

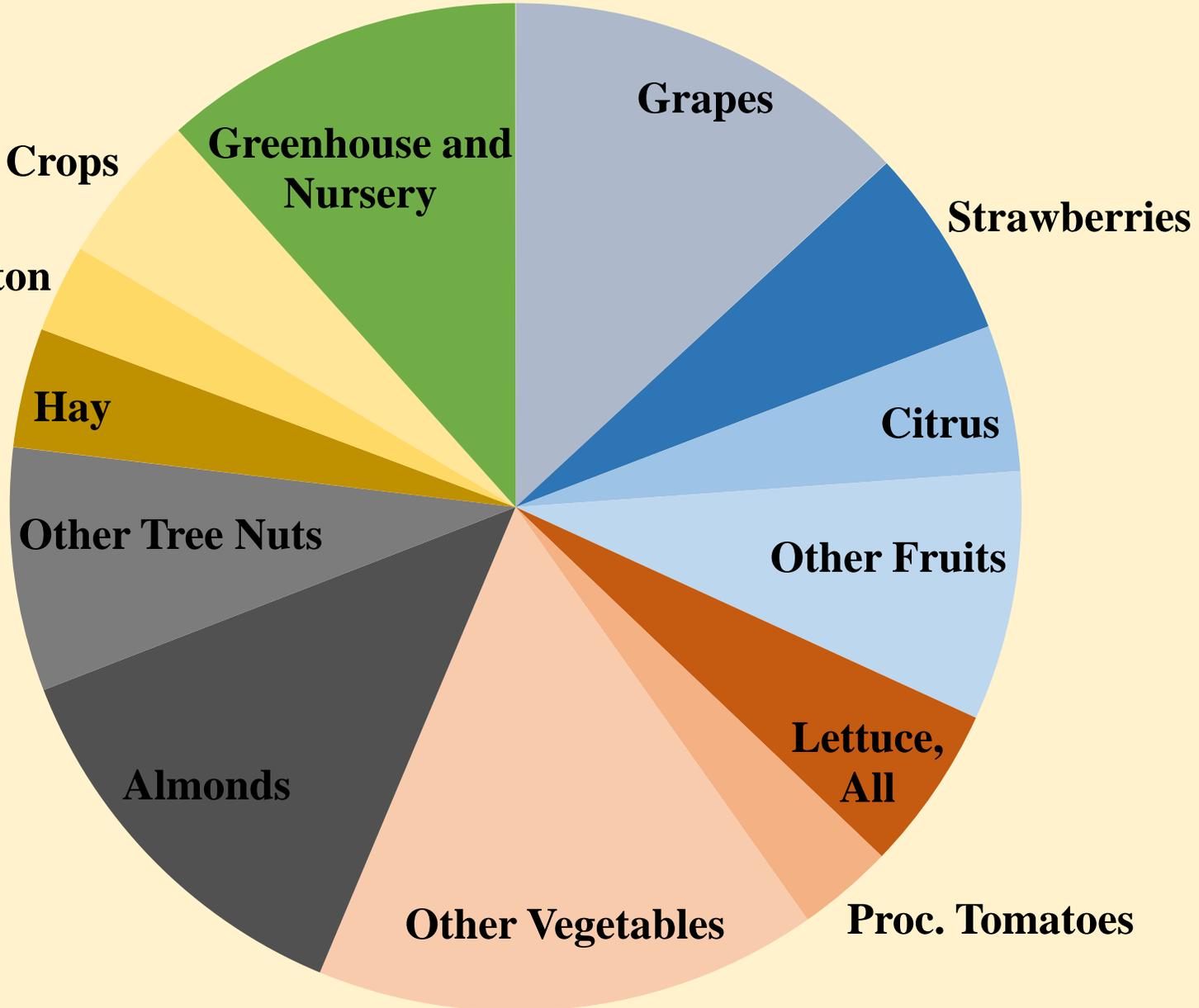
Lessons for Wine from the 2014 Napa Earthquake

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California Crops Cash Receipts, 2010-2012

Average total crop cash receipts = \$29.4 billion



2013 Gross Receipts

1. Dairy \$6.9B

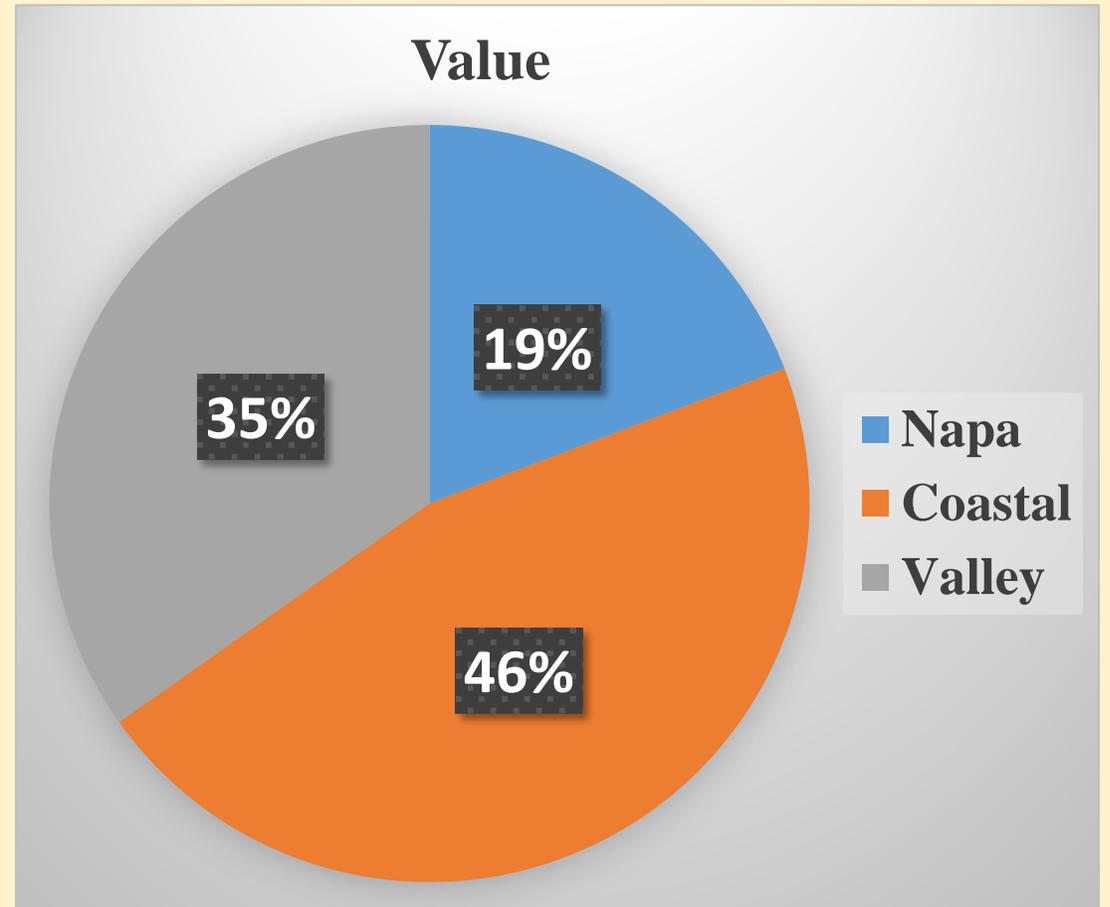
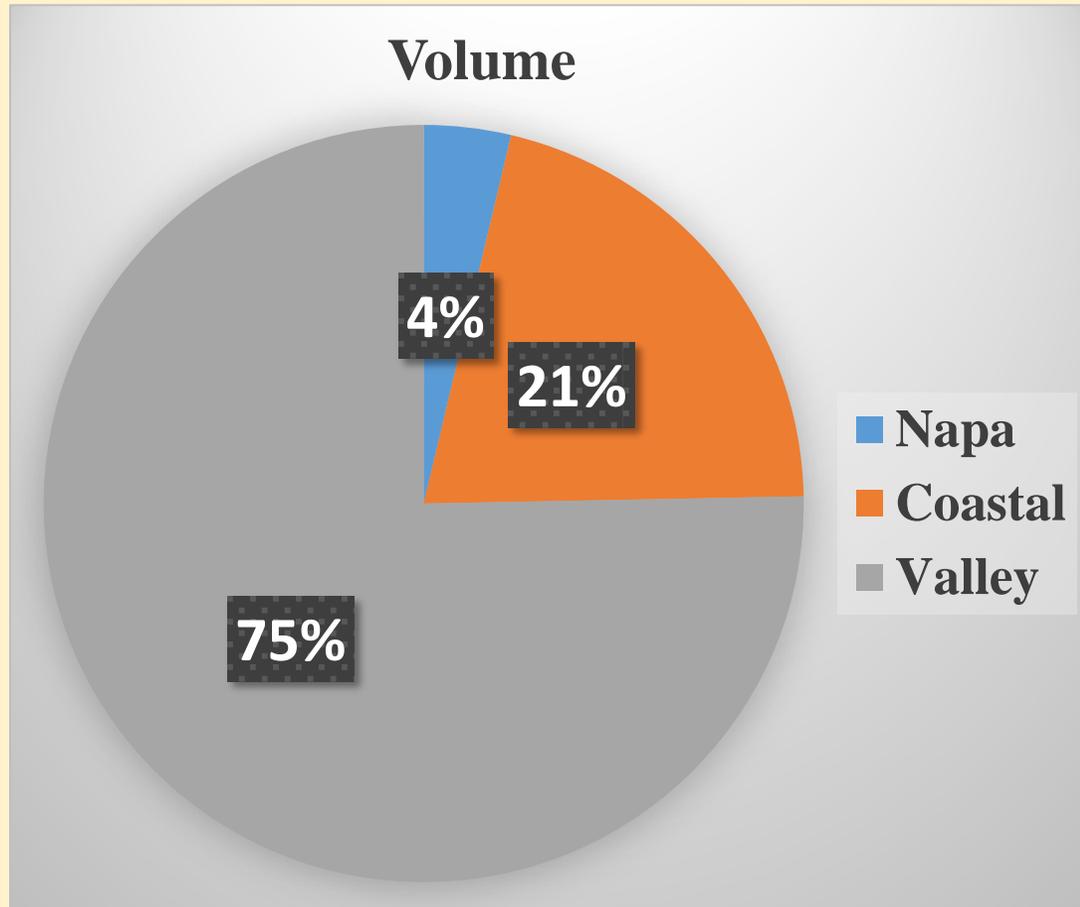
2. Grapes \$4.4B

3. Almonds \$4.3B

4. Cattle \$3.3B

5. Nursery \$2.5B

Coastal wine is valuable and produced in areas prone to earthquakes.



Source: 2013 CDFA Grape Crush Report

Napa wineries produced or bottled 25% of all California wine sold in the United States in 2011

	Cases (Millions)	% quantity of all California Wine	Retail Value (Billions)	% value of all California Wine
All Wine Sold U.S.	347.0		\$32.5	
Cal. Wine Sold U.S.	211.9	100	\$19.9	100
Napa Produced Wine Sold in U.S.	53.3	25.3	\$10.1	50.8
Napa Grown Wine Sold in U.S.	8.4	4.0	\$5.4	27.1

2011 Figures. Source: 2011 Economic Impact of Wine Produced in Napa County. Stonebridge Research.

Damage to Structures and Equipment

Left: Trefethen Winery (1886)



Right: Crumpled Wine Tank, Hess Collection Winery (1903)



Initial Wine Industry Damage Estimates

- Damage \$70 to \$100 million (Silicon Valley Bank Estimate)
- Some infrastructure damage to 50% of Napa County wineries
 - Private bridges, roads, wastewater systems
 - Most wineries were constructed after 1980. The major damage was to two 19th century buildings
- Bulk wine loss
 - Barrels fell from stacks, some tanks moved and leaked
 - 330,000 gallons into Napa Sanitation District facility
- Bottled wine loss and tasting room revenue
- Vineyards
 - Delayed harvest effected grape quality, irrigation systems broken

Bulk and Bottled Wine Loss

Leaking Tanks (Sebastiani)



Library Wines (Saintsbury)



Why wasn't the loss even higher?

- The capital value of wine industry assets in Napa is about \$8 billion (Napa wine inventory, buildings and equipment).
Therefore damages of \$80 million = 1% of value
- **Geography**
 - Epicenter was South Napa. Winery losses located in the Carneros and Oak Knoll regions (South Napa Valley)—perhaps 200 out of 800+ wineries?
- **Time of Quake**
 - 3:00 am on a Sunday. No workers or visitors present
- **Seasonality**
 - Just prior to harvest—most tanks and barrels were empty

What if ?

- Tanks hadn't been empty? The epicenter had been in Yountville as it was in 2000? (a 5.0 quake)
 - Much greater loss of wine at \$50 a gallon
 - Many more wineries damaged
 - Waste disposal shut down
 - Tourism dramatically reduced
- Roads, water and power had been cut?
 - Unable to process grapes or move wine
 - Delay in harvest—severe drop in grape quality
 - Effect throughout the wine industry—25% of bottled wine
- “It could have been much worse” Alison Crowe, Winemaker

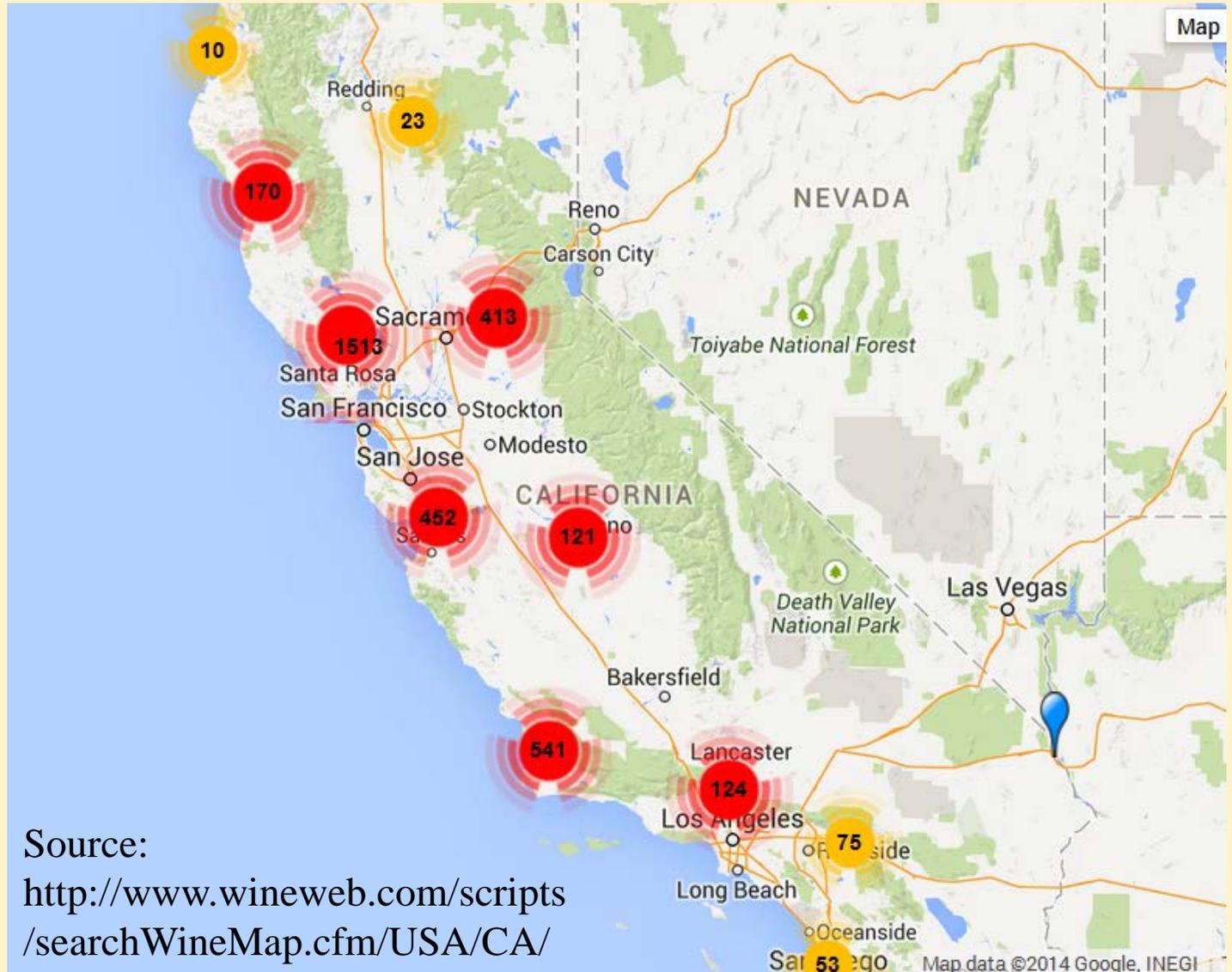
Potential Price & Revenue Impacts of Wine Losses

- Napa wine has a special place in the wine market place with few substitutes
- At the upper price range, losses in volume of a few % may cause price to rise by more and total revenue could rise for the high priced tier. (The demand is “inelastic”). Consumers pay more when Napa volume falls
- This time this effect was quite isolated
- For the more moderately priced wines, substitutes are more available so loss of volume has minimal effects on price

Broader Vulnerability of Coast Wine to Seismic Damage

The coastal winegrape industry (from Mendocino to Ventura County) accounts for about 1/4 of the California grape crush by volume, but 2/3 of the crush by value (about \$2.2 billion farm value)

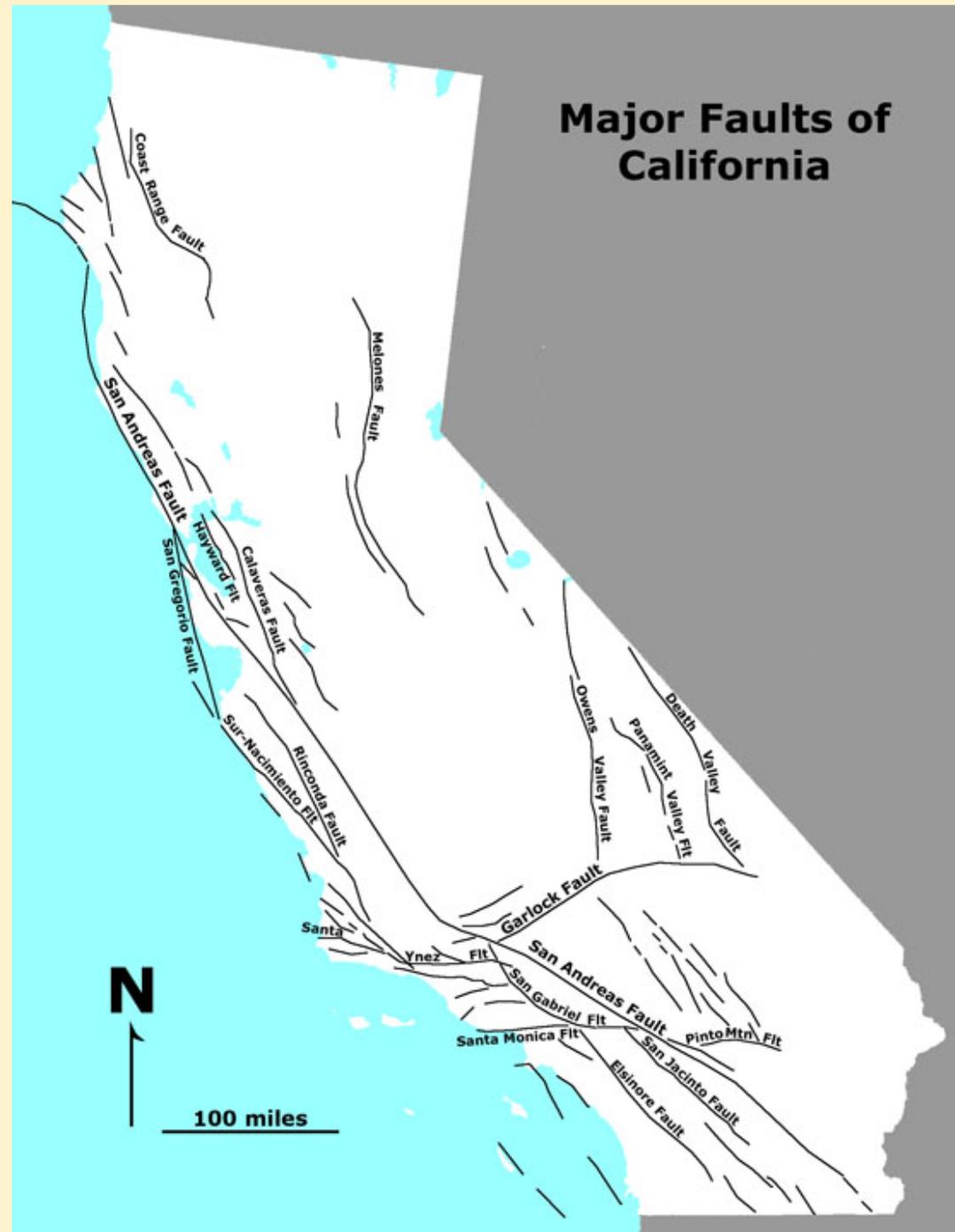
California Winery Map



continued

Broader Vulnerability of Coast Wine to Seismic Damage

Most of this grape crush is in seismically sensitive regions and enters wines that are vulnerable to quality deterioration if there are harvest delays or processing disruptions



Continued

Broader Vulnerability of Coast Wine to Seismic Damage

- Most of the wines and locations have good substitutes, so losses would mostly affect the producers and the local economies rather than consumers

	Grapes value (\$M)	Value/ton
Northern Coastal	174	1,433
Sonoma	605	2,236
Napa	644	3,684
Central Coastal	424	1,210
Southern Coastal	344	1,414

Continued

Broader Vulnerability of Coast Wine to Seismic Damage

- We can consider several scenarios building on the Napa case, but examining alternative timing and extent of an earthquake

Thank you, Dan Sumner
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