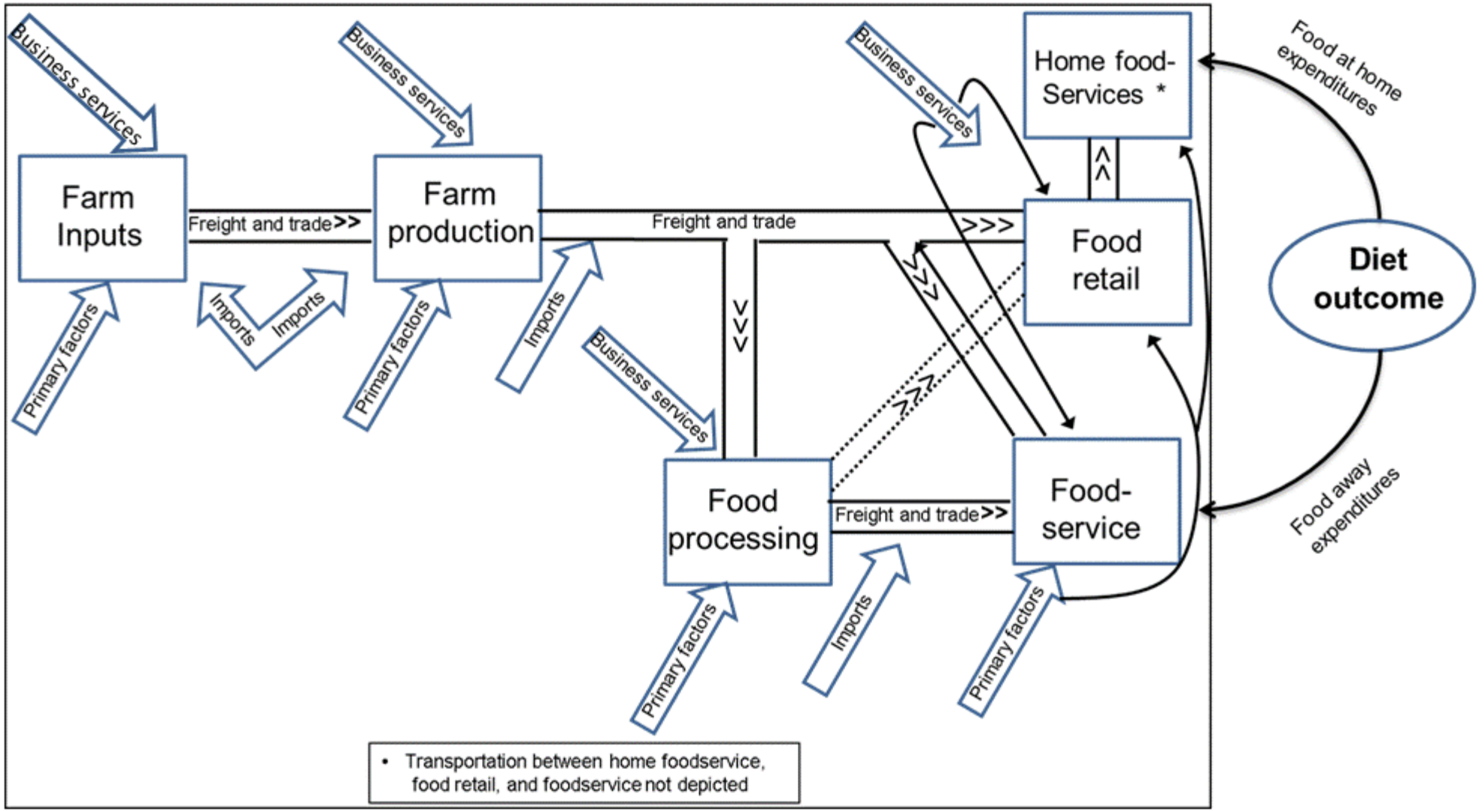
Bank of America Merrill Lynch

U.S. Farm Balance Sheet Strong



Source: 1972 – 2012: USDA 10 February 2015
2013F – 2015F: Deere & Company Forecast as of 20 February 2015

Agri-food chain



Global Demand and California Agriculture

Daniel A. Sumner

University of California Agricultural Issues Center and UC Davis, Agricultural and Resource Economics

Economic Impact of Ag Production and Processing

Region (%)	California	Central Valley	San Joaquin Valley
Jobs	7.3	24.1	37.8
Labor Income	5.6	18.5	29.9
Value Added	6.5	22.2	34.1

Agriculture's role in the economy

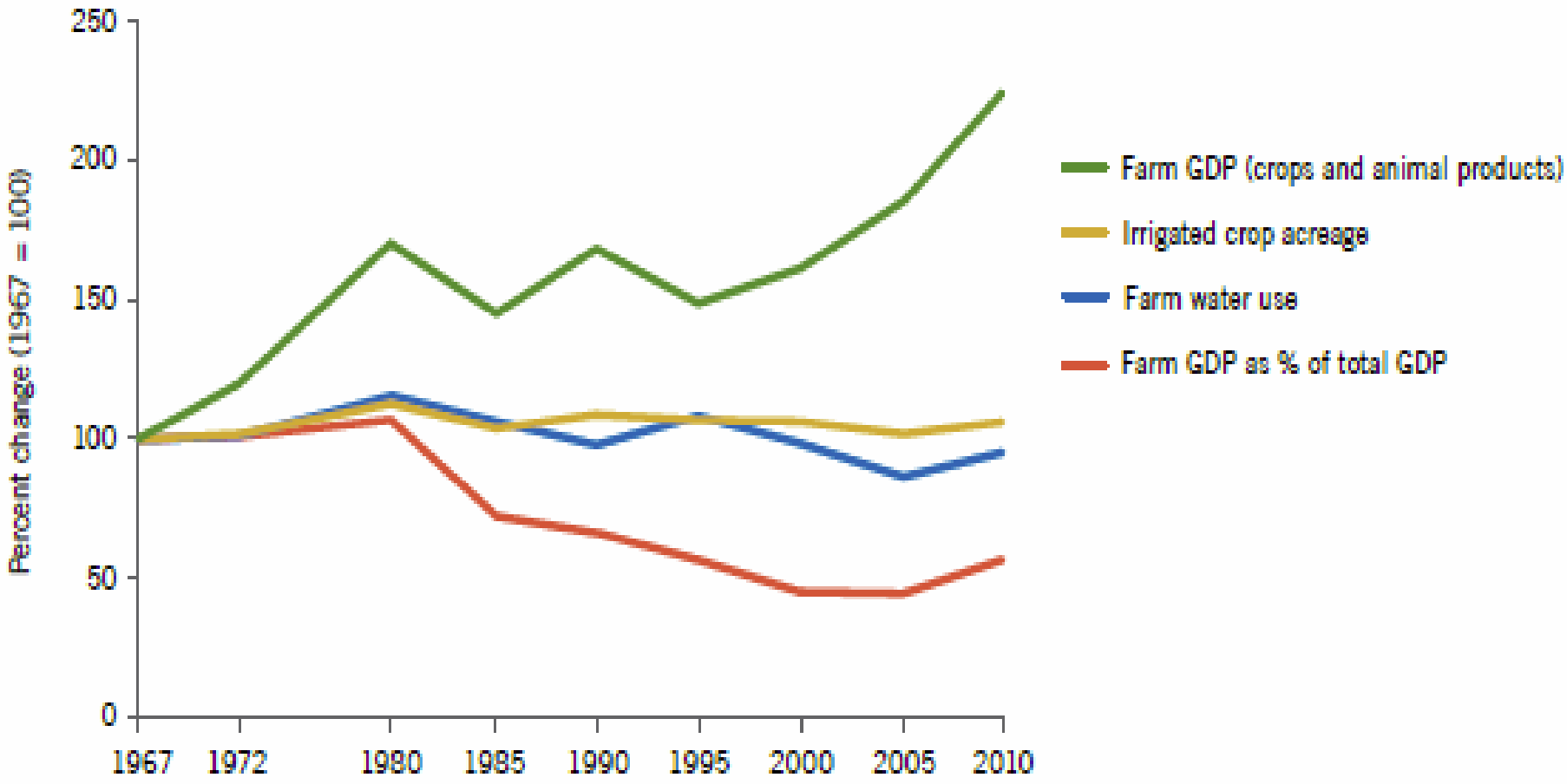
California farm and closely related processing industries employ 7.3 percent of the state's private sector labor force and account for 5.6 percent of the state labor income.

Every dollar of value added—labor and property income and indirect business taxes—in farming and agricultural related industries generates an additional $1.27 in the state economy.

For every 100 jobs in agriculture, including the food industry, there are 94 additional jobs created throughout the state.

Source: Water for Farms…PPIC WATER POLICY CENTER CALIFORNIA AGRICULTURE –April 2015

THE VALUE OF FARM WATER IS RISING, BUT FARMING IS DECLINING AS A SHARE OF THE ECONOMY



SOURCE: Author calculations using data from the U.S. Bureau of Economic Analysis (GDP) and the California Department of Water Resources (water and land use).

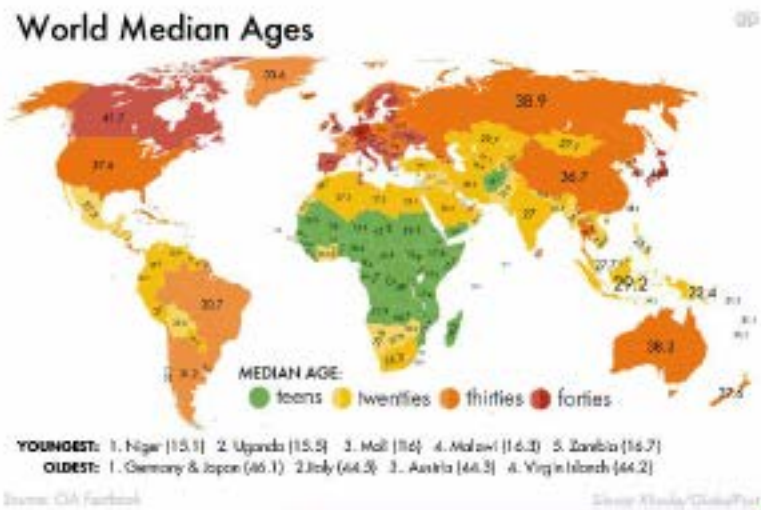
The Problem

By 2050, our population will gain another 2.4 billion people.

Source: United Nations Dept of Economic and Social Affairs

That means, **in just 35 growing seasons**, the world's **580 million farmers** must feed 9.6 billion while facing:

- Increased weather variability that renders traditional practices ineffective
- Lack of adequate and symmetrical data across the value chain
- Lack of field-level, actionable insight to prevent risk and improve production



Granular data needed: Location and Time Specific

…a Big Data opportunity

Developing countries want protein

Nut Crops and Milk Products have a strategic advantage in producing portable protein.

Nutrition Facts

Serving Size 1 ounce, about 22 nuts (28g)
Servings Per Container

Amount Per Serving

Calories 170	Calories from Fat 130
	% Daily Value*
Total Fat 15g	**23%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 0mg	**0%**
Total Carbohydrate 5g	**2%**
Dietary Fiber 3g	**12%**
Sugars 1g	
Protein 6g	

Vitamin A 0% • Vitamin C 0%

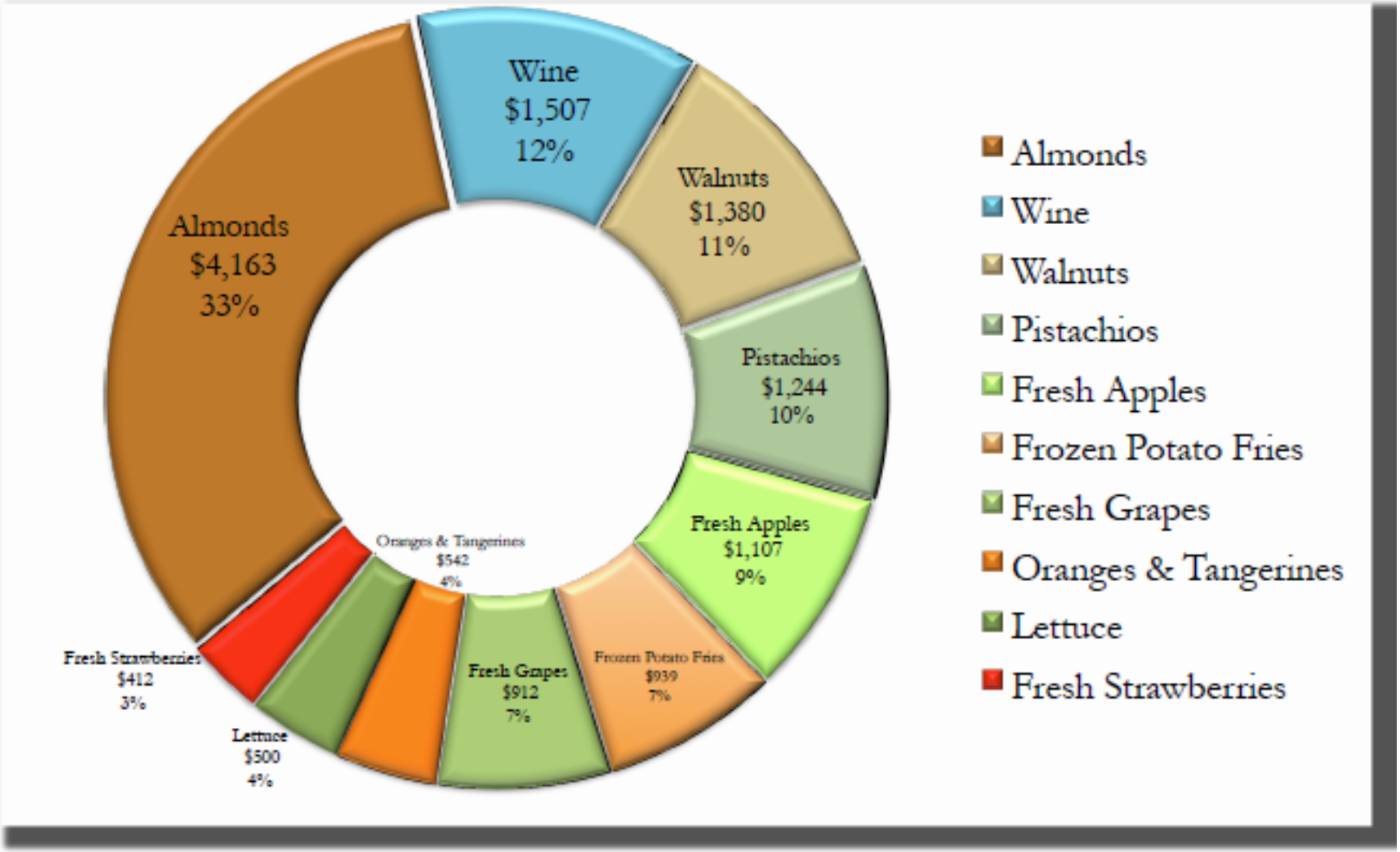
Calcium 8% • Iron 8%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300 mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Top Ten U.S. Specialty Crop Exports by Value



Source: Bureau of the Census, US Dept of Commerce, Foreign Trade Statistics, - 2013

WELLS FARGO

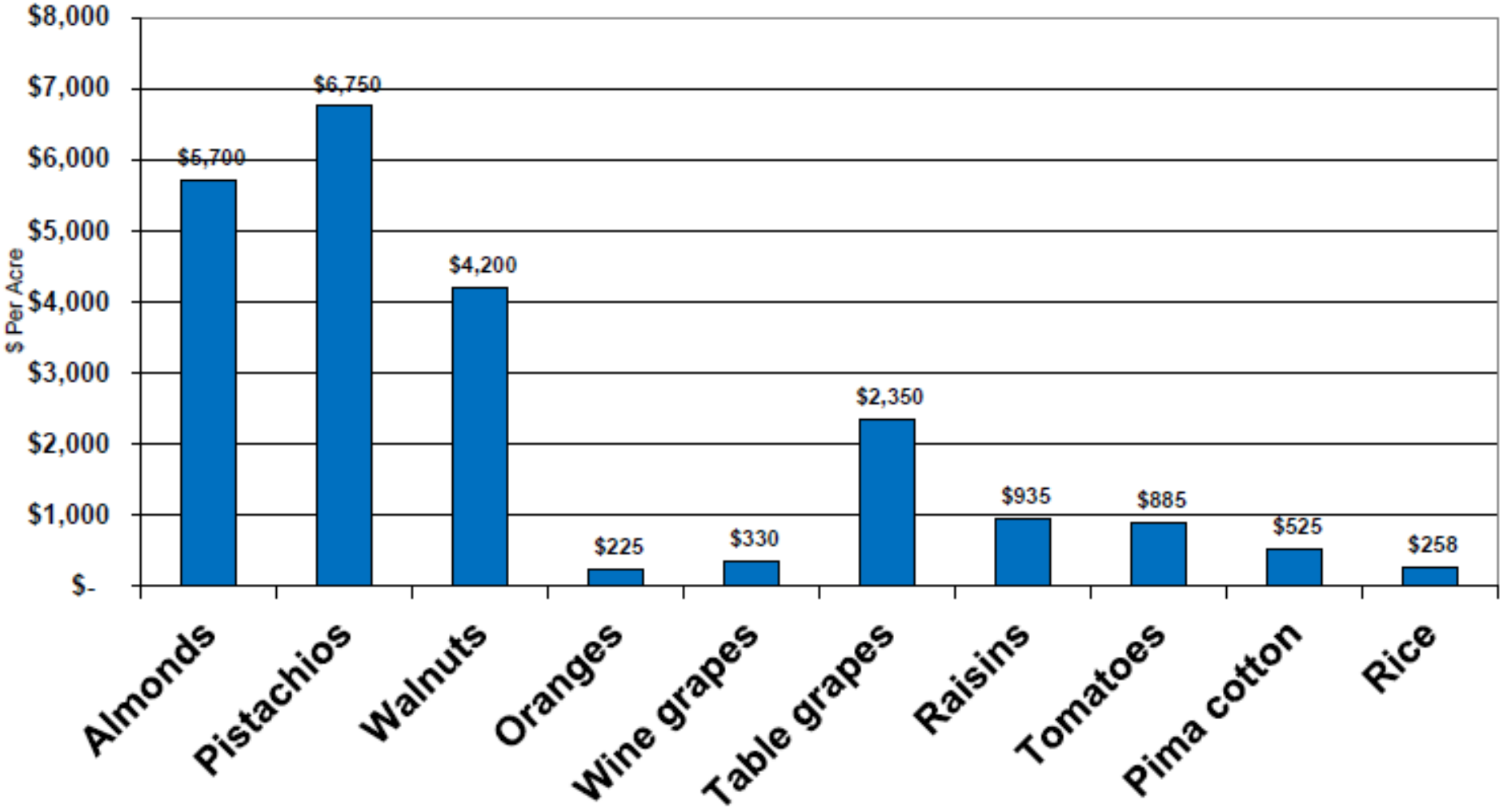
California Agriculture: Crops, Water, and Real Estate Trends

Jim Pisani

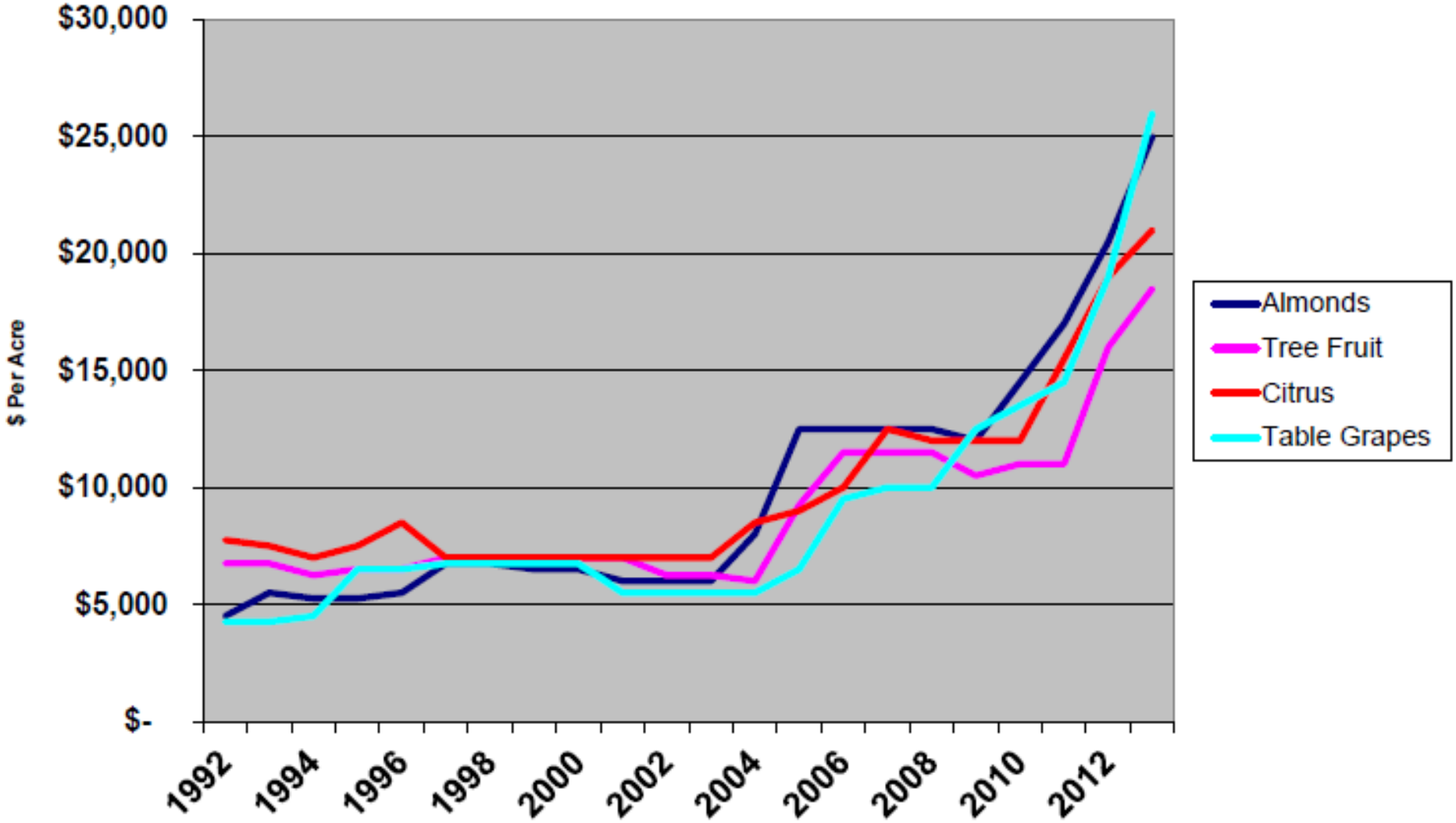
Wells Fargo

March 2015

CA Crops – 2014 Producer Margin Estimates

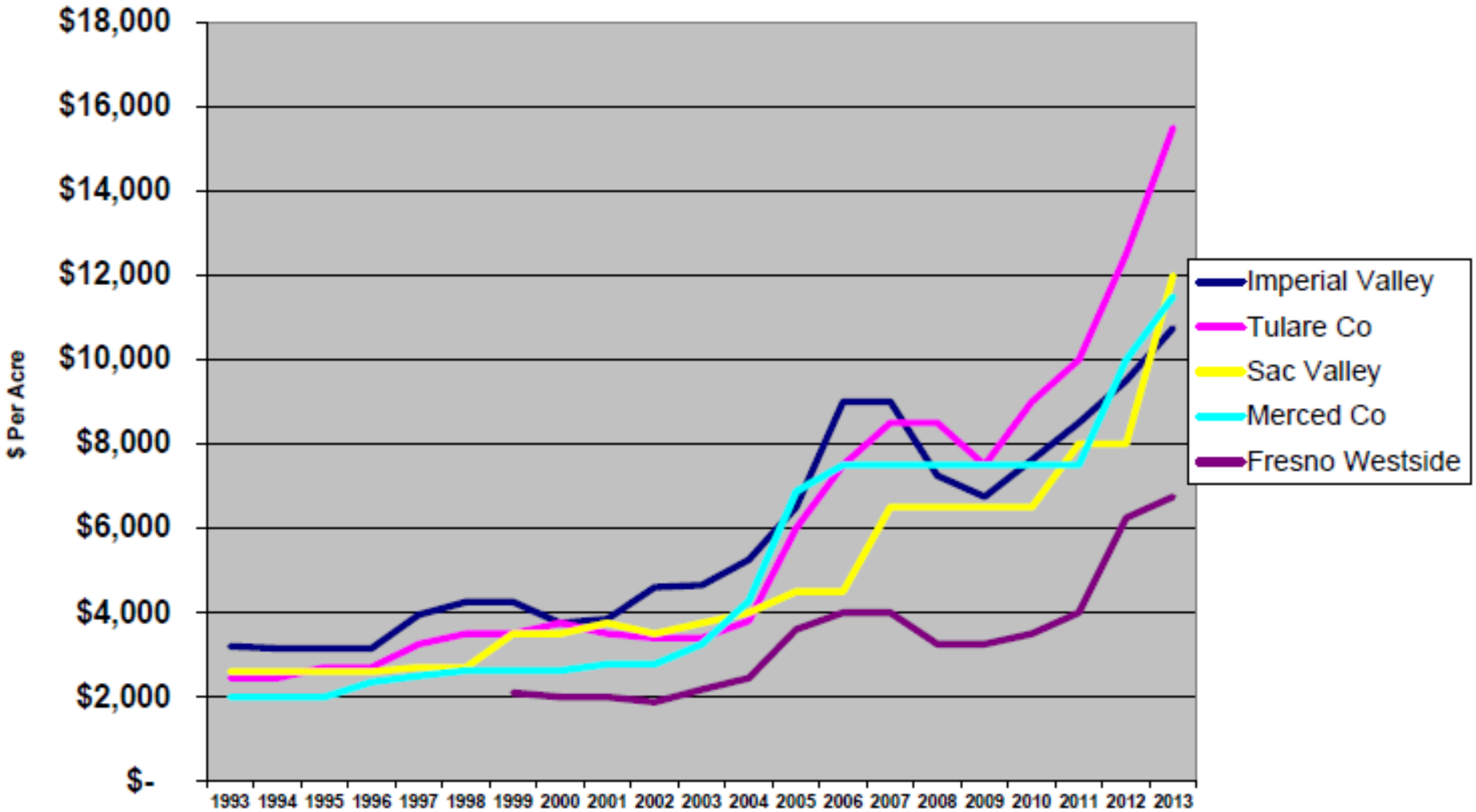


Tulare County Permanent Plantings Values



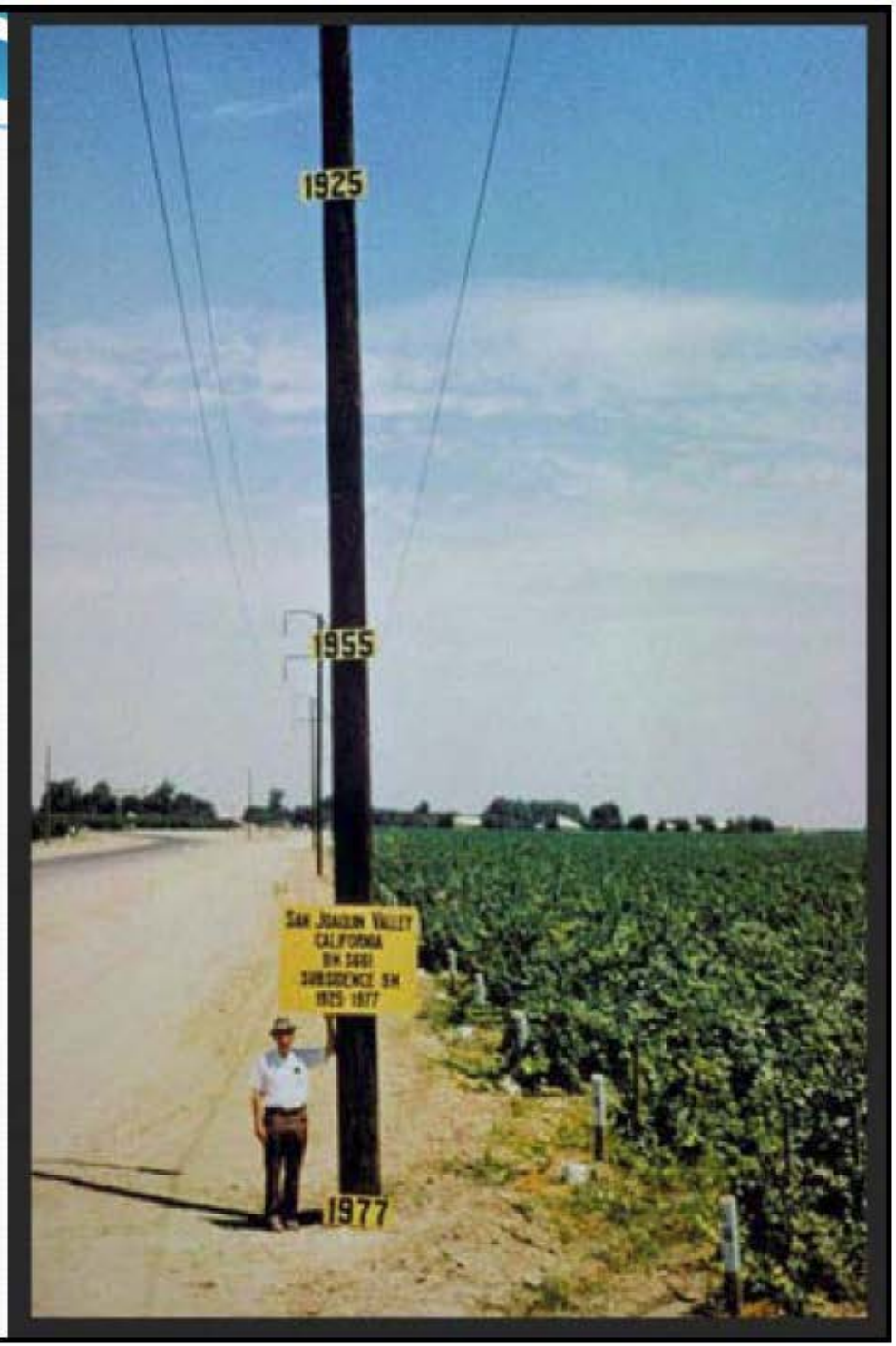
Source: ASFMRA

CA Ag Open Land Values By Area



Source: ASFMRA

Reality: Lack of statewide groundwater management has been a problem



Bulletin No. 3

The CALIFORNIA WATER PLAN

UNIVERSITY OF CALIFORNIA
DAVIS
JUL 19 1957
LIBRARY

GOODWIN J. KNIGHT
Governor

May, 1957

HARVEY O. BANKS
Director of Water Resources

LIBRARY

Bulletin No. 3
Ground Water….page 13 -1957

More than half the water presently consumptively used in California comes from underground sources. Many of these ground water basins have been intensively developed. In the San Joaquin Valley and parts of southern California particularly, the ready availability of ground water has been primarily responsible for supporting rapid expansion of agriculture and industry far beyond the firm capabilities of water resource developments. This has been accomplished by utilizing the vast reserves of water stored in these underground reservoirs, in many cases at rates greatly exceeding their replenishment. Presently

2015 Drought Analysis Preliminary Results Statewide

University of California - Davis
Center for Watershed Sciences
ERA Economics

May 28, 2015

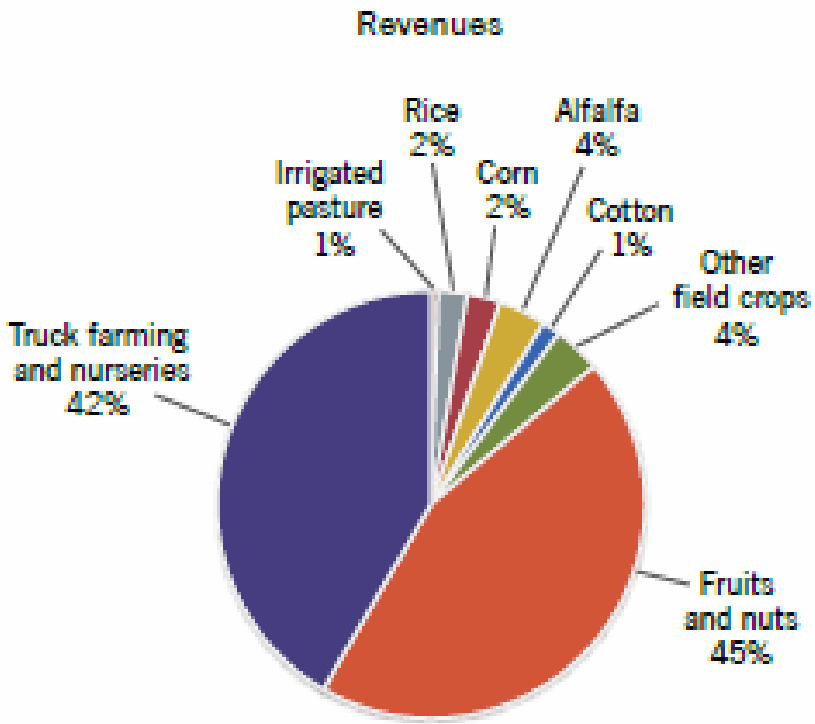
UCDAVIS
CENTER FOR WATERSHED SCIENCES

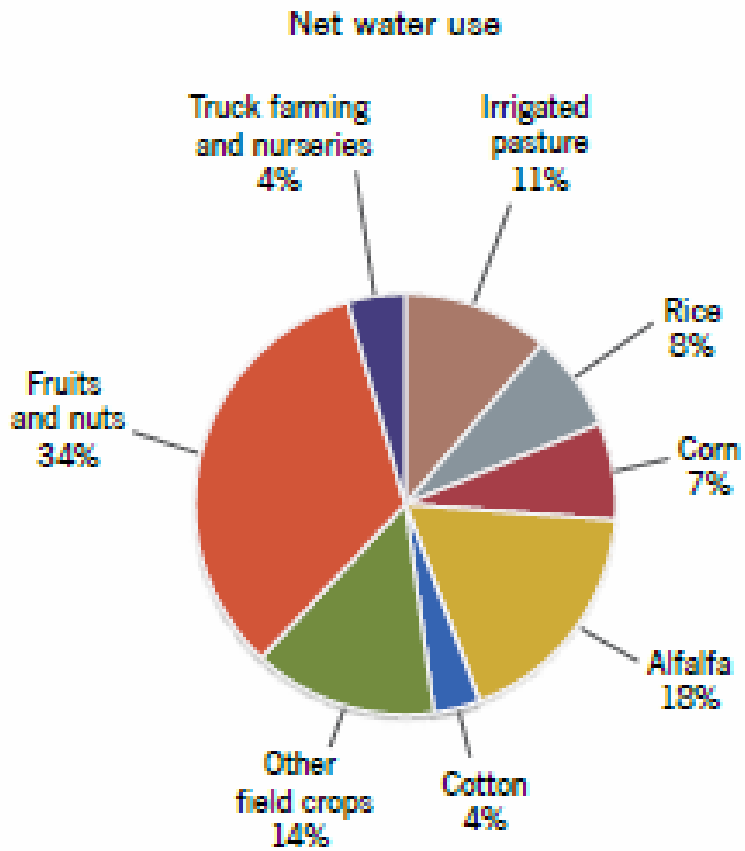
eraeconomics
environment • resources • agriculture

2015 Summary of Drought Impacts

Impact	Quantity
Water supply, 2015 drought	
Surface water reduction	8.8 million acre-feet
Groundwater pumping increase	6.2 million acre-feet
Net water shortage	2.6 million acre-feet
Statewide Agriculture Economic Impacts	
Total fallow	564,000 acres
Crop revenue loss	$844 million
Additional groundwater pumping cost	$558 million
Livestock and dairy revenue loss (dairy ~ $250 mil, livestock ~ $100 mil)	$350 million
Total direct costs	$1.75 billion
Total agriculture economic costs	**$2.7 billion**
Direct job losses	**8,546**
Total job losses	**18,597**

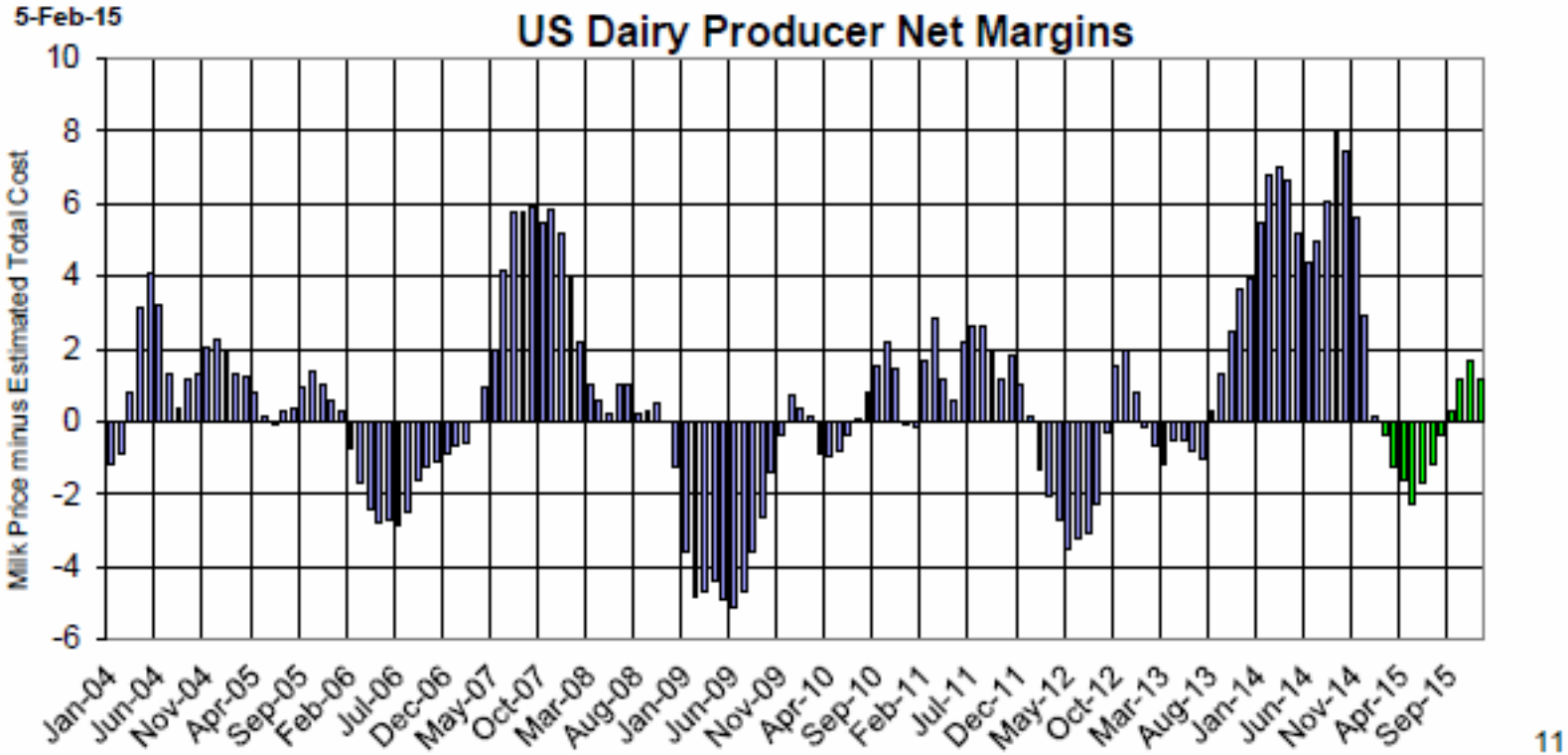
CALIFORNIA HAS A DIVERSE CROP MIX, WITH WIDE VARIATIONS IN REVENUE AND WATER USE





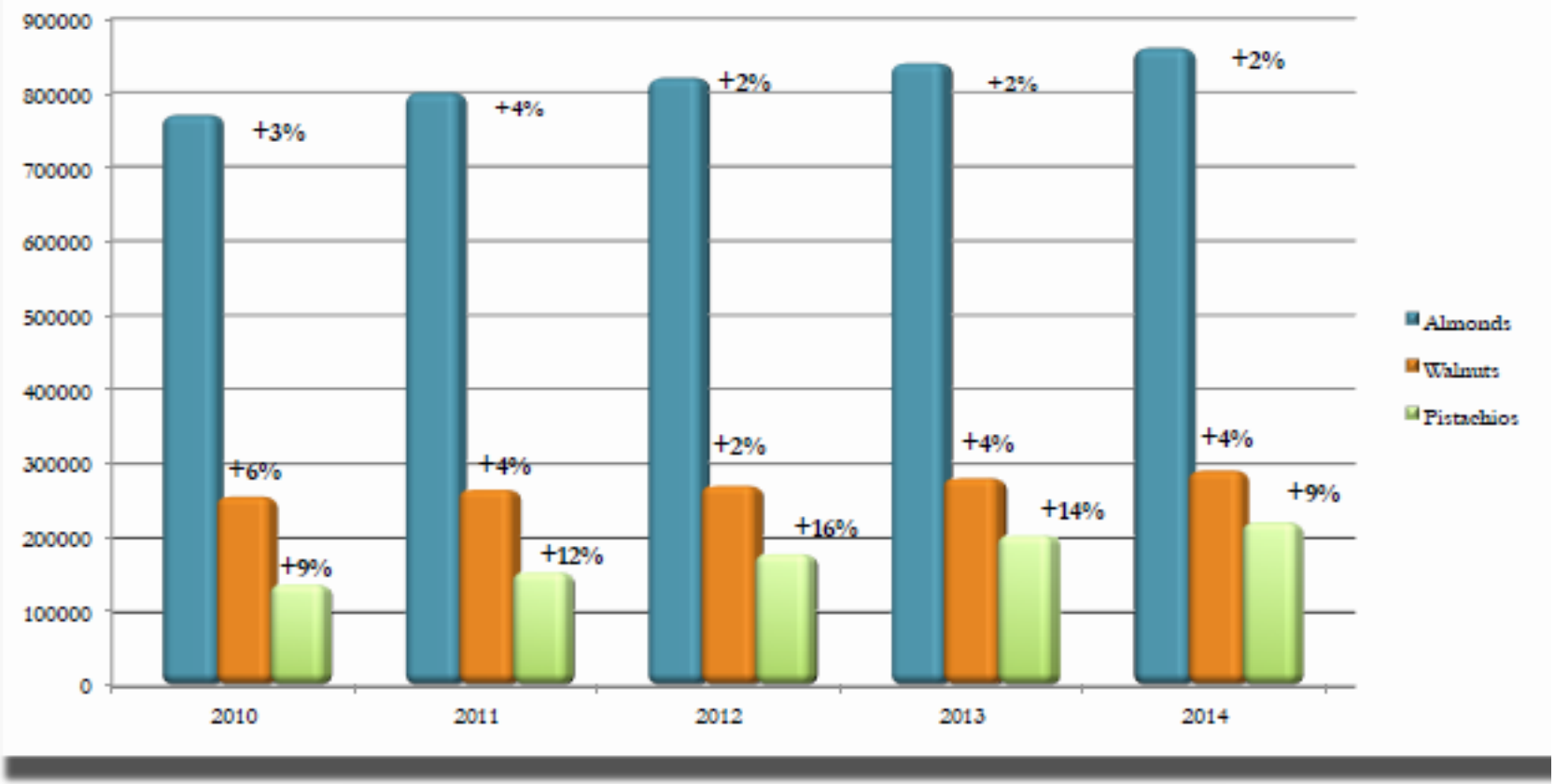
SOURCE: Author calculations using data from the California Department of Water Resources (2010 water use) and the National Agricultural Statistics Service (2012 crop prices). Revenues are estimated using the Statewide Agricultural Production (SWAP) model.

Dairy margins face rough patch due to strong global production



Source: Informa Economics

Bearing Acreage for Almonds, Walnuts & Pistachios

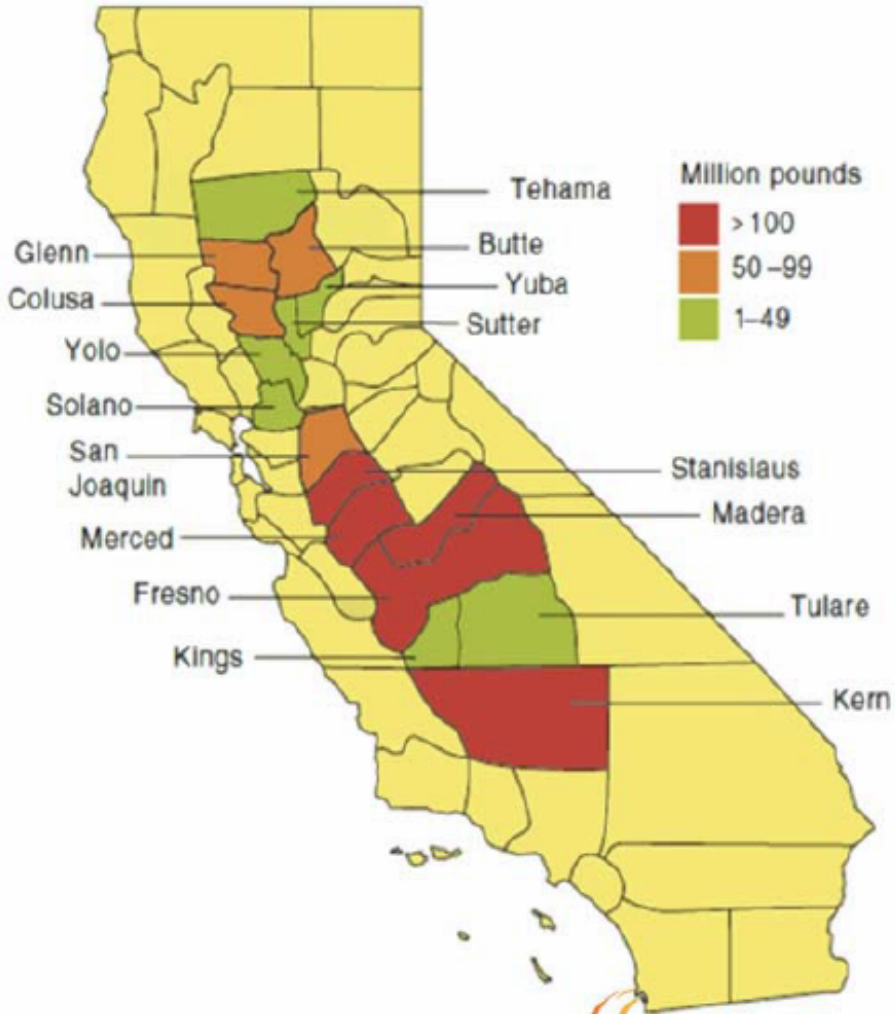


Total Acreage Growth

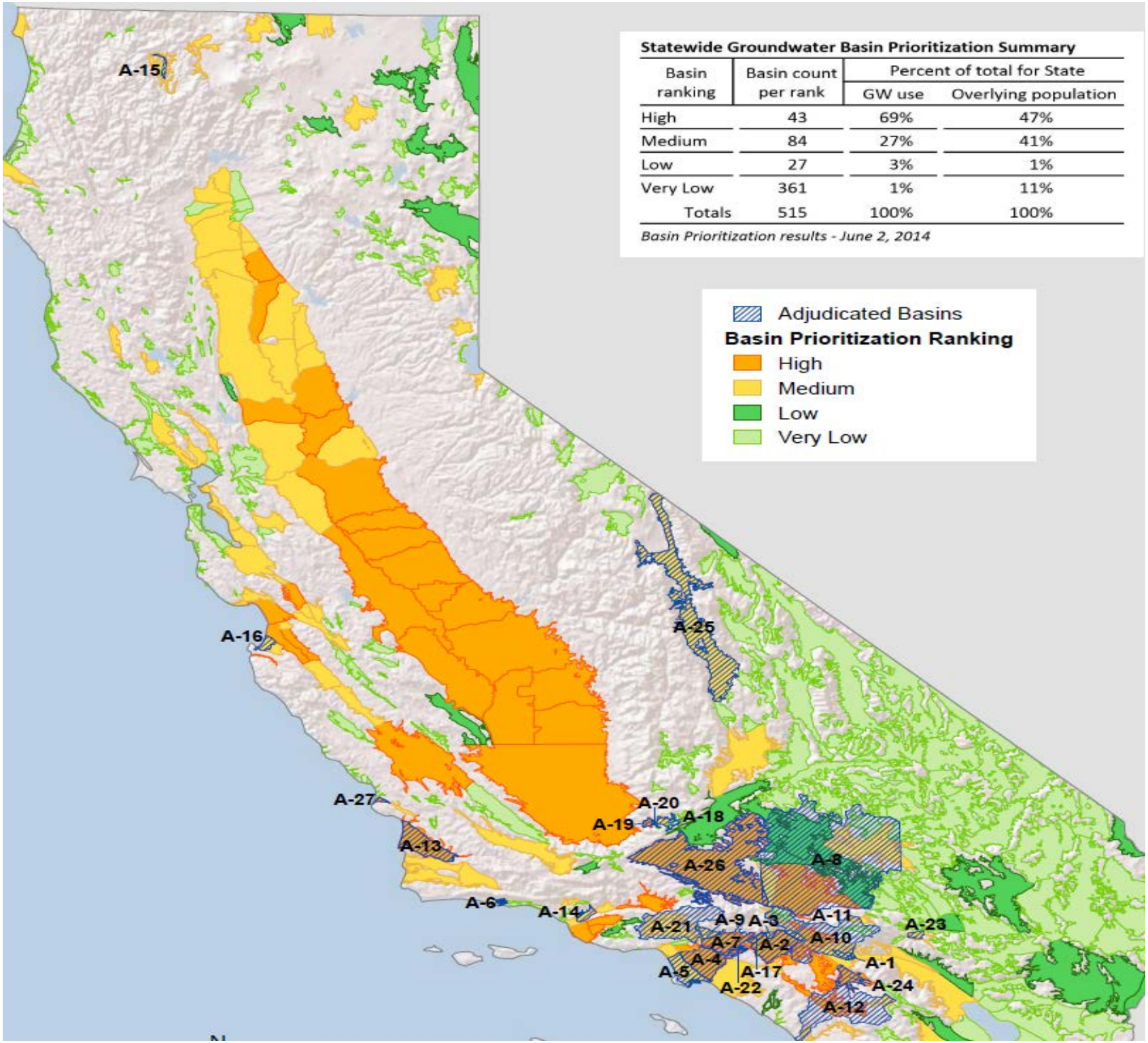
Almonds +110,000 Acres Pistachios +94,890 Acres Walnuts +50,000 Acres

The Scope of the Almond Growing in California

- Spanning 500 miles throughout the Central Valley
- 940,000 Ac (2013) – Largest in CA
- 100% of U.S. production
- ~ 6,500+ growers, 100 "handlers"
  - 50% of growers have 50 A or less
  - 90%+ are family owned & run
- Over 80% of worldwide production
- Top U.S. horticultural crop in export value
- 2013 farm gate value $6 billion
- $11 billion contribution to gross CA economy
- Generates more than 100,000 jobs



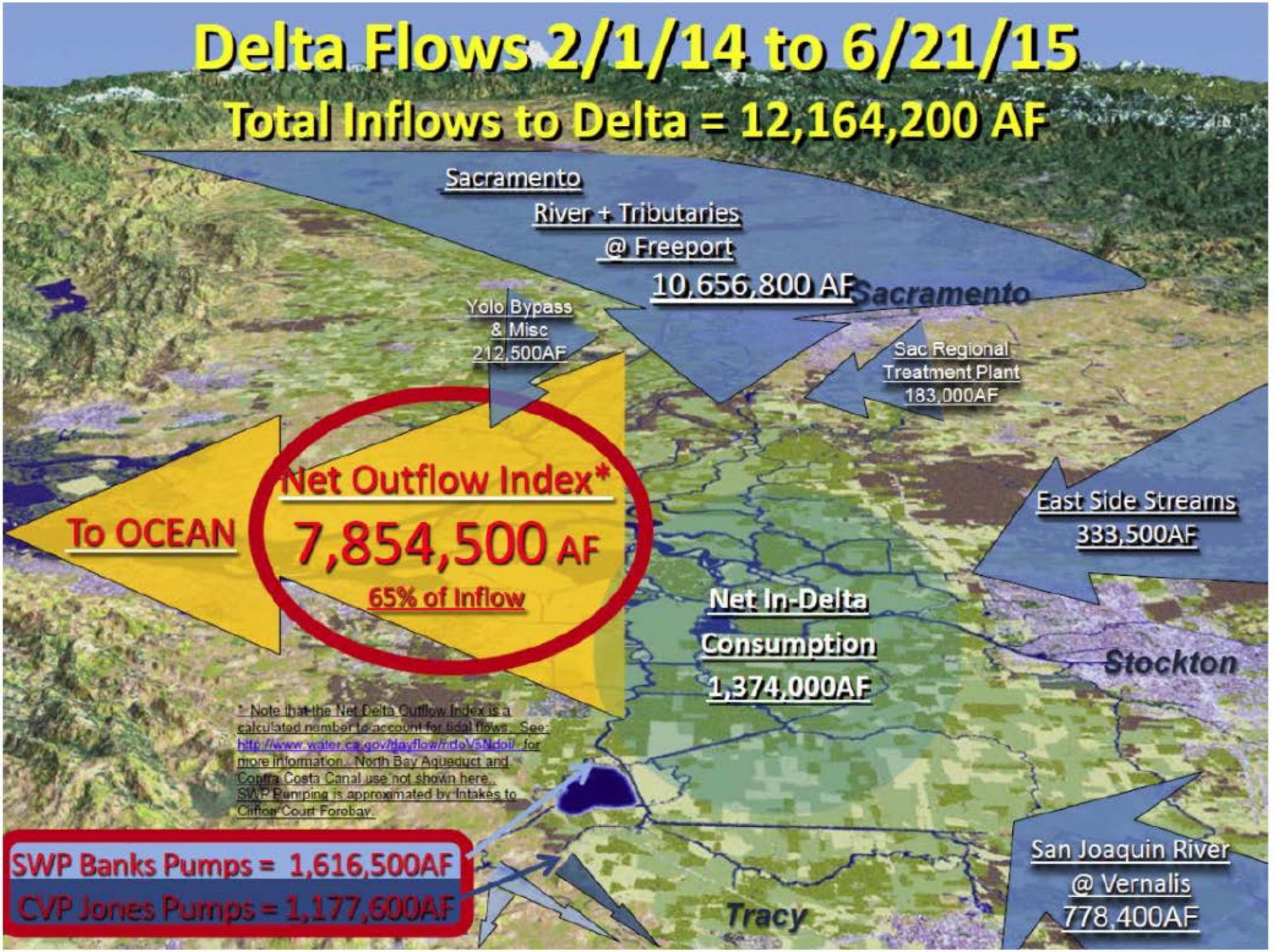
california almonds
Almond Board of California

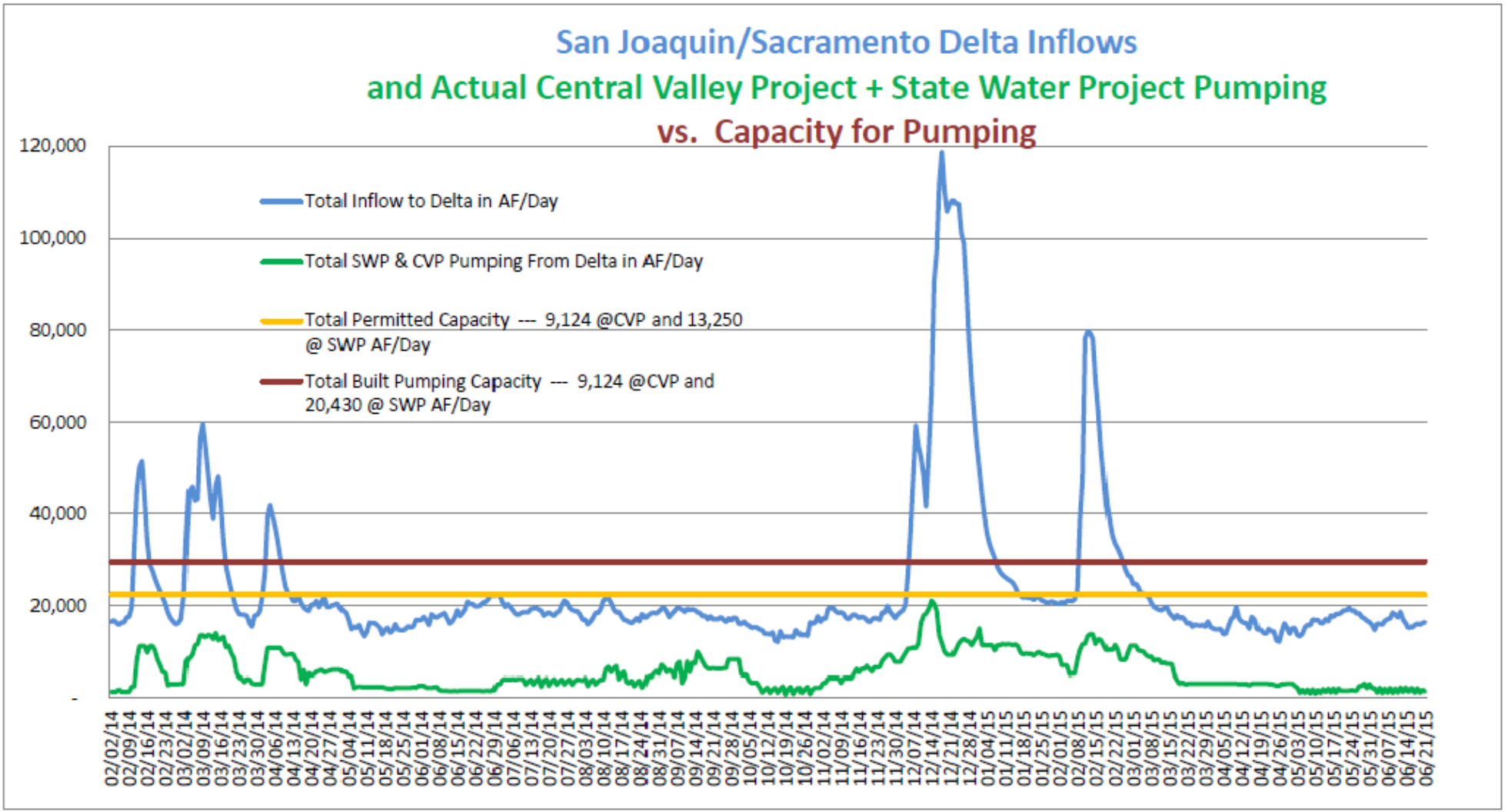


Statewide Groundwater Basin Prioritization Summary

Basin ranking	Basin count per rank	Percent of total for State	
		GW use	Overlying population
High	43	69%	47%
Medium	84	27%	41%
Low	27	3%	1%
Very Low	361	1%	11%
Totals	515	100%	100%

Basin Prioritization results - June 2, 2014


Delta Flows 2/1/14 to 6/21/15
Total Inflows to Delta = 12,164,200 AF
Sacramento River + Tributaries @ Freeport
10,656,800 AF
Sacramento
Yolo Bypass & Misc
212,500AF
Sac Regional Treatment Plant
183,000AF
Net Outflow Index*
7,854,500 AF
65% of Inflow
To OCEAN
East Side Streams
333,500AF
Net In-Delta Consumption
1,374,000AF
Stockton
* Note that the Net Delta Outflow Index is a calculated number to account for tidal flows. See http://www.water.ca.gov/dayflow/ndoVSNdoII for more information. North Bay Aqueduct and Contra Costa Canal use not shown here. SWP Pumping is approximated by Intakes to Clifton Court Forebay.
SWP Banks Pumps = 1,616,500AF
CVP Jones Pumps = 1,177,600AF
Tracy
San Joaquin River @ Vernalis
778,400AF


San Joaquin/Sacramento Delta Inflows
and Actual Central Valley Project + State Water Project Pumping
vs. Capacity for Pumping
Total Inflow to Delta in AF/Day
Total SWP & CVP Pumping From Delta in AF/Day
Total Permitted Capacity --- 9,124 @CVP and 13,250 @ SWP AF/Day
Total Built Pumping Capacity --- 9,124 @CVP and 20,430 @ SWP AF/Day
120,000
100,000
80,000
60,000
40,000
20,000
-
02/02/14
02/09/14
02/16/14
02/23/14
03/02/14
03/09/14
03/16/14
03/23/14
03/30/14
04/06/14
04/13/14
04/20/14
04/27/14
05/04/14
05/11/14
05/18/14
05/25/14
06/01/14
06/08/14
06/15/14
06/22/14
06/29/14
07/06/14
07/13/14
07/20/14
07/27/14
08/03/14
08/10/14
08/17/14
08/24/14
08/31/14
09/07/14
09/14/14
09/21/14
09/28/14
10/05/14
10/12/14
10/19/14
10/26/14
11/02/14
11/09/14
11/16/14
11/23/14
11/30/14
12/07/14
12/14/14
12/21/14
12/28/14
01/04/15
01/11/15
01/18/15
01/25/15
02/01/15
02/08/15
02/15/15
02/22/15
03/01/15
03/08/15
03/15/15
03/22/15
03/29/15
04/05/15
04/12/15
04/19/15
04/26/15
05/03/15
05/10/15
05/17/15
05/24/15
05/31/15
06/07/15
06/14/15
06/21/15

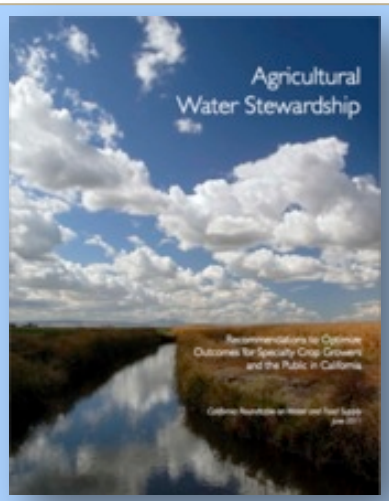
ag INNOVATIONS | CRWFS CALIFORNIA ROUNDTABLE ON WATER & FOOD SUPPLY

Applying the Connectivity Approach: *Groundwater Management in California's Kings Basin*

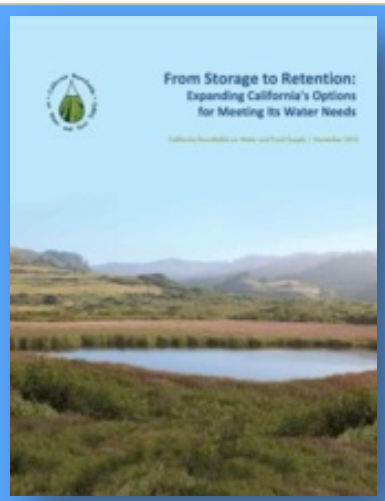
Lucas Patzek, Ph.D.
Ag Innovations
4/16/15

CRWFS Modules

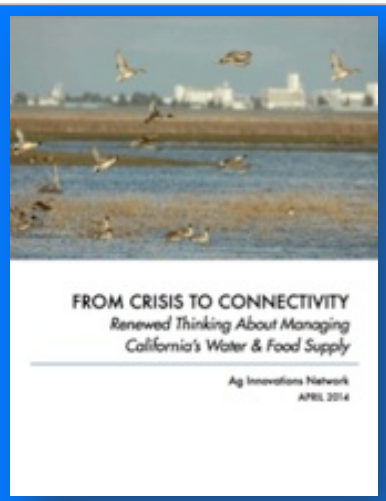
Using a systemic approach to understanding and addressing complex water and food supply issues, **CRWFS has completed 4 modules**:



1 Agricultural water stewardship



2 Water retention in the landscape



3 Improving connectivity in water management

4 Groundwater sustainability

Opportunities for California

Our case study of the Kings Basin region revealed opportunities for improved connectivity in groundwater management, planning, and implementation throughout California for the benefit of agriculture, the public, and the environment.

Four primary areas of opportunity were identified during our inquiry process:

1. **Upper and lower watershed connectivity**
2. **Surface and groundwater storage connectivity**
3. **Alignment of governance structures and tools**
4. **Improved public and stakeholder engagement**