2015 Drought Analysis Preliminary Results Statewide

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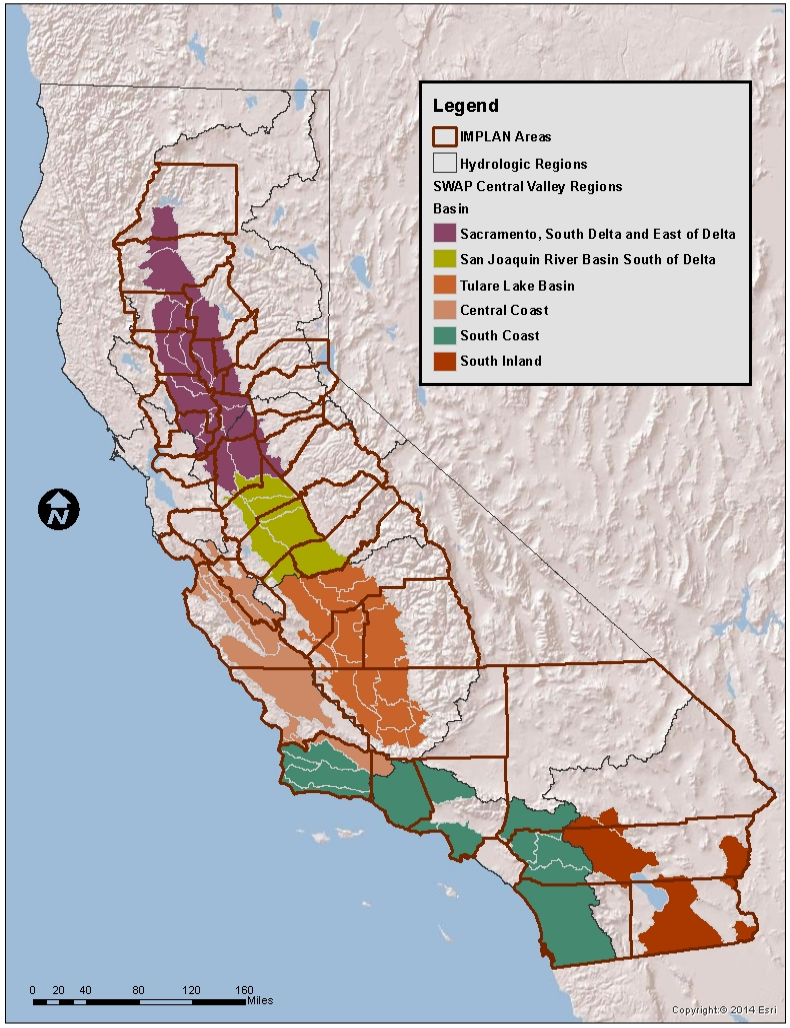
2015 Comprehensive Water District Survey

- Data collected for 72 Districts (or sub-regions)
  - Surface water allocation
  - Local water supplies/ carryover
  - Groundwater substitution
  - Water transfers
  - Rate changes
  - 2014 fallowed acres
  - Dry wells
- All SWAP regions



2015 Drought Impact Analysis

- Surface water and local water supply from water district surveys
- Maximum groundwater pumping capacity (based on 2014 estimates)
- Aggregated into 38 SWAP model regions
  - Update regional surface and groundwater supplies
  - Use C2VSim to update pumping costs
- Link SWAP results to IMPLAN to calculate employment and secondary economic effects

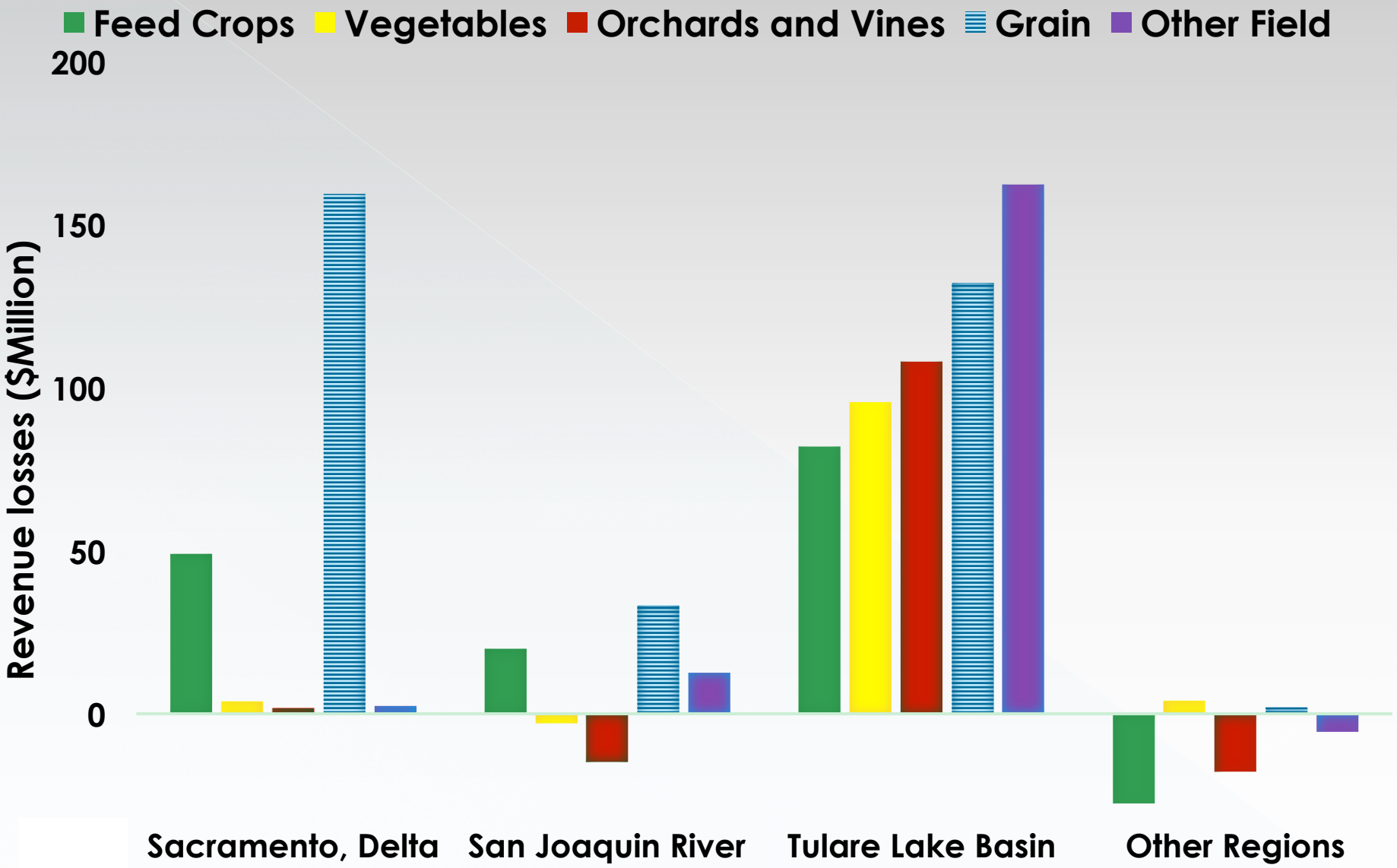
2015 Estimated Changes in Water Availability

Region	Surface Water Change (maf/yr)	Additional Groundwater Use (maf/yr)	Net Change (maf/yr)
Sacramento Valley	-2.2	1.3	-0.9
San Joaquin Valley	-1.9	1.4	-0.5
Tulare Lake Basin	-4.8	3.5	-1.3
Central Valley subtotal	***-8.8***	***6.2***	***-2.6***
Central Coast	-0.0	0.0	-0.0
South Coast	-0.0	0.0	-0.0
Colorado River Region	-0.0	0.0	-0.0
Statewide Total	***-8.8***	***6.2***	***-2.6***

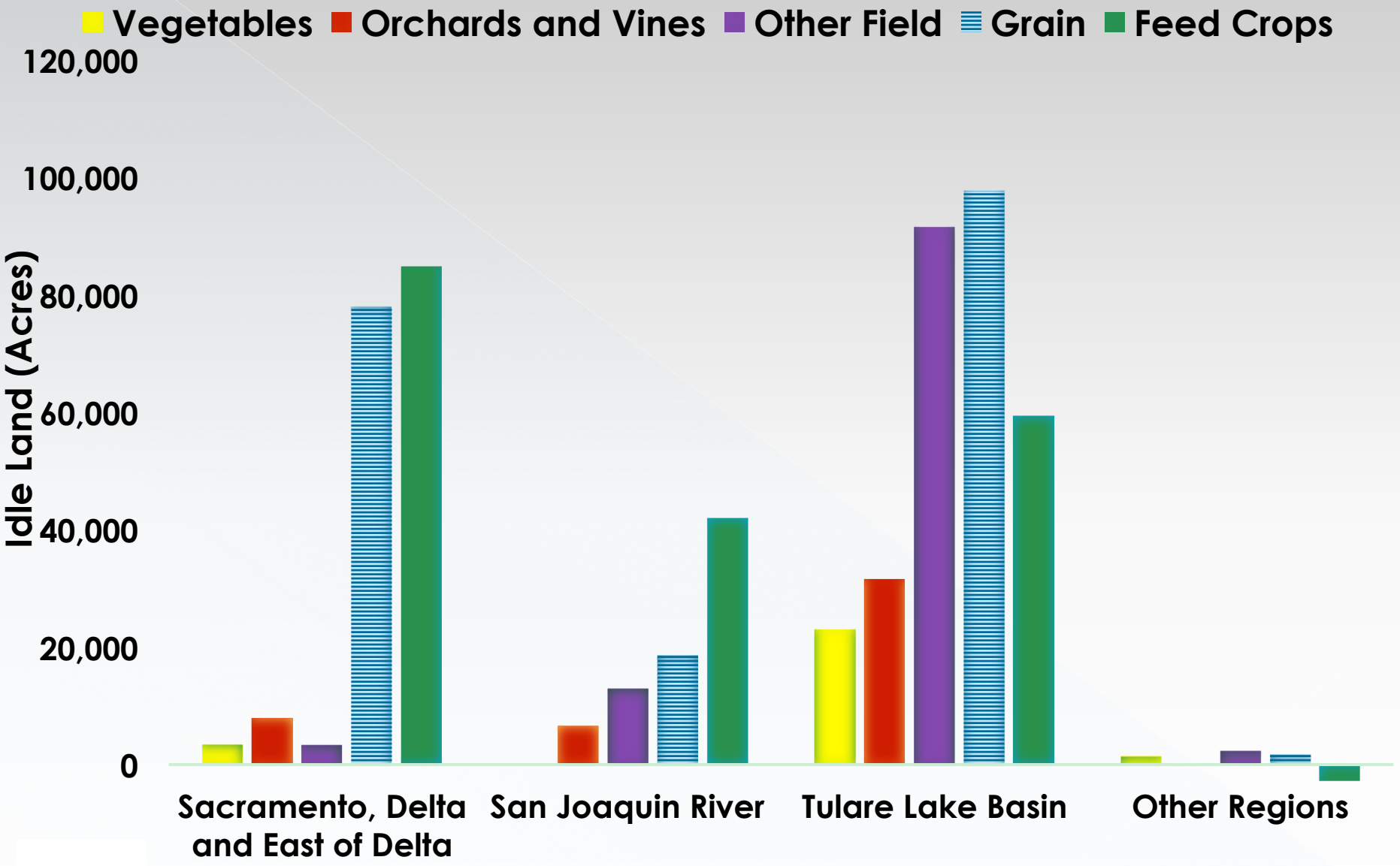
2015 Summary of Drought Impacts

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**

2015 Estimated Gross Revenue Reduction



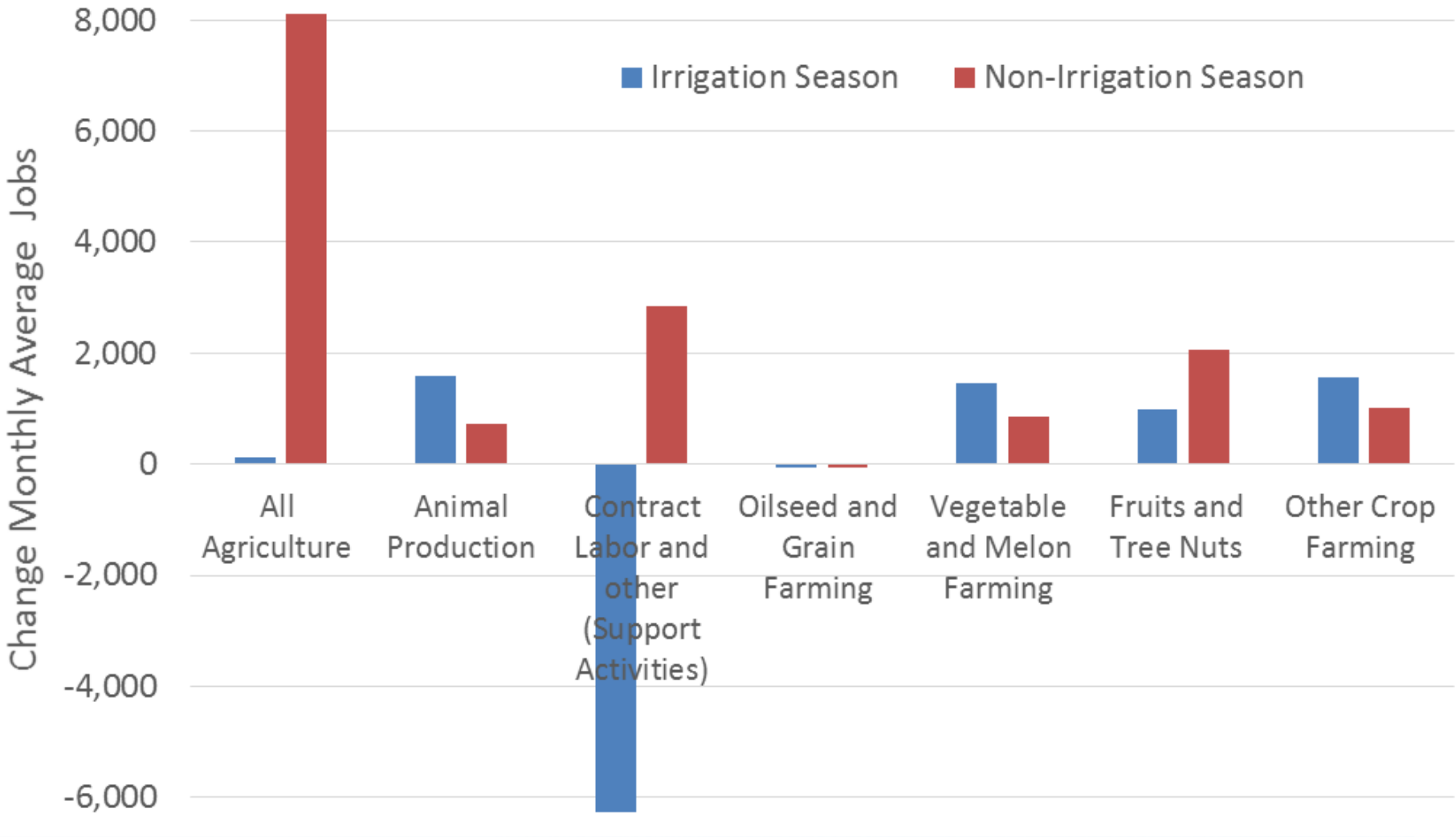
2015 Estimated Crop Acreage Reductions



Agricultural Employment

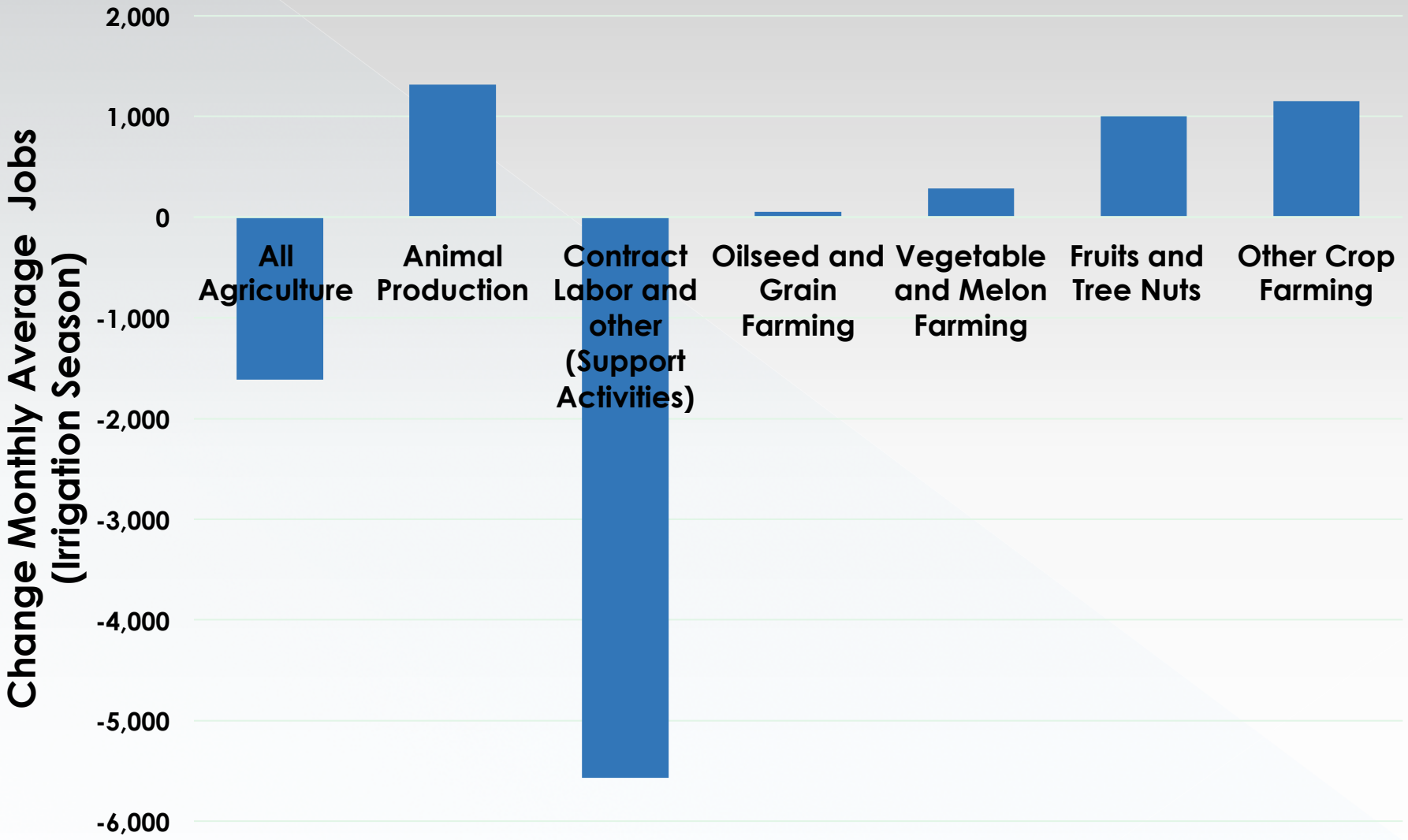
- 2014 agricultural employment statistics show overall growth, despite the drought
- Detailed analysis of employment statistics does not contradict Valley job loss estimates
- Agricultural job increases are mostly in the non-irrigation season
- Coastal and Sacramento Valley regions showed agricultural job increases

Change in Statewide Agricultural Employment: 2014 versus 2013



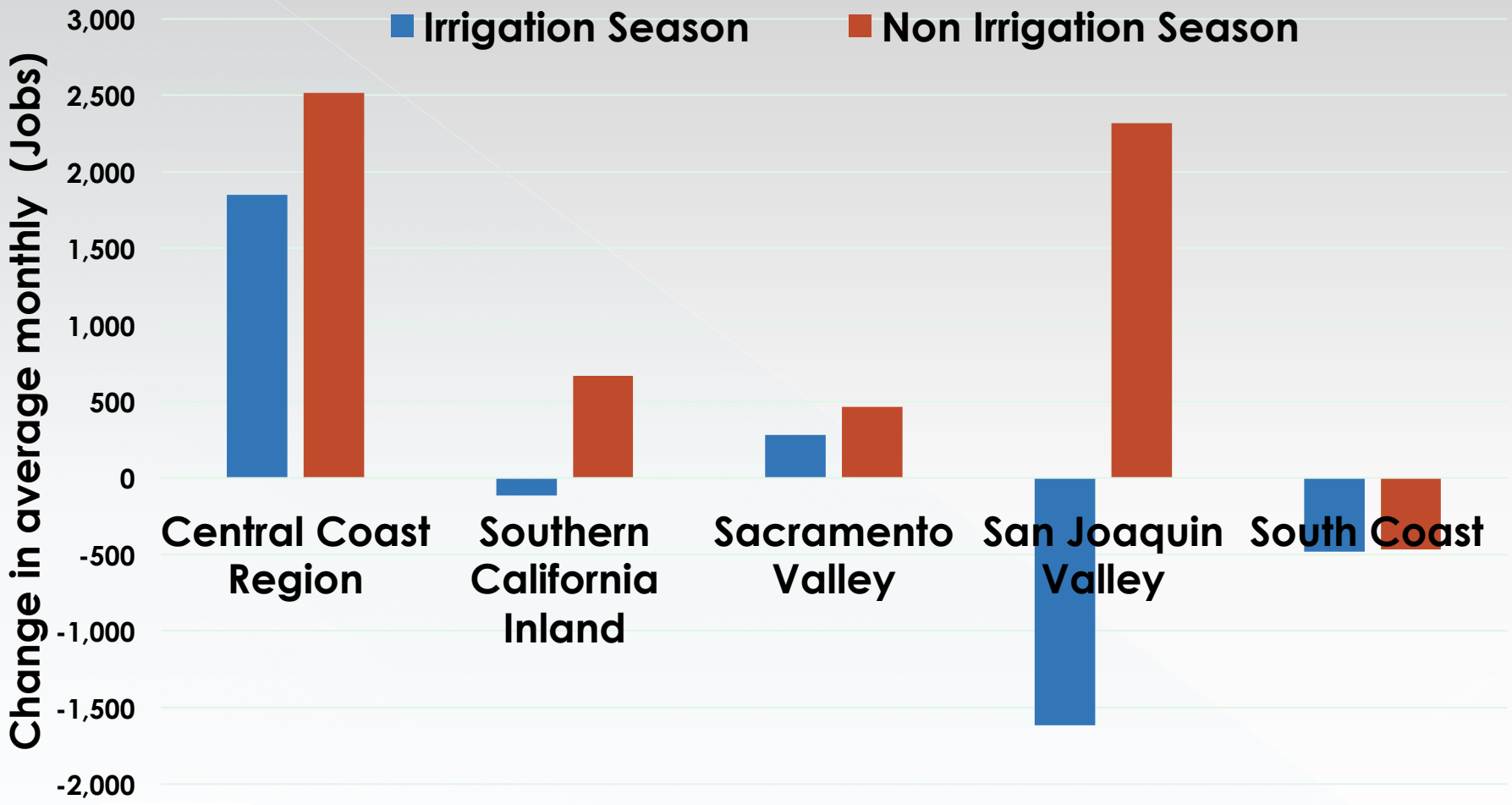
Source: Author Calculations from EDD

Change in Agricultural Employment San Joaquin Valley: 2014 versus 2013



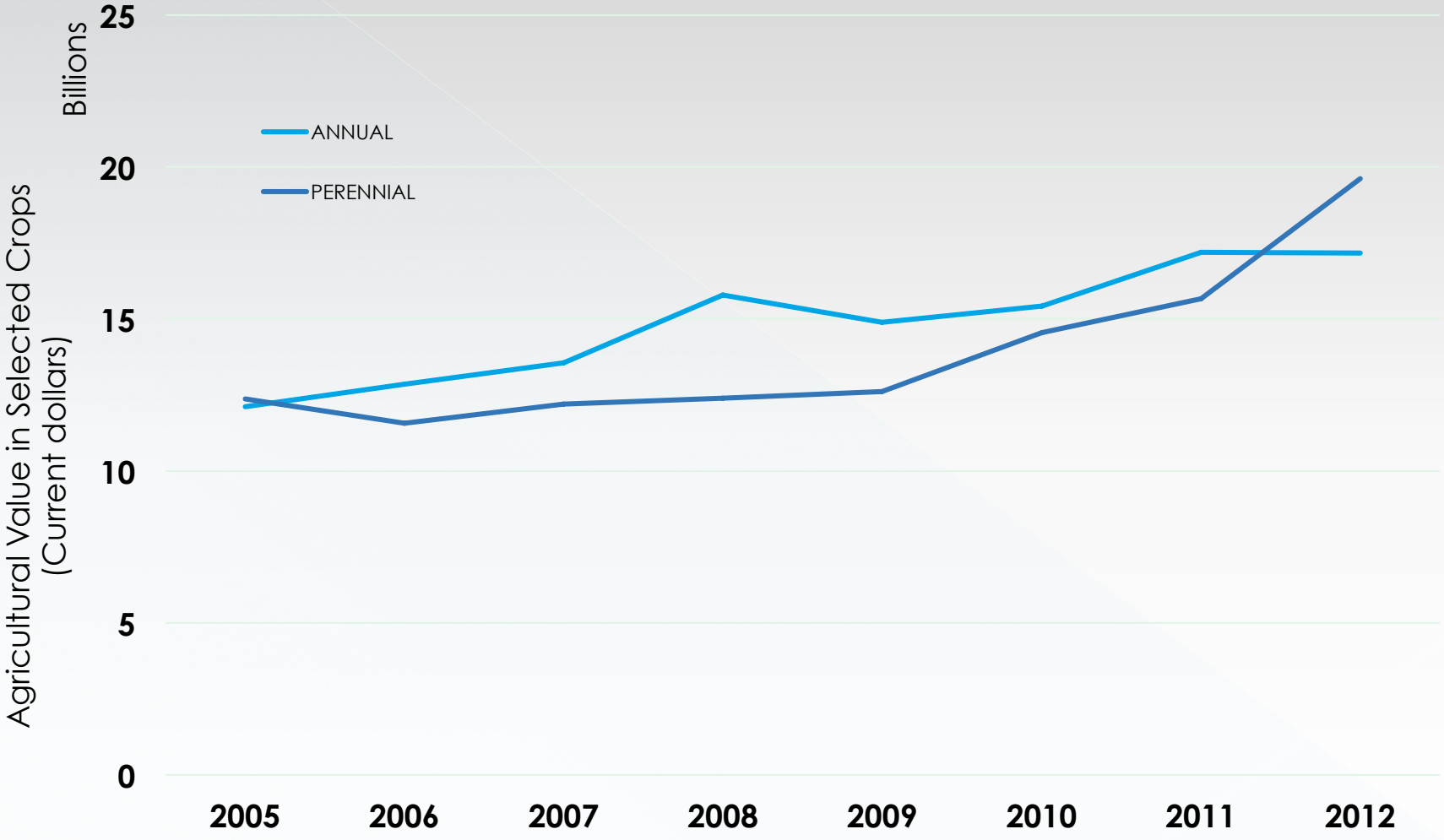
Source: Author Calculations from EDD

Change in Agricultural Employment, by Region: 2014 versus 2013



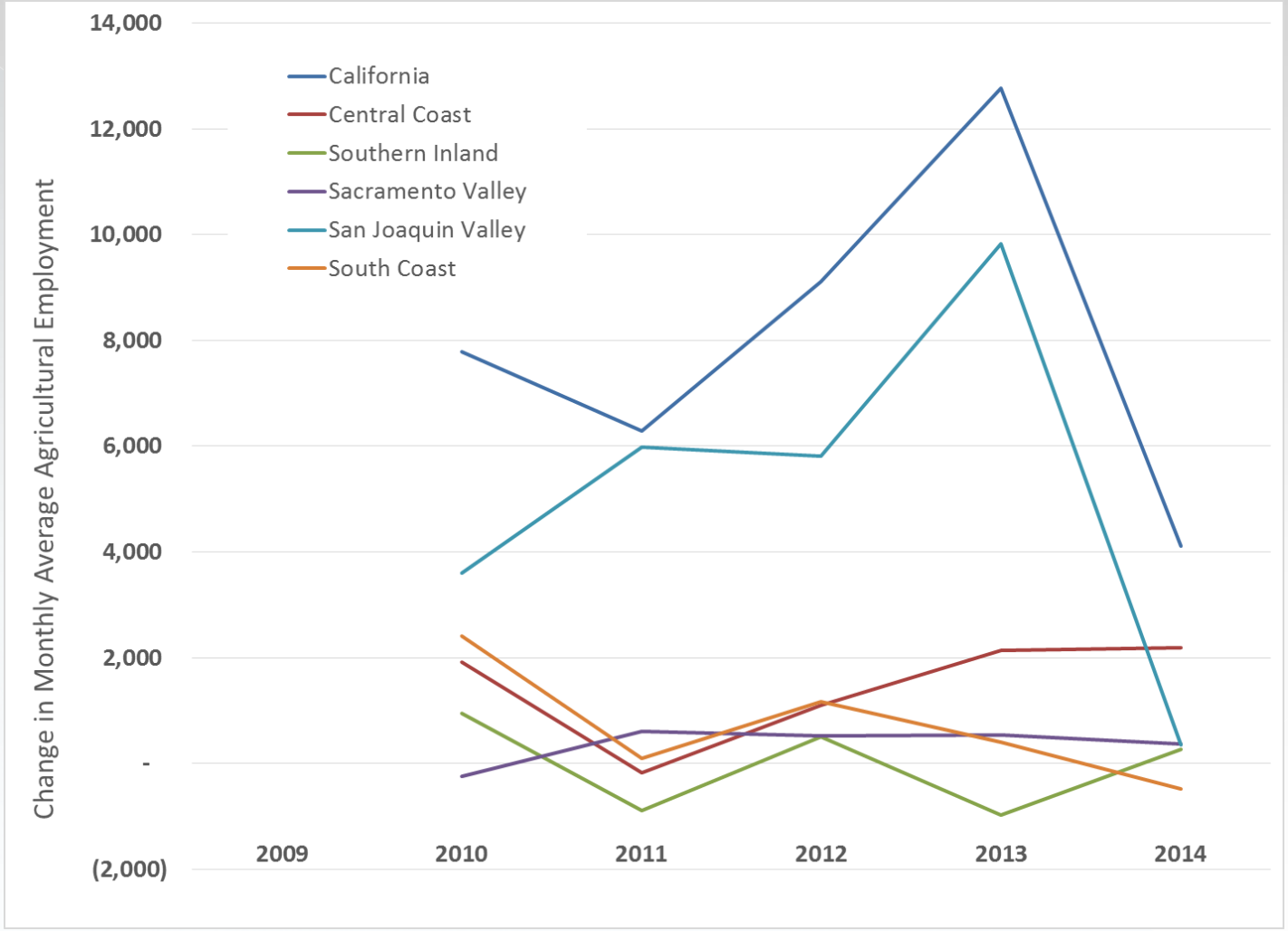
Source: Author Calculations from EDD

Statewide Gross Revenues on selected crops 2005-2012



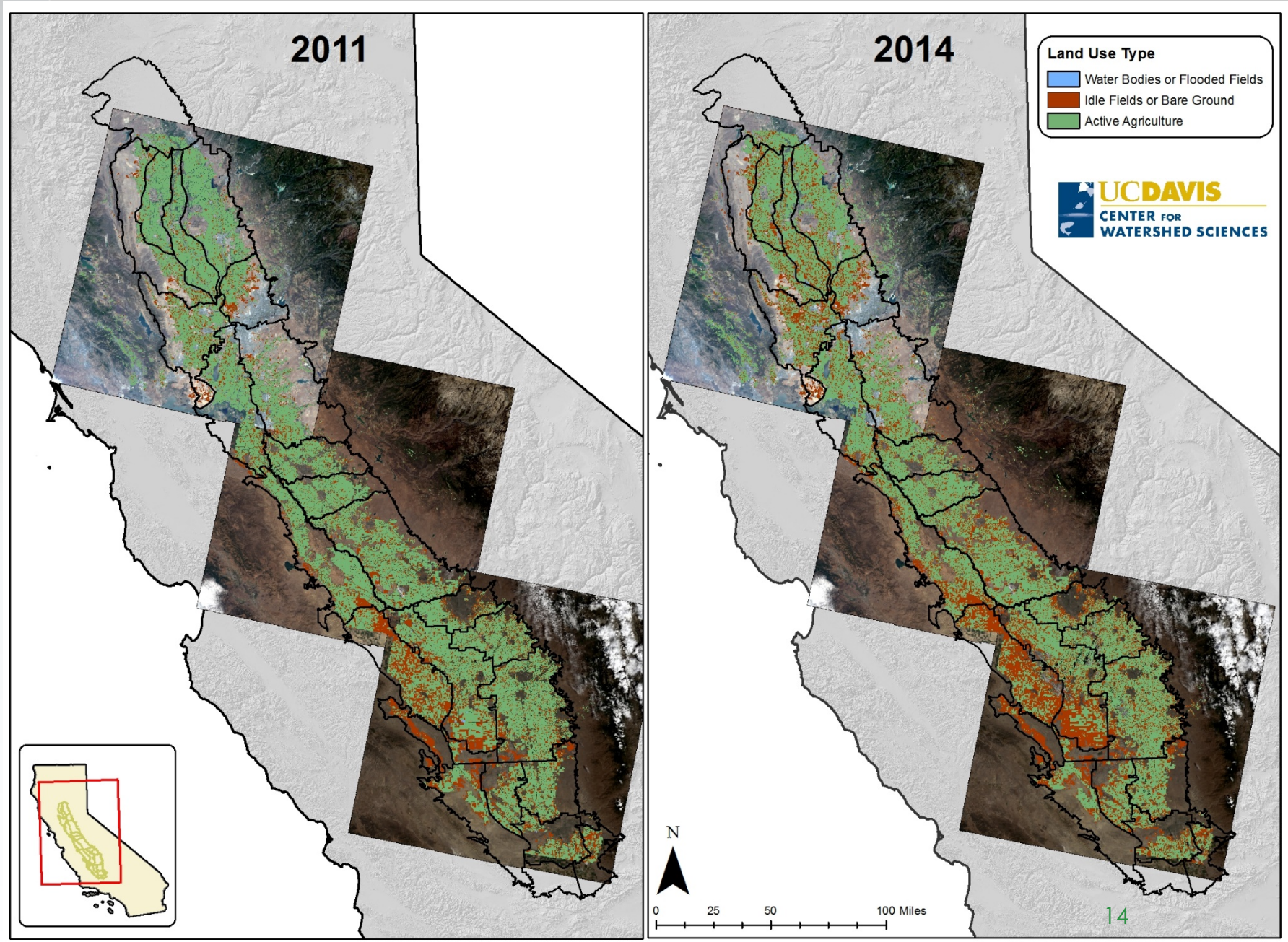
Source: Author Calculations from NASS

Change in Monthly Average Employment with Respect to Previous Year



Source: Author Calculations from EDD

UC Davis Estimate



Summary: 2015 vs 2014 Drought Estimates

	2014	2015	% Difference
Net water reduction	1.6 MAF	2.6 MAF	+60%
Drought fallowing	428,000 Acres	564,000 Acres	+32%
Agricultural income loss	$2.2 billion	$2.7 billion	+23%