Agricultural Issues Center
University of California

April 2008

Current Economic Trends in the California Wine Industry

Rachael E. Goodhue, Richard D. Green, Dale M. Heien and Philip L. Martin

Agricultural and Resource Economics Update
Vol. 11, No. 4, March/April 2008

University of California
Giannini Foundation of Agricultural Economics

Rachael Goodhue is an associate professor, Richard Green is a professor, Dale Heien is an emeritus professor, and Philip Martin is a professor, all in the Department of Agricultural and Resource Economics at the University of California, Davis.

Supported in part by the Agricultural Marketing Resource Center

Current Economic Trends in the California Wine Industry

Rachael E. Goodhue, Richard D. Green, Dale M. Heien, and Philip L. Martin

California's wine industry continues to evolve. The number of wine grape growers is growing slowly but the number of wineries has doubled in the past decade. Like other food-sector firms, a combination of economic and marketing forces are encouraging wineries to be either small enough to sell most of their wine directly to consumers or large enough to have clout with distributors and retailers.

Many factors are transforming the California wine industry. Technical innovations in grape growing and wine production are redefining the relationship between winegrapes and the resulting wine. Wine marketing is changing, as is the structure of the wine industry. Consumers are altering their purchasing patterns. This article focuses on three important trends influencing the California wine industry: changes in consumers' purchasing patterns, changes in the international wine market and international wine grape production, and changes in the structure of wine and wine grape production.

Grapes, including winegrapes, table grapes and raisins, were California's second-largest agricultural crop in terms of revenue in 2006, generating 10 percent of the state's $31.4 billion in farm sales. The 2006 wine grape crush of 3.1 million tons was sufficient to make over 2.3 billion bottles of wine. In 2005, the wine grape crush was a record 3.8 million tons; yields averaged eight tons an acre. About 300 million cases or 3.6 billion bottles of wine were sold in the United States in 2006, including 75 million imported cases. About 45 million or 17 percent of the 270 million cases of U.S. wine shipped from U.S. wineries were exported. In 2006, when there were 500,000 acres of winegrapes in California, the average grower price was $547 a ton, making the value of the grapes in an average bottle of California wine $0.75.

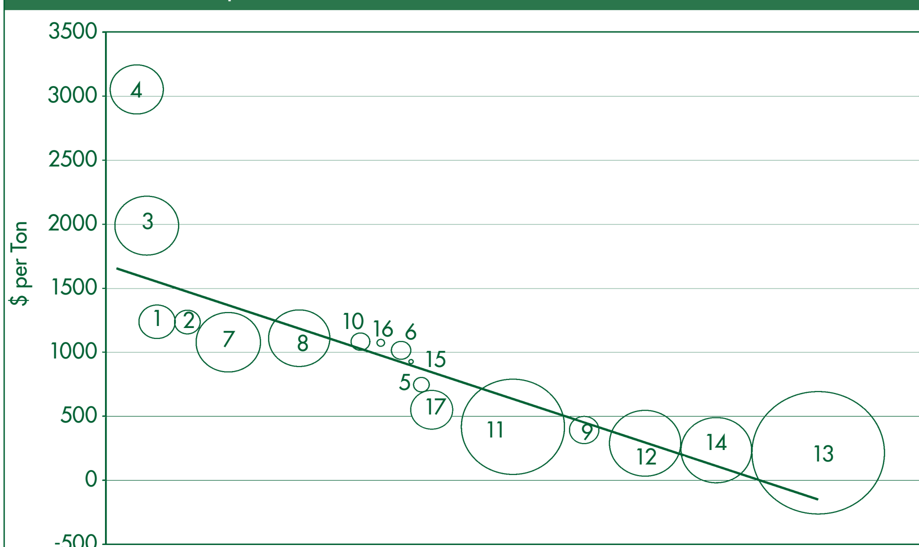
Wine grape acreage, quantities, and prices are reported by the state for seventeen different crush districts, and their diversity is reflected in the total quantities and average prices by district. Table 1 defines each crush district. In 2006, about 30 percent of the state's crush was in the Fresno area, district 13, followed by 18 percent in Stockton area, district 11. Central Valley districts 12 and 14 each accounted for another nine percent of the state's crush, while Napa County accounted for five percent.

The range in prices was wide, from less than $300 a ton in the San Joaquin Valley (making the grapes in a typical bottle worth $0.40), where half of California winegrapes are produced, to

Table 1. Definitions of Crush Districts

Crush District	Counties in Each District
1	Mendocino
2	Lake
3	Sonoma
4	Napa
5	Solano
6	Contra Costa, Alameda, Santa Clara, San Mateo, Santa Cruz
7	Monterey, San Benito
8	San Luis Obispo, Santa Barbara, Ventura
9	Del Norte, Siskiyou, Modoc, Lassen, Humboldt, Trinity, Shasta, Tehama, Glenn, Butte, Plumas, Colusa, Sutter, Yuba, Sierra, and northern parts of Yolo and Sacramento counties
10	Nevada, Placer, El Dorado, Amador, Calaveras, Tuolumne, and Mariposa
11	Includes northern part of San Joaquin and southern part of Sacramento
12	Includes southern part of San Joaquin
13	Includes northern part of Kings and Tulare
14	Includes southern part of Kings and Tulare
15	Los Angeles and San Bernardino
16	Riverside, Orange, Imperial, and San Diego
17	Includes southern part of Yolo and southwestern part of Sacramento

Figure 1. Price per Ton by Crush District, 2006
(Size of bubble represents tons crushed)



Source: Crush Report

over $3,000 a ton in the Napa Valley ($4 a bottle). Few other commodities have 10-1 differences in grower prices, and even wider retail price differences. Figure 1 plots the average price per ton of winegrapes by district on the vertical axis, and arrays crush districts from the highest average price per ton (Napa County, district 4) to the lowest (Fresno area, district 13). The size of each bubble represents the tons crushed in the district.

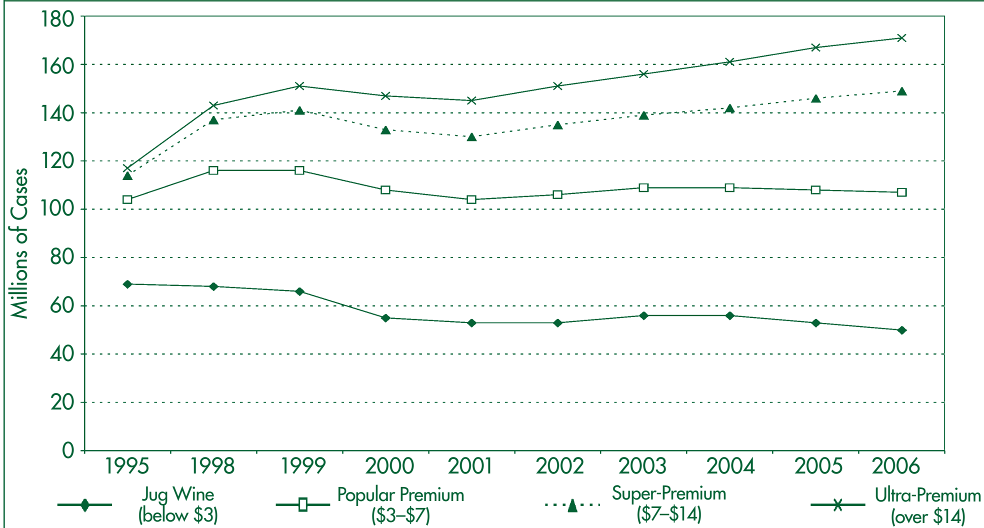
Consumption: Better Wine, and More of It

Americans drink relatively little wine, on average 2.4 gallons or 12 bottles a year, which is a tenth of what adults in France or Italy drink. Furthermore, U.S. wine consumption is concentrated among regular wine drinkers. The 30 million Americans who drink wine regularly drink 90 percent of the wine consumed in the United States, an average of 12 gallons or 60 bottles a year.

There have been three important changes in U.S. wine consumption over the past two decades. First, Americans upgraded their palettes, with many moving from inexpensive jug wines with retail prices of less than $3 a bottle to better-quality wines costing more, including popular-premium wines costing $3 to $7 a bottle, super-premium wines costing $7 to $14 a bottle, and ultra-premium wines costing over $14 a bottle. Second, consumers everywhere have come to appreciate the quality of California wine, and more Americans are drinking especially red wine for health reasons. Third, Americans increasingly prefer the consistent taste of fruity wines produced in New World California, Argentina, Australia, Chile, and New Zealand to the "mystery in every bottle" wines from Old World Europe.

The industry uses four retail price categories, based on a 750 ml bottle, to classify wine. Figure 2 reports millions of cases sold for each category.

Figure 2. U.S. Wine Sales by Retail Price Category: 1995–2006



Source: Selected Gomberg-Fredrickson Reports. Retail prices for a 750 ml bottle.

The volumes are "stacked," so that the top line, labeled Ultra-Premium, reports total sales volume. Ultra-Premium sales volume is the difference between this line and the line below, labeled Super-Premium. Figure 3 reports sales in each category as a percentage of total wine sales. Consequently, unlike Figure 2, the effect of growth in total wine sales on sales in individual price categories is not observed. Together, the two figures show that total wine sales have increased in the United States, and that most of the gain has come in higher-priced categories. Sales of the cheapest category, jug wine, have declined in absolute volume as well as a percentage of total sales.

Only the volume of wine sold in each category is reported, not the revenue obtained. We used the average retail price of a bottle of wine in each of the categories (assuming $18 for the ultra-premium category, $2 for the jug wine category, and the midpoints for the other categories) to estimate nominal revenue, $5.6 billion in 1995, $10.7 billion in 2000, and $14.6 billion in 2007 (Table 2).

Prices rose over this period (the Consumer Price Index rose from 163 in 1998 to 201 in 2006; an increase of

Figure 3. Percentage of U.S. Wine Sales in Each Retail Price Category: 1995–2006

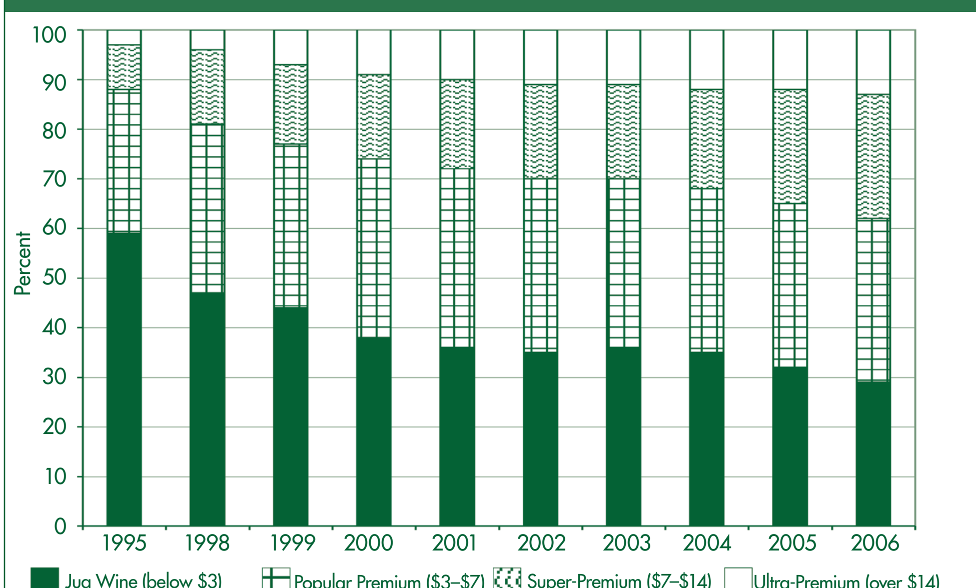


Table 2. U.S. Wine Revenues by Price Categories, 1995-2006

Wine Category	Retail Price	1995	1998	1999	2000	2001	2002	2003	2004	2005	2006
Wine Category		Implied Revenue ($millions)									
Ultra-Premium	Over $14	648	1,188	2,182	3,110	3,197	3,413	3,694	4,061	4,428	4,752
Super-Premium	$7 to $14	1,273	2,696	3,087	3,087	3,326	3,604	3,780	4,108	4,738	5,292
Pop.-Premium	$3 to $7	2,070	2,886	2,970	3,156	3,078	3,168	3,150	3,180	3,270	3,396
Jug Wine	Below $3	1,666	1,627	1,577	1,320	1,262	1,262	1,351	1,334	1,260	1,205
Total		5,656	8,398	9,815	10,673	10,864	11,447	11,975	12,683	13,696	14,645
Wine Category		Revenue Shares (Nominal)									
Ultra-Premium	Over $14	11%	14%	22%	29%	29%	30%	31%	32%	32%	32%
Super-Premium	$7 to $14	22%	32%	31%	29%	31%	31%	32%	32%	35%	36%
Pop.-Premium	$3 to $7	37%	34%	30%	30%	28%	28%	26%	25%	24%	23%
Jug Wine	Below $3	29%	19%	16%	12%	12%	11%	11%	11%	9%	8%
Total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Selected Gomberg Fredrickson Reports and authors' calculations.

24 percent), so some of the increases in wine revenues were due to inflation. In order to assess the changes in volume reported in Figure 2, we corrected for inflation by calculating the Paasche and Laspeyres price indices since 1995, finding that wine prices declined 7.5 percent (Paasche) to 6.3 percent (Laspeyres), meaning that inflation-adjusted wine prices decreased. This decline may be one reason that consumers upgraded the quality of the wine they bought.

Health considerations may also have contributed to increased wine sales. The well-known "French Paradox," first popularized by the television program *60 Minutes* in 1991, posits that the moderate consumption of red wine by the French tends to offset the negative effects of their high-fat diet, leading to a lower heart disease rate than in the United States. This positive effect of wine on health may have encouraged American consumers to buy more wine.

New World, Old World: Taste, Production, and Trade

The quality of California wines was recognized during the Paris surprise of May 24, 1976. On that day, French experts in a blind tasting in Paris ranked Stag's Leap Cabernet Sauvignon and Chateau Montelena Chardonnay the best red and white wines, encouraging Americans interested in food and wine to drink more California wines.

Many Americans seem to prefer the New World style of wine making, from California, Chile, Australia, to Old World European wines. New World wine producers aim for a consistent taste across vintages of a wine made from one variety of grapes. This taste is often described as fresh and fruity, with an alcohol level of 13-14 percent, rather than the 11-12 percent common in European countries that receive less sun. New World wineries that blend several varieties of grapes usually include the percentage of each.

Old World European producers in France, Italy, and Spain have a different winemaking style. Winemakers emphasize "terroir," meaning that the wine reflects the soil and weather where the grapes were grown, so that different vintages can have very different tastes. Many Old World wines need to be cellared to attain their full potential, which means they should not be drunk right away, even though the vast majority of wine drunk in the United States is consumed soon after purchase. Most Old World wines are blends of several varieties of grapes, and are often sold with a geographic indicator (e.g., Burgundy). American consumers are often unfamiliar with these names, so they typically select a New World varietal wine rather than an Old World "mystery in a bottle."

Differences in wine styles are in part due to differences in production techniques and the role of the government in the wine industry. New World wineries are often vertically integrated, growing some of their own grapes or controlling and influencing grape growing practices with formal or informal contracts (See *ARE Update* Vol. 3 No. 3 for the results of a study regarding contract use in the California wine grape industry). In the Old World, there are many small grape growers, and in many areas cooperatives crush locally grown grapes. Under the traditional geographic indicator systems, long lists of rules govern how grapes are grown and wine is made. Greater flexibility in the choice of production techniques, including irrigation, means that yields are much higher in the New World than the Old World.

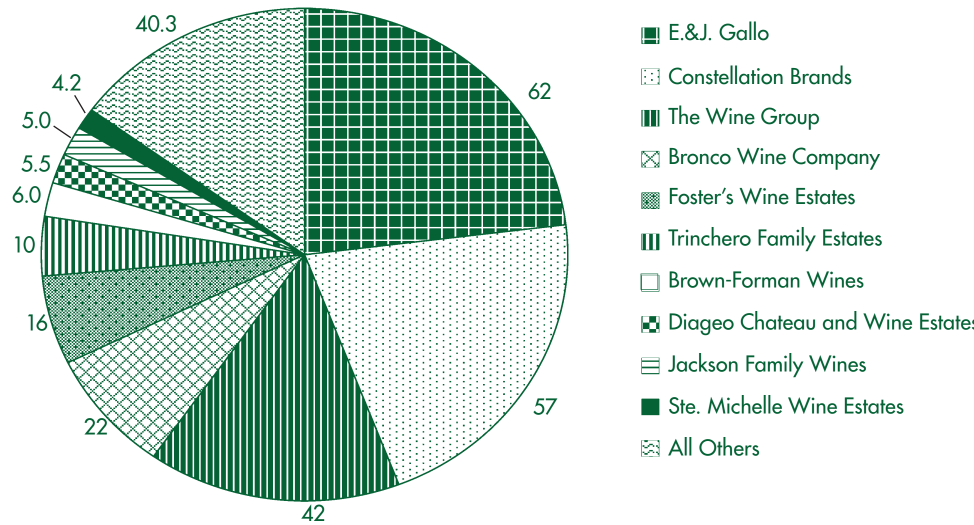
The European Union has taken steps to improve the competitive position of its members' wine industries, largely by subsidizing the removal of wine grape acreage that produces low-quality wines, much of which is distilled into industrial alcohol. The European Commission has proposed a loosening of rules regarding grape growing and winemaking, and allowing for the simplification of wine labels. Some European growers and winemakers have opted out of the traditional system and begun to produce varietal wines using New World techniques.

Trade plays a very important role in the world wine industry. Of the 300 million cases of wine sold in the United States in 2006, about a quarter were imported. Of the 270 million cases of U.S. wine shipped from U.S. wineries in 2006, about 45 million cases (17 percent) were exported.

The leading source of wine imported to the United States has shifted from the Old to the New World—imports in 2006 were as likely to be from Australia as Italy. Imported wines are particularly important at lower price points: 40 percent of wine sold for less than $10 per bottle retail is imported, reflecting the popularity of brands such as Yellow Tail from Australia. Bulk imports are also important, although invisible to the final consumer. The United States allows wineries to blend up to 25 percent foreign wine with local wine and label it as local, e.g., California wine.

Developments in other countries may affect the competitive position of California's wine industry. Australia and Chile produce disproportionate shares of the world's wine relative to their populations, encouraging exports. China is a great unknown. The acreage of winegrapes is increasing, and more local production may increase interest in wine drinking, opening the door for imports. However, if local production leads to wine that can be sold abroad, China could become a major exporter. The two possibilities are not mutually exclusive, of course, and the net impact is uncertain.

Figure 4. U.S. Wine Shipments for Top Ten Firms and All Others (millions of cases): 2006



Source: Penn 2007

Structure of the California Wine Industry: A Special Case in U.S. Agriculture?

The California wine grape industry is different from much of U.S. agriculture, reflecting the heterogeneity of wine and the wide range of distribution channels. There is a wide variation in farm gate prices, in the price of wine, and in the farmer's share of the retail wine prices. Equally important is the wide variation in the grower's share of the retail price of wine—integrated grower-winery operations that sell much of their wine to tasting customers receive far more of the average retail price than those growers who sell to wineries who sell to distributors and then to retailers. Unlike products such as corn or wheat, wines vary by grape variety, location, and other factors.

The U.S. food system is marked by fewer and larger farms producing food and fiber, and a similar consolidation in firms that pack and process farm commodities. The total number of U.S. farms, defined as places that normally sell farm commodities of $1,000 or more, has remained steady, but the largest five percent account for an increasing share of the value of total production—almost two-thirds.

The California wine and wine grape industry is different. The number of wine grape growers has increased slightly to almost 5,000 in the past decade, consistent with the stable number of U.S. farms, while the number of wineries doubled to 2,900, the opposite of the general consolidation trend in food processing. However, within the winery sector, there is significant consolidation.

The largest California wineries have long accounted for most wine shipments. Consolidation is often measured by the share of total sales accounted for by the largest firms in the industry. The two largest California wineries have accounted for about 45 percent of wine shipments over the past 15 years, the four largest 60 to 65 percent, and the eight largest 75 percent. Total wine shipments have increased almost 60 percent since 1990, meaning that the largest wineries are shipping more wine despite a stable market share.

California accounts for about 90 percent of U.S. wine production, and the U.S. industry is slightly more concentrated than the California industry. Figure 4 shows that the top three wineries accounted for nearly 60 percent of total wine shipments, and the top ten 85 percent of total shipments.

An important part of the large firms' recipe for success is their ability to offer distributors and large retailers a range of labels at different price points, including U.S.-produced wine and imports. E&J Gallo, the largest winery by sales volume, offers brands ranging from jug wines such as Peter Vella, to fighting varietals such as Turning Leaf, to premium offerings under the Gallo Family Estate label. Gallo also owns the French label Red Bicyclette and distributes the Australian label Black Swan.

Many wineries have grown through acquisitions, several of which are motivated by the quest for more labels or brands. Many wineries also introduce new labels—the number of wine labels is increasing much faster than total wine sales. Over 500 new wine labels were introduced in U.S. supermarkets in 2005, up from 300 the year

Grapes, including winegrapes, tablegrapes and raisins, were California's second-largest agricultural crop in terms of revenue in 2006, generating 10 percent of the state's $31.4 billion in farm sales.

before, bringing the number of active wine brands in supermarkets to 3,000. As a result, the average number of cases sold per label has been declining toward an average 20,000 a year. (www.winebusiness.com/SalesMarketing/webarticle.cfm?dataId=42402.)

Smaller California wineries, and similar wineries throughout the United States, often aim to sell three-quarters or more of their wine directly to consumers, many of whom visit the winery to taste the wine. Small wineries are often defined as those that sell less than 10,000 cases a year, and direct sales eliminate distributor and retailer markups as well as winery-incurred shipping costs. Many wineries have loyalty clubs that ship wine directly to consumers and invite club members to special winery events and offer them discounts on additional wine purchases. One parallel is community-supported agriculture, whereby consumers receive a share of a farm's production on a regular basis for a fee.

Mid-size wineries face challenges. Just as grower-packers who are too large to depend on direct-to-consumer sales, but too small to attract the attention of major distributors or retailers, wineries in the middle between direct sales and multiple labels and marketing clout may have to seek a new business model. Mid-size wineries could shrink and follow the small-producer strategy, grow and follow a large-producer strategy, or become part of a large producer's brand portfolio via mergers and acquisitions.

The Future of California Wine

In many ways, wine is a California success story. The state's wine has gained consumer recognition for its quality and introduced new production and marketing techniques that have contributed to its success and have spread to other New World producers. Larger wineries are developing a portfolio of brands through growth and acquisitions, while smaller wineries are fine-tuning strategies that involve direct sales to consumers. Mid-size wineries may be squeezed in this emerging wine marketplace.

The California wine industry cannot be complacent. It faces challenges that include more competition from other imports and other American wine producers, but the growing reputation for quality, the increasing willingness of consumers to pay for higher quality, and the wine industry's ability to innovate bode well for its success.

Rachael Goodhue is an associate professor, Richard Green is a professor, Dale Heien is an emeritus professor, and Philip Martin is a professor, all in the Department of Agricultural and Resource Economics at UC Davis. They can be contacted by e-mail at goodhue@primal.ucdavis.edu, green@primal.ucdavis.edu, dmheien@ucdavis.edu, and martin@primal.ucdavis.edu, respectively.

For Additional Information, the Authors Recommend:

CDFA. 2007. Final Grape Crush Report. 2006. www.nass.usda.gov/Statistics_by_State/California/Publications/Grape_Crush/indexgcb.asp.

Goodhue, Rachael, Dale Heien, Hyunok Lee. 2000. Contract Usage in the California Wine Grape Economy. *ARE Update* 3(3):7-9.

Goodhue, Rachael, Richard Green, Dale Heien, and Philip Martin. 2008. California Wine Industry Evolving to Compete in 21st Century. *California Agriculture* 62(1):12-18.

Sumner, Daniel A, Helene Bombrun, Julian M. Alston, and Dale Heien. 2001. An Economic Survey of the Wine and Wine Grape Industry in the United States and Canada. http://aic.ucdavis.edu/research1/Winegrape.pdf.

Wine Institute. Industry Background & Statistics. www.wineinstitute.org/communications/statistics/#econ_industry.