

UC

Economic Issues and the 2014 Drought

Labor, Water and California Agriculture in 2014
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 **University of California**
Agriculture and Natural Resources

AIC



- State Water Project
- Federal Water Project
- Local Water Project

Three Economic Points

1. Agriculture is important. Farming is 1 to 2 % of gross state product, and 3 to 4% counting allied industries and ripple effects. Much bigger share 10% or more in Central Valley regions with the biggest drought impacts.
2. Food price effects will be small for three reasons:
 - a. Smaller direct impact where California food specialties are grown
 - b. Keep water on those high value per acre-foot produces and tree and vine crops
 - c. Biggest impacts on indirect-food field crops and cotton and crops that are also grown elsewhere (rice is an exception)
3. Overall California labor impacts are small as a share (related to points 1. and 2.), but will be severe on many rural people who are already vulnerable.

WESTERN

SATURDAY, APRIL 5, 2014

FARM PRESS

TIMELY, RELIABLE INFORMATION FOR CALIFORNIA-ARIZONA AGRICULTURE



Alfalfa yield, profitability 8



Drought wrath 14



Water rights vs. supply 20

Water protests draw state attention



NO IRRIGATION water for local farms means high unemployment among the large Central California Latino population. This woman was extremely passionate in her plea for officials to find a solution to provide ample water for area farms.

Understanding drought mitigation is partly arithmetic

Where does the water go and how valuable is it?

- Water in California mostly flows to ocean and we do this on purpose for environmental purposes
- Urban and industrial water is costly and valuable, but much of it is simply poured on the ground or flushed down the drain (and that is a useful use).
- Farm water is and must be cheap by any normal standard.
 - We measure the cost in acre-feet 326,000 gallons
 - In normal times in normal places the price is between \$0.0001 per gallon and \$0.001. That is between 0.01 pennies and 0.1 pennies per gallon.
- That is why we pour it on the ground or let it run out under the Golden Gate.

Estimated Applied Water Use by Crop in the San Joaquin Valley and Gross Revenue per Acre-foot

San Joaquin Valley	2012 Bearing Acres ('000)	Applied Water (acre-feet per acre)	Total applied water ('000 acre-feet)	2012 Total Crop Value (\$ Millions)	2012 Gross Revenue per acre-foot
Almonds	750	4.0	3,000	\$3,883*	\$1,294*
Winegrapes	130	2.4	310	\$717	\$2,319
Proc. Tomatoes	220	2.0	440	\$805	\$1,847

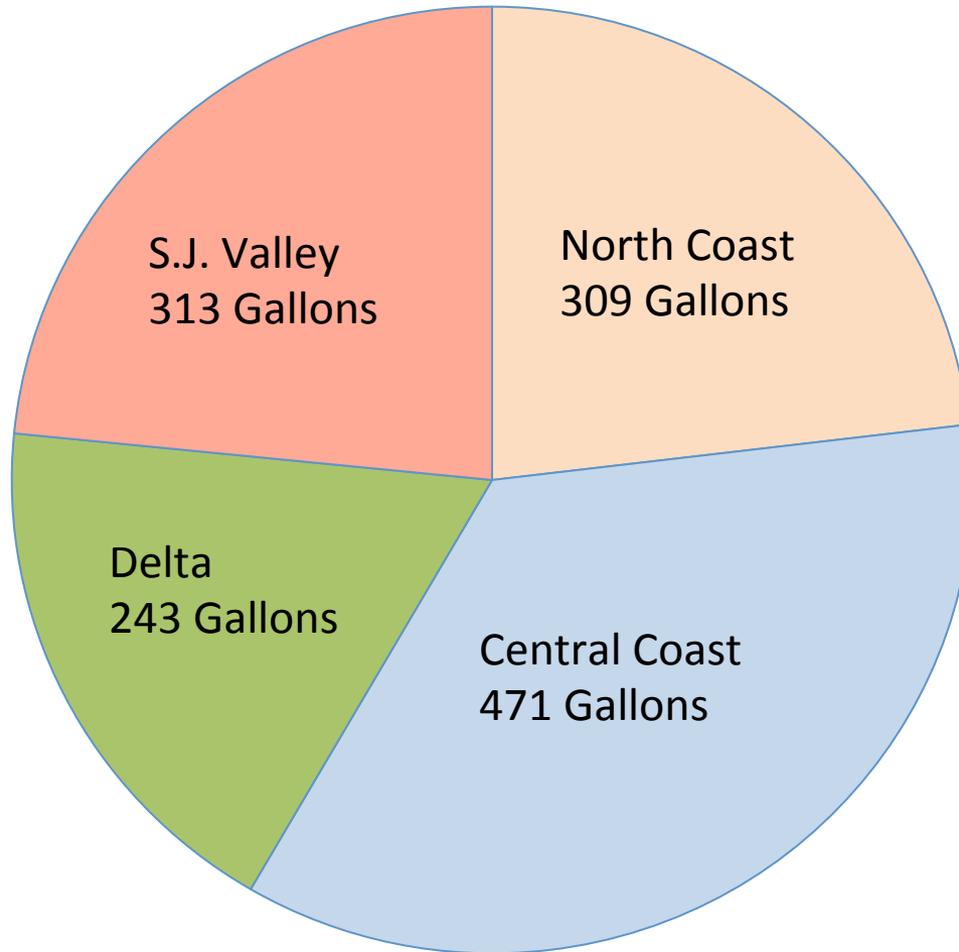
* Almond revenue has rose substantially for 2013.

Grape Irrigation Water per Gallon of Wine

Viticultural Area	2012 Bearing Acres ('000)	Approximate Acre-feet per Acre	Estimated Applied Acre-Foot ('000)	2012 Tons of Grapes per Acre	Estimated Gallons Water/Ton ('000)	Gallons water/Gallon of Wine*
North Coast	132	0.7	93	4.4	52.5	309
Central Coast	91	1.4	27	5.7	80.1	471
Delta	86	1.35	116	10.6	41,3	243
S.J. Valley	129	2.4	307	14.6	53.2	313
Total California	459	1.45	667	8.75	54,057	318

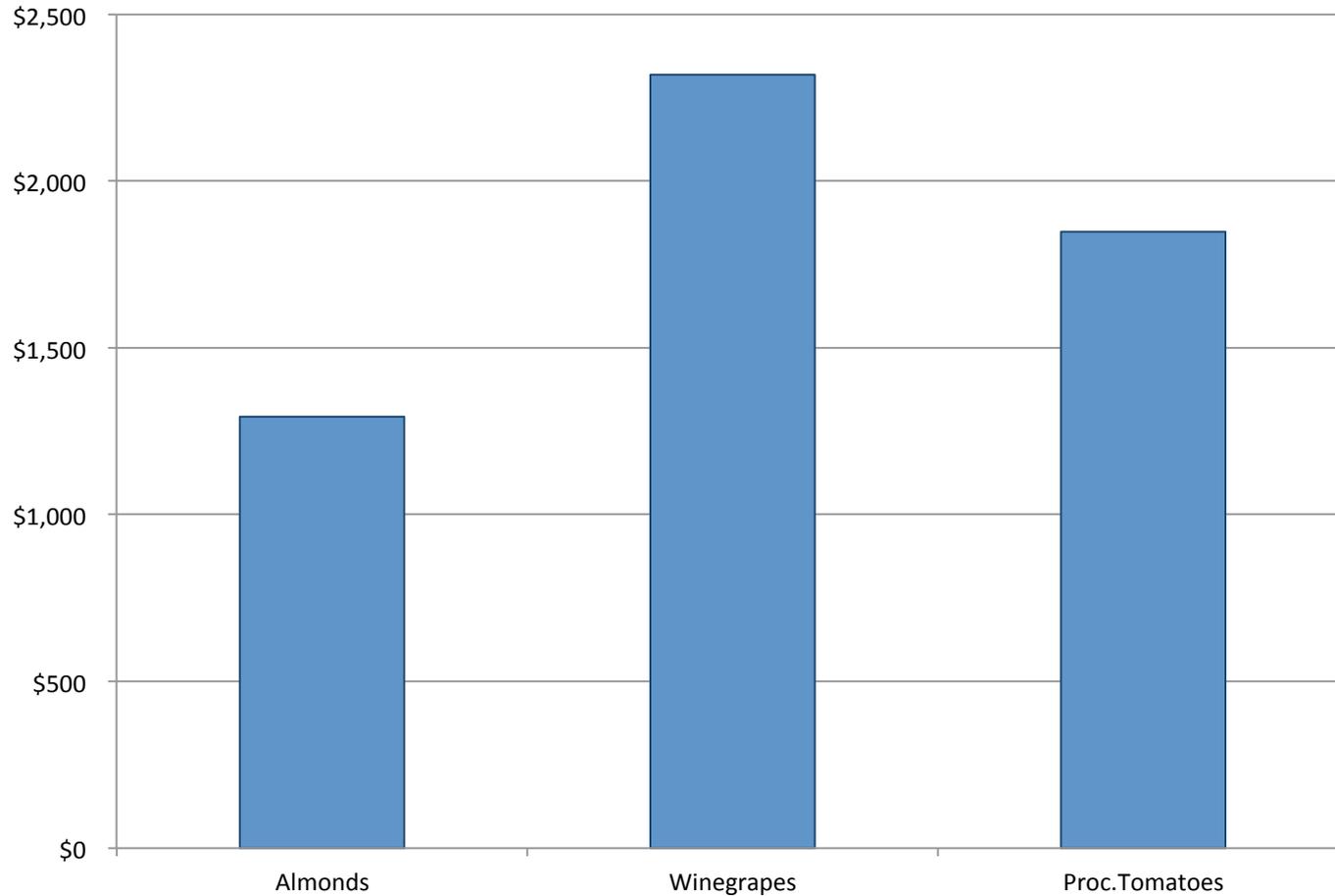
*approximately 170 gallons of wine per ton of grapes.

Gallons of Vineyard Water per Gallon of Wine*



*approximately 170 gallons of wine per ton of grapes.

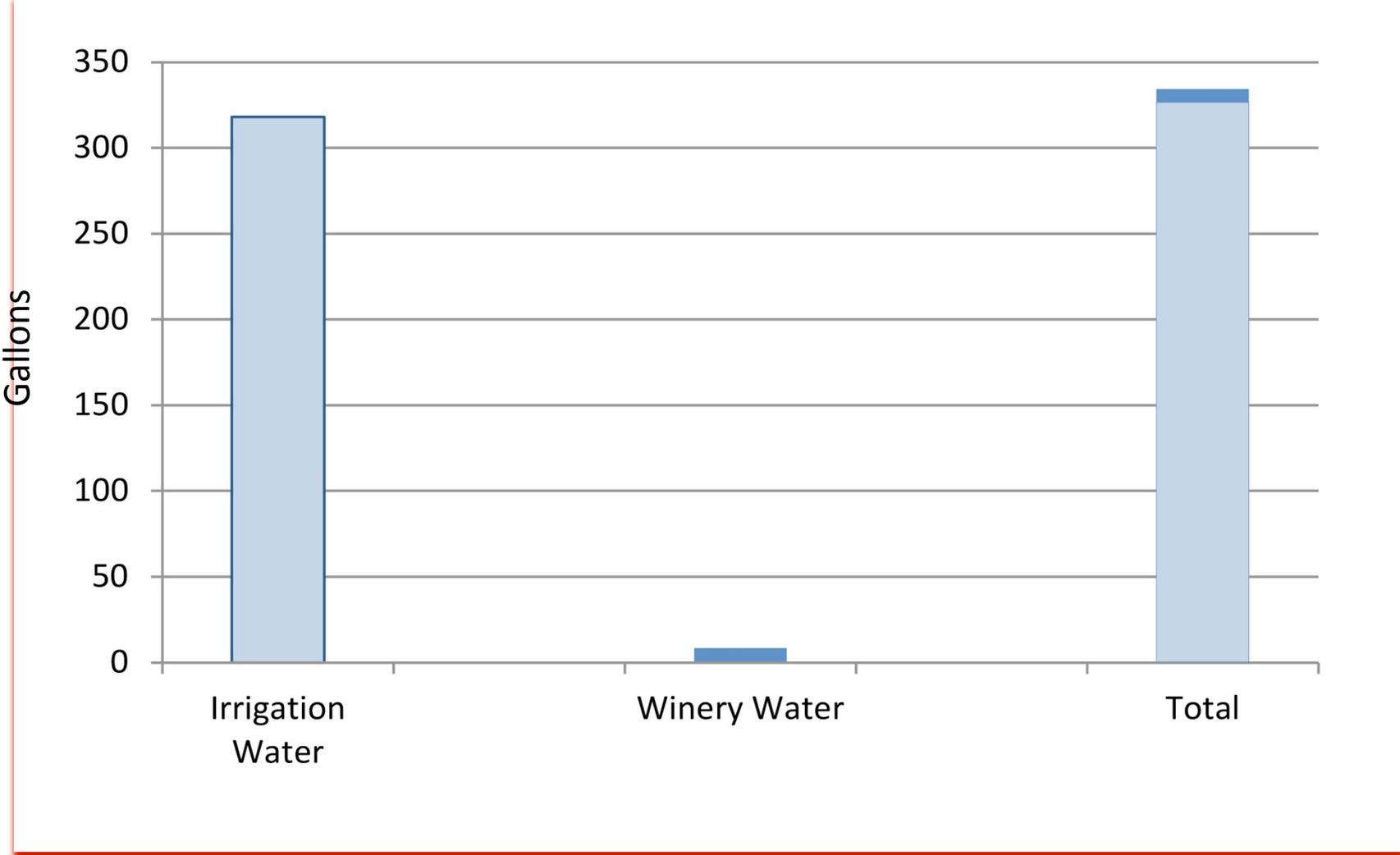
Gross Revenue per Acre-foot by Crop in the San Joaquin Valley



Estimated California Winery Water Use

California Wineries	Percent share of production	2012 Gallons produced (millions)	Gallons of water per gallon of wine	Estimated Gallons Used for Production (millions)	Acre-feet of Water Used (thousand)
Big wineries	85	563	3	1,690	5.2
Mid-sized wineries	10	66	6	398	1.2
Others	5	33	20	663	2.0
Total	100	663	4.15	2,751	8.4

Average Gallons of Water per Gallon of Wine



Economics and Arithmetic

1. **Agriculture is important.**
 - **And, the drought is important to agriculture and the economy**
2. **Food price effects will be small, but noticeable in some cases**
3. **Overall California labor impacts are small, but severe for many of the state's most vulnerable**

Arithmetic

Environmental use and farm use is most of the water

Even in wine (a heavy water-user), winery use is tiny compared to the farm use for the raw material.

Conservation in most uses may feel good, but ... do the math

For environmental use or farming (except special uses and temp. spikes) water must be cheap -- we pour it on the ground!

Thank you, Dan Sumner
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