AMERICAN ASSOCIATION OF WINE ECONOMISTS

AAWE WORKING PAPER
No. 14

Editor
Victor Ginsburgh

CEAGO VINEGARDEN: HOW GREEN IS YOUR WINE? ENVIRONMENTAL DIFFERENTIATION STRATEGY THROUGH ECO-LABELS

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March 2008

www.wine-economics.org

Ceago Vinegarden: How green is your wine?
Environmental differentiation strategy through Eco-labels

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Our mission is to craft small lots of wine made from estate grown organic and biodynamic grapes using the best of old and new world winemaking techniques.

- *Ceago Vineyard Mission Statement*

1. Introduction

As the sun began to set over the water, Jim Fetzer sipped a glass of his Kathleen's Vineyards Sauvignon Blanc 2005. The wine was one the first vintages of his newly established Ceago winery, located on the shores of Clear Lake in Lake County, California. While drinking in the breathtaking view, Jim was also enjoying the wine. The wines rich aromas of juicy apricot and peach were coupled with wonderfully light undertones of vanilla oak spice. He was very proud of the wine's recent recognition in the winemaking world. However, Jim's appreciation for the wine went beyond the taste. Wine production at Ceago was executed with great care and respect for the environment. Ceago Vinegarden was a certified biodynamic agricultural enterprise. Farms and vineyards that are certified biodynamic follow strict guidelines to ensure the sustainability of their growing and production practices.

Jim was a passionate advocate for the environment. He spent all his life making wine and promoting sustainable wine practices. Though he was convinced that sustainable practices produce better quality wine, he was not sure how to communicate his passion to his customers. Jim recently reviewed the results of a survey on wine customers' perceptions of organic and biodynamic wines. Unfortunately, the survey revealed that few customers understood the true meaning behind organic and biodynamic eco-labels. Was communication through eco-labeling the best strategy? Also, in an increasingly competitive industry, was there any room for a differentiation strategy based on sustainable wine practices? Jim was also contemplating expansion of his Vinegarden into an agri-tourism venture, where he could invite people to his vineyard and communicate

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the magic and the benefits of sustainable farming. Would expanding the business to include agri-tourism help Jim to promote biodynamic wine making and Ceago's mission?

2. Ceago's history

Jim Fetzer's long history in the wine industry began when his father Bernard bought the first family vineyard in Mendocino County's Redwood Valley in 1958. Jim grew up with his ten brothers and sisters living and working in vineyards of Mendocino County. The family built Fetzer wines into an internationally recognized and respected winery. In 1984, the Fetzers bought the Valley Oaks Ranch to develop an entertainment and educational food and wine center focused on sustainable practices, starting with a 5-acre organic garden. By 1990, all 2000 acres of the Valley Oaks Ranch were organic. Additionally, Fetzer Vineyards launched *Bonterra* wines in 1990. Divided into an independent brand in 1996, *Bonterra* wines are produced from 100% organically grown and certified grapes. Though the Valley Oaks Ranch and *Bonterra* label remained separate from the main Fetzer label and operations, but the Fetzer name became synonymous with organic farming and ecological business practices.

In 1992, Fetzer was producing two and a half million cases of wine when the 11 Fetzer siblings decided to sell the Fetzer Vineyards brand to Brown-Forman, a Kentucky liquor conglomerate, for a reported $80 million. In addition to the Fetzer brand, Brown-Forman accumulated acres of valuable vineyard property. Vineyard land has traditionally been very expensive and reached its peak in 2000 at $50,000 to $180,000 per acre. Though land value has been more stable in recent years, the value of vineyard land is driven by market demand and is not always tied to the income-producing potential of the property.[4]

As part of the agreement, the siblings were prohibited from producing any kind of beverage for sale for eight years after the sale. Additionally, the Fetzer clan gave up the right to brand any future products with the Fetzer name.

However, when the non-compete agreement expired in 2000, Jim Fetzer, along with three of his siblings, launched their own wineries. John Fetzer created Saracina winery and makes about 1,500 cases of year, Patti Fetzer established Patianna Vineyard that makes about 4,000 cases a year, and Dan Fetzer produces about 5,000 cases per year at Jeriko Estates.

Jim launched the largest venture. In 2001, he purchased 163 acres of a front lake property in Lake County California and established Ceago del Lago (Appendix I, Picture 1). Ceago is derived from a Pomo Indian word meaning "grass seed valley". Ceago del Lago occupies the valleys the Indians once called home. The property is located between the towns of Nice and Lucerne on the shores of Clear Lake, the largest natural lake in the state of California and second oldest lake in the world. It is located approximately 90 minutes northwest of Sacramento and 90 minutes northeast of San Francisco. The lake stretches nearly twenty miles in length with over 100 miles of shoreline.

Jim has invested more than $6 million planting vineyards, olive trees, lavender, fig, wheat, and walnuts and constructing a 40,000 square foot farm center (Picture 2). The

[4] Bryant, Dan. (2004). *Appraisers see California land values steady to little increase.* Western Farm Press.

center includes a tasting room, a shop filled with local crafts, arts, local agricultural products for sale and features local chefs and their foodstuffs. Jim also plans to organize a self-guided tour for visitors and construct educational stations throughout the vineyard.

At Ceago, Jim transformed everything learned from his dad and forty years in the wine business to a new level of farming. Bernard Fetzer believed that the first step in winemaking is growing grapes. Jim was similarly committed to growing high quality grapes. However, one day almost three decades ago, Jim noticed the birds had stopped singing in his Redwood Valley vineyard. He realized "There were no more weeds, but there were no more meadowlarks, no snakes, no spiders [and] the quiet was eerie."[5] Fetzer began experimenting with biodynamic agriculture: an advanced organic farming system that conceives the farm as organism, a self-contained entity. Biodynamic farming techniques utilize a farm's natural resources to cultivate the highest quality crops without the use of pesticides, synthetic fertilizers or genetically modified organisms. In addition to organic practices such as crop rotation and composting, biodynamic farming uses special plant, animal and mineral preparations and the rhythmic influences of the sun, moon and planets. Jim found that biodynamic practices improved the taste of its organic fruits and vegetables and decided to expand these ideas to his vineyard.

Since that day, Jim is committed to growing grapes and producing high quality wine by using biodynamic farming and production practices. The vineyards at Ceago include habitat breaks to increase farm biodiversity and wild animals like turkeys, deer, and coyotes roam the dynamic and healthy farm ecosystem. The vineyard also utilizes domestic animals to help with maintenance and pest control. A herd of sheep grazes and maintains seasonal cover crops and a group of chickens feast on the cutworms and other creatures that would normally be detrimental to the vines. Additionally, the winemaking team at Ceago conforms to the biodynamic growing calendar and uses homeopathic crop sprays to enhance healthy vine growth. Ceago is certified organic and biodynamic by the Demeter Association.

Jim is not alone in his quest for sustainable wine agriculture and production. He is one of 22 other certified biodynamic vineyards in North America. In fact, many of his family members have joined him in biodynamic certification. In addition to Ceago, both Patianna and Jeriko vineyards and the rest of his wine-growing family concentrate on producing the highest quality grapes by utilizing organic and biodynamic farming methods.

Biodynamic agriculture is more labor intensive than conventional farming methods because it requires more attention to details. However, Jim thinks he can eliminate some of the extra work by using Geographic Information Systems (GIS) technologies. Jim hired Josh Metz, founder of Geovine (www.geovine.com), a small geospatial technology firm, to set up a web of environmental sensors that monitor soil moisture, light, ambient air temperature, and other factors. The sensors wirelessly transmit information to a central database that allows vineyard managers to oversee the condition of the soil and vines at any given time. Such information is vital in determining the irrigation schedule

[5] Corie Brown. (2004). *Three with vision. An importer, a critic and a grower are pushing wine's limits.* Los Angeles Times August 11, 2004.

and is also used to evaluate grape maturity and sugar concentration. According to Metz, his job "blend[s] new information technologies and sustainable farming practices to improve crop quality, operating efficiency, and environmental performance for winegrowers."[6] With such a system in place, Jim can potentially reduce the costs of monitoring his vast vineyard while also improving the efficiency of the vineyards irrigation system.

Five years after the purchase of the lake property, with about 80 planted acres, Ceago winery produces about 8,000 cases per year. The top seller is the Ceago Sauvignon Blanc (3,000 cases), followed by the Chardonnay (1,500 cases), Merlot (1,500 cases), Cabernet (1,000 cases), Syrah Rose (500 cases), and Muscat (500 cases). The price range of wines per bottle is between $18 – 36. The maximum current capacity is 20,000 cases per year and Ceago plans a constant increase in sales of about 2,000 additional cases per year.

Ceago wines are sold at the vineyard tasting room and through distributors. Around 50 % of the sales are through the tasting room at Ceago del Lago, including sales through Ceago's wine club (12-15% of annual sales). Members of the wine club receive 3 shipments of 4 bottles of wine a year. They also receive a 20% discount on wine and are invited to special events at Ceago del Lago. Approximately 45% of the sales are conducted through distributors who sell to either retailers or restaurants. Ceago is targeting retail stores that focus on natural and/or organic foods. For example, Wild Oats has a national program promoting biodynamic wine and distributes Ceago in all their stores nationwide.[7] Additionally, several Whole Foods stores, notably in Arizona and California carry Ceago wines. The remaining 5% of sales are conducted on the internet. Internet sales are expected to increase following the Supreme Court ruling in May 2005 that states cannot prohibit their citizens from buying wine from out-of-state vintners. Previously, 23 states banned direct wine sales from other states, which the Supreme Court ruled constitutionally discriminates against interstate commerce.[8] Now that Ceago is free to ship wine to consumers anywhere in the US, the online market is a promising new unrestricted venue.

3. The US wine industry

The U.S. is the second large wine-producing region in the world after Europe (Table 1, Appendix II). Grapes are the 6th largest agricultural crop in the U.S. with vineyards in more than 40 states.[9] The US wine market is segmented to value, premium, super premium, and ultra premium wines. As can be seen in Table 2, premium wines ($7 and above) accounted for 35 percent of the case volume and 66 percent of winery sales revenues. Everyday wines (priced up to $7) accounted for 65 percent of the volume and

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[6] Francica, Joe. (2006). *GIS in Biodynamic Viticulture: Happy Vines Make Happy Wines.* Location Intelligence http://www.locationintelligence.net/articles/2191.html on June 19, 2006.

[7] http://www.wildoats.com/u/General100728/index.html

[8] Regan, Keith. (2005). *Cross-Border Internet Wine Sales Get High Court Blessing.* E-Commerce Times on May 5, 2005.

[9] Schnepf, R. (2003). *The international wine market: description and selected issues.* Congressional Research Service Report for Congress.

34 percent of the revenues. According to the wine institute, the premium wines have increased their share by 13 percent while the everyday wines decreased their share by 2 percent during 2005.[10]

The world grape production has been increasing in the last decade while demand has stabilized. Since 2000, some regions of the world (like France[11] and Australia[12]) have experienced problems of over production with increased production and decreased wine sales. The competition in the wine market continually increases and countries are looking for creative solutions to maintain their market share. Since wine producers need to make increasingly attractive wines to consumers, they are joining forces with sensory scientists and nutritionists to make their product taste better and benefit the health of consumers.[13]

In the U.S., the sales of wine grew five percent in 2005 to an estimated 703 million gallons valued at $26 billion at retail. Table 3 summarizes the sales volume in the U.S. during 1995 – 2005. However, the U.S. wine export declined 17 percent in value and 16 percent in volume in 2005, compared to 28 percent and 29 percent growth respectively in 2004. The primary reason for the decrease involves a change in European sales. The total U.S. wine exports in 2005 were $658 million with 101 million gallons. Exports to Canada increased 16 percent in 2005 and Japan sales were steady following a significant increase in 2004.[14] Table 4 summarizes the U.S. wine exports during 1995-2005.[15]

4. The California Wine Industry

California accounts for the majority of the US wine production (estimated at 90 percent of U.S. production) with an annual production of 260 million cases.[16] In fact, if California were an independent nation, it would be ranked the 4th largest producer of wine in the world behind France, Italy, and Spain.[17] Table 5 summarizes the percentage of wineries and percentage of production by geographic region in 2004.[18]

With over 1,100 wineries, the wine industry plays an important role in the economy of California (CA). The value of wine grapes sold in 2005 was $2.2 billion and represents

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[10] The Wine Institute. (2006). 2005 Sales Report
http://www.wineinstitute.org/industry/statistics/2006/wine_sales.php

[11] Ray, Joe. (2004). *France's wine crisis.* The Miami Herald.com posted on September 6, 2004.

[12] Grasby, Marion. (2006). *Grape oversupply plunges Aus wine industry into crisis.* The World Today posted on July 5, 2006.

[13] Bisson, Linda et al. (2002). *The present and future of the international wine industry.* NATURE. Vol. 418 pp. 696-699.

[14] The Wine Institute. (2006). 2005 Sales Report
http://www.wineinstitute.org/industry/statistics/2006/wine_sales.php

[15] The Wine Institute. (2006). U.S. Wine Exports Statistics
http://www.wineinstitute.org/industry/exports/2006/docs/ExportsByYear2005.pdf

[16] U.S. treasury's Alcohol and Tobacco Tax and Trade division data

[17] Food and Agriculture Organization of the United Nations. (2005) FAOSTAT data

[18] US Department of Commerce. (2005). *U.S. wine industry outlook.* Office of Health and Consumer Goods
http://www.ita.doc.gov/td/ocg/outlook05_wine.pdf#search='U.S.%20wine%20industry%20sales%202004'

9.3% of the total crop value of CA.[19] The total annual economic impact of the CA wine industry in 2005 was $45.4 billion with a retail value of $16.5 billion. According to the 2005 acreage report, 522,000 acres were used for wine grapes growing in 46 counties around CA.[20] The industry generates nearly 207,500 jobs with annual wages of $7.6 billion.[21]

Wine sales and the number of shipments from CA have increased in the last few years. Table 6 summarizes the CA winery shipments between 1997 and 2005 in millions of gallons. According to the CA Wine Institute, international demand for California wines is still growing. Currently, 18 percent of total production is exported to over 125 countries, and the 10 most important export markets for California wines are the UK, Canada, Germany, Japan, the Netherlands, Switzerland, Ireland, Mexico, Denmark and Belgium.[22]

In the recent years, hundreds of small to mid-size wineries have gained market share at the expense of large wineries in CA and instigate changes in California wine market. According to the Wine Trends 2004 report, in recent years, large wine companies have been consolidating while small and mid-sized wineries have been growing rapidly in numbers.[23] Large wineries (over 1 million cases) controlled 92 percent of the under $8 per bottle market in 2003. However, the market share for large wineries was only 29 percent in 2003 for ultra premium wines (over $15).

5. The Environmental impacts of wine-making

Like any agricultural and food industry, both growing grapes and producing wine create environmental impacts. The different stages of the wine grape cultivation, plus the actual wine making, all contribute to the global impact of the industry (see Appendix III for process schematics).

In the wine grape cultivation stage, soil erosion, toxicity (as a result of pesticides and fertilizers use), and water use are the main environmental concerns. According to the California 2004 Annual Pesticide Use Report, over 23.5 million pounds of pesticides were applied to wine grapes. The four main pesticides used in conventional cultivation include Sulfur, Methyl bromide, Simazine, and Mancozeb. Table 7 provides an example for the quantity in pounds used in 2004 in CA for each of the four pesticides, for different corps.[24] Pesticides degrade the air quality depending on the chemicals used and method

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[19] USDA, NASS, California field office (2005) California Agriculture Overview

[20] USDA, National Agricultural Statistics Service, California Field Office, (2005) California Grape Acreage Report

[21] California Association of Winegrape Growers Web Site (2006), http://www.cawg.org/

[22] CA Wine Institute web site, http://www.california-wine.org/webfront/base.asp?pageid=9

[23] MKF Group, LLP Wine Business Advisors. (2004). *California Wine Growth Accerlerates: Lead by Small Wineries as Large Wineries Lose Market Share.* The Wine Business Center on July 19, 2004. http://www.mkf.com/2005_pdfs/CA_Wine_Growth_Accelerates.pdf

[24] Department of Pesticide Regulation, California Pesticide Information Portal (CalPIP) - web site query

of application. They also affect the soil and water quality when leaching through the soil to bodies of water.

In the wine production and marketing stages, water use, wastewater, and energy are the main concerns. Water is used in the winery for cleaning and sterilizing fermentation tanks, barrels, and the bottling line. Wastewater from wineries is generally added to the domestic sewer system, but more and more wineries now recycle water and use it for irrigation. Remote wineries still use treatment ponds or septic systems. [25] In CA, where there is a constant concern about adequate water supply, usage and efficiency are of special concern.

The Lawrence Berkeley National Laboratory estimates the CA wine industry consumes over 400GWh of electricity per year besides considerable amounts of fuel, LPG, and natural gas. Electricity is mainly used for refrigeration, hot water, compressed air, and pumping. [26]

The environmental impacts of the industry practices are starting to raise concerns among regulators and environmental NGOs. In response to these concerns, the California Association of Winegrape Growers has started a sustainability winegrowing program to promote the adoption of sustainable wine practices in the California Wine industry. "Established in 1974, the California Association of Winegrape Growers (CAWG) is an advocate for farmers, providing leadership on public policies, research and education programs, sustainable farming practices, and trade policy to enhance the California winegrape growing business". [27] The association runs the sustainability winegrowing program (SWP) together with the Wine Institute, and actively promotes the adoption of those principles. The mission of the SWP is to establish voluntary standards of sustainable practices to be adopted and implemented by the majority of the wine community. The program is being implemented through workshops with local growers helping them to assess and improve their practices. Over 1,000 grape growers/ wine makers have participated in the program, and according to a recent report by the Wine Institute. Almost 40 percent of the state annual production is now coming from producers that identify themselves as using sustainable agricultural practices. This means that those producers are committed to reducing energy and water use, minimizing the use of pesticides and fertilizers, and maintaining healthy soil and minimum water and air pollution. In addition to the SWP, some grape growers and wine makers have shifted to fully certify organic or biodynamic practices.

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[25] Baughman, Brown, Brummett, Dramko, Goldstein, and Hooper, (2000), California Winemaking Impact Assessment, Group Project Master Thesis, University of California, Santa Barbara

[26] Lawrence Berkeley National Laboratory, (2005), Best winery guidebook: Benchmarking and energy and water saving tool for the wine industry

[27] California Association of Winegrape Growers Web Site (2006), http://www.cawg.org/index.php?option=com_content&task=view&id=39&Itemid=7

6. Eco-labels

Eco-labels identify a preference for a product or service, within a specific product/service category, based on the environmental impact of the product or service. The two main eco-labels available in the wine industry are organic and biodynamic.

Organic farming is a farming method that prohibits the use of additives or alterations to the natural seed, plant, or animal including, but not limited to: pesticides, chemicals, or genetic modification. Because of increasing interest in the private benefit of organic foods, and the recent law regulating organic labeling, organic farming is become an increasingly viable alternative for farmers across the United States.

The National Organic Standards law was activated on April 21, 2001, requiring any agricultural commodity or product, whether raw or processed, labeled "organic" to be in compliance with the national organic standards by October 21, 2002.

The national organic program [28] standards include regulations for the production, handling, and processing of organically grown agricultural products. Regulations require organic products and operations to be certified by a USDA accredited entity to assure consumers that products marketed as organic meet consistent, uniform standards. Organic certifying agencies can be either State Departments of Agriculture or private certifying agencies. Regulations also prohibit the use of synthetic substances including, but not limited to, genetic engineering, ionizing radiation, and sewage sludge. Production and handling standards address crop production and livestock management requirements.

Additionally, labeling standards were created based on the percentage of organic ingredients in the product:

- "100 percent organic" labeled products must contain only organically produced ingredients and may display the USDA Organic seal.
- "Organic" labeled products must consist of at least 95 percent organically produced ingredients and may display the USDA Organic seal.
- "Made with organic ingredients" labeled products are those that contain at least 70 percent organic ingredients. The principal display panel can list up to three organic ingredients or food groups, however the USDA seal cannot be used anywhere on the package.
- There are currently no restrictions on other labeling claims such as "no drugs or growth hormones", "cage-free", or "sustainably harvested."

It is important to understand the difference between "organically grown grapes" and "organic wine' as well as the role of sulfites in the wine-making process. Because wine harvesting and production requires specific handling and processing methods, the USDA developed explicit regulations regarding sulfite use for organic wine and other alcoholic beverages. Sulfites are a natural byproduct of fermentation and are often added to wine for preservation purposes. Added sulfites are prohibited in 100% organic wines, organic wines (95% organic) and regulated by 7 CFR 205.605 in wines made with organic

[28] The National Organic Program Web Site. (2006). www.ams.usda.gov/nop/indexNet.htm

ingredients. According to the US Department of Agriculture's National Organic Program, an organic wine has been defined as "a wine made from organically grown grapes and without any added sulfites."

The organic certification process can be long and costly (Appendix IV). The applicant must first contact a certifying agency and develop and organic systems plan. After the application has been submitted and reviewed, an inspector will conduct an on-site assessment of the farm or operation. This initial certification process can take months to complete. Additionally, the National Organics Program requires that a certified organic farm cannot have prohibited material three years prior to the first organic crop. Unless a farm has been documenting their organic practices for the years preceding certification, the transition from a traditional farm to an organic farm prohibited lasts for three years. Fees for the organic certification process vary between the size of the farm and the chosen certification agency.

Biodynamic agriculture is a method made popular by Austrian scientist and philosopher Rudolf Steiner in the early 1920's. Derived originally from ancient Greek, biodynamic literally means "like the power of life". This is the key element behind biodynamic philosophies; work with the nature instead of against it.

Often compared to organic agriculture, biodynamic farming is different in a few distinct ways. Biodynamic farming prohibits synthetic pesticides and fertilizers in the same manner as certified organic farming. However, while organic farming methods focus on eliminating pesticides, growth hormones and other additives for the benefit of human health, biodynamic farming emphasizes creating a self-sufficient and healthy ecosystem. A biodynamic farm is managed as a living organism and farming practices are guided by the following six principles: plant diversity, crop rotation, composting, homeopathic fertilizers, animal life, and seasonal and planetary cycles.

In 1928, the Demeter Association was founded in Europe to support and promote biodynamic agriculture. Demeter is the only ecological association that has established a network of over 20 individual certification agencies across the world. The United States Demeter Association[29] certified its first biodynamic farm in 1982.

Demeter certification is awarded to farms and handlers who meet or exceed the minimum standards set by Demeter International. To achieve Demeter certification, a farm must adhere to the following requirements, including: agronomic guidelines, greenhouse management, structural components, livestock guidelines, and post harvest handling and processing procedures (Appendix V).

In addition to the standards required for vineyard agricultural operations, Demeter provides a separate set of winemaking standards. According to Demeter, the quality of wine is in direct relation to the quality of the vineyard producing the grape. Therefore, biodynamic wine is as much dependent on the vineyard site as is traditional wine.

There are two certification alternatives (with separate standards) for biodynamic wine:

- "Biodynamic wine", "Demeter wine", or "Demeter certified wine"

[29] Demeter USA Web Site. (2006). www.demeter-usa.org

- "Wine made from Biodynamic Grapes" or "Wine made from Demeter certified grapes"

"Biodynamic wine" standards are more stringent. Common manipulations such as yeast enzyme, and tannin addition, acidity and sugars adjustment, oaking (with oak flavors and oak wood chips) and chappalization are not permitted. In "Wine made from Biodynamic Grapes", adjustments can be made with non-synthetic, non-genetically engineered substances. In both cases, the use of sulfites is limited to 100 parts per million. Additional requirements for both levels of Demeter certification include: crushing and related equipment use, cleaning, and sterilization, tanking and fermentation, filtering, blending, bottling, corking and sealing. Demeter also requires stringent record-keeping and information documentation.

Biodynamic certification by Demeter Association follows a process similar to organic certification, including application, inspection, and yearly renewal. Because there is currently only one certification entity, the cost for biodynamic certification is uniform. New application fees are $470, renewal fees are $310, and annual inspection costs vary by visit, but average around $500. Farm royalty payments run between 0.5-0.75 % of gross sales (Appendix V). It is important to understand that all biodynamic certified vineyards are also organic certified by definition.

7. Organic and biodynamic wine market

After the national organic standards law was passed, according to the Organic Trade Association 2004 Manufacturer Survey[30], "the U.S. organic industry grew 20% to reach $10.8 billion in consumer sales in 2003. Organic foods, by far the largest and most clearly defined part of the organic industry, grew 20.4% in 2003 and accounted for $10.38 billion in consumer sales (1.9% of total U.S. food sales). Organic wine growing is a growing business but relatively small yet compared to the wine industry in general. According to the California Certified Organic Farmers group[31] (CCOF), there are over 80 organic vineyards in CA, but their production share is still very small; only 8,000 acres out of 520,000 acres are officially certified. This represents 1.5 percent of the state wine grapes acreage.

Biodynamic farming seems to be viewed as "one step" above organic farming practices. Biodynamic wineries use biodynamically grown grapes (that are by definition also organic). The biodynamic market is much smaller than the organic market and most wineries are small scale, family oriented businesses. The Fetzer family is at the core of the biodynamic community and helps spread the adoption of biodynamic practices in the industry. For example, several well known California vintners, like Mike Benziger, have converted to biodynamic farming methods after witnessing the high quality of Fetzers' biodynamically grown grapes. In September of 2006, 22 vineyards were reported to be certified Demeter Biodynamic vineyards in North America.

[30] Organic Trade Association. (2004). The OTA 2004 Manufacturer Survey.

[31] California Certified Organic Farmers (CCOF) Web Site (2006) www.ccof.org

8. Cost of being green

Cost studies suggest that switching from conventional to organic certified winery can add up 10 to 15 percent in cost for the first three to four years.[32] In an article in the San Francisco Chronicle (July 1 2004) author Tom Elkjer noted that "champagne producer jean-Pierre Fleury once said that biodynamic farming increased his workload by 30 percent compared to conventional viticulture." Much of that increase, he said was in "planning, organizing and preparing precisely calibrated natural treatment for its vineyards." [33]

The cost of a wine operation includes both the cost of the vineyard operation and the cost of wine making. The description of the costs of wine production is provided in Appendix VI.

- Cost of growing the grapes (vineyard cost): This cost includes operations, harvest, and any assessment or certification fees. In addition, there is overhead cost for administration, equipment, etc. Typical cost for grape growing is between $2,500 and $4,000 per acre. Harvest cost is between $150 and $175 per ton. Overhead cost is usually the highest and estimated to be between $12,000 and $20,000 per acre depending on the grape variety, and if whether grapes are grown conventionally, organically, or biodynamically (Appendix VI, Table 1, 2).[34] Certification costs vary according to the certifying agency and the type certification (see Appendix IV and V). Some vineyards are also paying dues to be members of local and/or regional associations and it usually sums up to few hundred dollars. In general, the cost of organic wine grape growing is 10% to 15% higher than conventional grapes. It is estimated that the cost of biodynamic grapes growing is 10% to15% higher than organic.
- Cost of the wine making (winery): This cost mainly includes the oak barrels, storage, bottling, labeling, marketing, sales and overhead. The price of an oak barrel can range between $300 and $750, but the barrel is usually used for three seasons before it is being replaced. [35] It is estimated that the total cost of barrel per bottle based on three seasons use is around $1. Red wine requires a longer storage time; it is estimated that in total, this adds up to $0.5 per bottle in cost. [36] The cost of packaging (bottle, cork, label, etc.) is estimated to be between $0.7 and $2 per bottle (Appendix VI, Table 3). Marketing and overhead expenses are estimated in total of $2 to $4 per bottle. Marketing and sales cost can vary based on the distribution channels. Wine sales via the internet have the potential to reduce the cost of sales by 50% because both the

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[32] Silverman, Lanphar (2003), Benziger Family Winery Case Study

[33] Thom Elkjer. 2004 "Biodynamos Cutting-edge vintners put their wines to a taste test" San Francisco Chronicle July 1, 2004.

[34] University of California cooperative extension, UC Davis (2003-2004) Several cost studies, please refer to appendix V for full reference to each study

[35] Hesser, Amanda, (2003) *Why Wine costs what it does*, New York Times News Service, April 12, 2003, downloaded from azcentral.com on 11/10/06

[36] Bergman Euro-National, (2002) *hat does it cost to produce a glass of wine*

distributor and retailers fees are saved. Overhead cost mainly depends on the size of the winery, the age of the winery, the number of employees, etc. It is estimated that overall the cost of wine making is similar for conventional, organic, and biodynamic wine.

Wineries can choose to only produce wine from their own grown grapes, or to purchase additional grapes from external growers. They can also sell excess grapes if some remain after their own wine making process. If the winery purchases grapes from external source, it is more expansive than growing the grapes by itself. It is estimated that the cost is 10% higher in this case. The winery can also sell excess grapes to other wineries. According to a cost study conducted by UC Davis cooperative extension, it is estimated that there is no price premium for organic grown grapes in the market (i.e. organic farmers sell their grapes for the same price as conventional grapes).[37] However, recent trends show that these grapes are being sold faster than regular grapes due to an increase demand for organically grown grapes. Currently, there is no demand for biodynamic grapes. Wine grapes price ranges from $500 to $5,000 per ton depending on the quality and varietals of the grapes.

The average yield per acre for conventional grapes is 5 ton for Cabernet Sauvignon and 6 ton for Chardonnay.[38] For organic and biodynamic grapes, the average yield for all varietals is estimated at 4 ton/acre. One ton of grapes can produce 700 bottles of wine on average. [39]

9. The value of eco-labels

The value of eco-labels in the wine industry is difficult to assess because studies on the potential benefits of sustainable practices on wine quality and health are scarce. Also, eco-labels are relatively new and consumers do not necessarily understand the actual meaning behind the different labels.

Besides the lack of understanding of the potential benefits of sustainable practices on the quality of wine, there is still little research on the impact of eco-wine on health. Historically, wine was considered a necessary component of a healthy diet.[40] The presence of phenolics and tannins in grapes and wine products has dramatic effects on wine flavor, quality and storability. These compounds can also play important roles as antioxidants and cancer preventative agents in humans. In the early 20th century, epidemiologic research reported the moderate wine drinkers had the lowest mortality rates, while heavy drinkers and abstainers had a higher mortality rate. This phenomenon, originally called the “French Paradox” is due to the antioxidant effect associated with

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[37] University of California Cooperative Extension. (2004, 2005). *Sample costs study to produce organic wine grapes.* please refer to appendix V for full reference to each study.

[38] University of California cooperative extension, UC Davis (2003-2005) Several cost studies, please refer to appendix V for full reference to each study.

[39] Hesser, Amanda, (2003) *Why Wine costs what it does*, New York Times News Service, April 12, 2003, downloaded from azcentral.com on 11/10/06.

[40] Goldfinger, Tedd M. (2003). *Beyond the French paradox: the impact of moderate beverage alcohol and wine consumption in the prevention of cardiovascular disease.* Cardiology Clinics. Vol. 21, pp. 449-457.

polyphenolic compounds found in red wines. Additionally, besides antioxidant properties, some components of red wine have proved to have an anticancer effect in terms of initiation, promotion, and progression of cancer cells.[41]

Some initial research has studied the different health effects of traditional wine versus organic wine, though in general there is not much research completed on the topic. Some studies have concluded that there is no discernable difference, but others have yielded opposing results. Miceli et al compared red table wines, controlled denomination of origin (DOC) wines, and wine made from organically grown grapes from the same region in Italy. The study concluded that antioxidant activity was 50% lower in traditional wines compared to DOC and the organic wine. Additionally, the study tested OTA contamination, a toxin often found in cereals, coffee, cocoa, and related food items, that have adverse effects on the immune system. OTA contamination was highly varied across the wines tested, but contamination was significantly lower in the organic wine.

Even less research has been completed on the health effects of biodynamic wine. However, a study published in the American Journal of Enology and Viticulture showed that biodynamic farming methods affect vine health and grape chemistry. Biodynamically grown grapes had significantly higher sugar content and notably higher total phenols than organic grapes.[42]

The results of these studies show that both viticultural and enological practices have important influences on resulting concentrations of tannins and polyphenolics in the subsequent wine products. Further research on the influence of both viticultural and enological practices on phenolic content as it relates to wine quality and human health benefits is currently underway.

A survey conducted at the University of California in 2006 provides insights into wine consumers' familiarity with organic and biodynamic wines. In this survey 400 respondents from California expressed their attitude toward wine eco-labels. While 66% of the respondents were familiar with "organic wine" and 39% had tasted organic wine, only 19% were familiar with the difference between organic wine and organically grown grapes. A small percentage of respondents (17%), were familiar with "wine from biodynamically grown grapes" and only 8% had tasted biodynamic wine. Among the respondents that were familiar with organic wine, the vast majority (76%) had not heard of biodynamic wine.

Concerning the perception of the quality of organic and biodynamic, it varied greatly according to the familiarity of the respondents to those wines. Among the respondents who had tasted organic wine 55% had a positive to very positive opinion of the quality of the wine. Among the respondents who had not tasted organic wine only 31% had a positive opinion of the quality of organic wine. Regarding biodynamic wine, the few that had tasted it had a positive to very positive perception of the quality of the wine. But the

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[41] Miceli, Antonio et al. (2003). *Polyphenols, Resveratrol, Antioxidant Activity and Ochratoxin A Contamination in Red Table Wines, Controlled Denomination of Origin (DOC) Wines and Wines Obtained from Organic Farming.* Journal of Wine Research. Vol. 14, No. 203, pp. 115-120.

[42] Reeve, Jennifer R. et al. (2005). *Soil and Winegrape Quality in Biodynamically and Organically Managed Vineyards.* American Society of Enologists. Vol. 56(4), pp. 367-376.

majority of respondent expressed confusion, unjustified skepticism, or an incorrect perception of biodynamic wine. Interestingly, the majority of respondents who were not familiar with biodynamic wine associated the term with Genetically Modified Organisms or bioengineered products.

The survey also asked respondents were asked how they would like to learn more about wine from biodynamic grown grapes. The following options were ranked as first choices: 22.8% - wine tasting; 19.8% - label on the bottle; 15.1% - tour of vineyard; 13.6% - web site information. These responses indicate that personal experience plays a role in wine consumption.

Because of the lack of clarity on the value-added for wine eco-labels, some wineries currently follow organic and biodynamic practices without being certified. Others become certified but don't provide the information on their bottle label.[43] The most important reason is that growers want to have the flexibility to change their inputs if it becomes necessary to save a crop during bad weather conditions or other pestilence. [44]

Ceago, as mentioned earlier, is certified biodynamic and also publicizes the certification on their wine bottle labels. In fact, in addition to the articles circulating about the beauty of Ceago del Lago, the vineyard is also receiving a great deal of attention from the press because 'biodynamic' is an intriguing, new, and difficult to explain method that provides an interesting story to tell.

10. Eco-tourism

In addition to expanding and promoting biodynamic wine at Ceago Vinegarden, Jim Fetzer also dreams of greening the greater Lake County community. Fetzer's first goal is to expand his tasting room and winemaking facilities into a high-end Wine Country spa and resort that focuses on health, wine, food, recreation, and nature.

Within the next 3-5 years, Fetzer plans to invest $150 million in a 50-room lakeside hotel and spa, 50 nearby cottage-style "casitas" for extended stays, 70 Vineyard Villas, and an organic restaurant and expanded retail establishments in existing structures. Real estate and development has always been a profitable industry in California. In Lake County, the median home price is estimated at $161,000. In fact, the land value of vineyards is usually higher than the potential profit of maintaining agricultural production. Vineyards are, in many ways, sitting on real estate gold. As such, the development will offer whole and fractional ownership opportunities to interested parties. Some small hotels and bed and breakfast establishments are located in Lake County, but Ceago del Lago with be one of the first high-end resorts in the area.

Expanding Ceago Del Lago will not only expand the winemaking business and increase profits through real estate sales, but it will also jumpstart ecotourism in rural Lake County. While almost 15 million people visit California wineries, spending $1.3 billion

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[43] Rauber Chris, (2006) *Winemakers go organic in bottle but not on label*, San Francisco Business Times, October 22, 2006

[44] Wine Institute of California, Eco-friendly winemaking web page (2006), http://www.california-wine.org/webfront/base.asp?pageid=15

in tourism activities[45], very few stop in Lake County. On account of its topography and natural beauties, Lake County is sometimes referred to as the Switzerland of America. However, the wine tourists tend to overlook this fourth member of the north coast appellation and prefer touring in Napa, Sonoma or Mendocino counties. Lake County lacks the critical mass of wineries since there are only six vineyard tasting rooms in Lake County. Fetzer believes the development will "set new standards for quality development in Lake County, while creating a new model for agro-tourism in Wine Country". Fetzer's five-year expansion project was just approved by Lake County supervisors in April 2006. The project was seen very positively because of the environmental consciousness of Jim and was praised for its potential economic benefits to the community. The General Plan of Development for the Ceago Del Lago Resort & Spa received unanimous approval by the Lake County Planning Commission and Board of Supervisors as well as vocal support from the Farm Bureau and the Sierra Club.

Jim Fetzer drained the last drop of wine from his glass and gazed at the full moon now illuminating the night sky. He was faced with many choices. He had to decide whether or not it made business sense to pursue the biodynamic route and most specifically how to improve the perception of organic and biodynamic wine to consumers. Jim Fetzer's commitment to the environment and sustainable agriculture was steadfast, but he wanted to find out how to entice his customers and general wine consumers to identify with his commitment and make it their own.

[45] CA Association of winegrape growers. (2002). Industry overview

Appendix I: Pictures of Ceago Del Lago

Picture 1: Vineyards at Ceago Del Lago

Picture 2: Tasting room and visitor center.

Appendix II: Wine Industry Data

Table 1: Worldwide wine production year 2002

	Production in million HL (hectoliters) 2002	Worldwide Market Share
EU[46]	168.5	60.6%
USA	25.4	9.1%
Argentina	13.8	5.0%
China	10.6	3.8%
Australia	9.5	3.4%
South Africa	7.7	2.8%
Chile	5.7	2.1%
Other	38.8	14%
Worldwide	**278**	

Source: The international wine market: description and selected issues. Report for Congress.

Table 2: CA shipments per price segment

Retail Price	**Price Segment**	**Nine-Liter Cases Sold (Millions)**	**Percent of Total**	**Winery Sales Revenues ($ Millions)**	**Percent of Total**
Over $14	Ultra-premium	20.5	12%	$2,640	35%
$7 up to $14	Super-premium	37.6	23%	$2,350	31%
$3 up to $7	Popular Premium	54.5	33%	$1,740	23%
$2 to $3	Extreme Value Wines	6.6	4%	$120	2%
Below $3	Jug Wine	45.9	28%	$730	9%
Total		165.1	100%	$7,580	100%

Source: The Wine Institute, 2005 Sales Report

[46] France, Italy, and Spain account for 85% of the EU production

Table 3: U.S. Sales Volume 1995-2005

Year	**Total Wine Volume** (million gallons)	**Total Retail Value**
Estimated 2005	703	$26.0 billion
2004	667	$23.9 billion
2003	640	$22.2 billion
2002	612	$21.6 billion
2001	572	$20.2 billion
2000	570	$19.3 billion
1999	543	$18.1 billion
1998	526	$17.0 billion
1997	519	$16.1 billion
1996	500	$14.3 billion
1995	464	$12.2 billion

Source: The Wine Institute, 2005 Sales Report

Table 4: U.S. Wine Export

Year	Volume (million gallons)	Value (million dollars)
2005	102.5*	$672*
2004	118.8	$794
2003	92.3	$621
2002	74.5	$549
2001	80.3	$541
2000	77.7	$547
1999	75.4	$578
1998	71.9	$537
1997	60	$425
1996	47.5	$326
1995	38.8	$241

**Preliminary estimate*

Source: The Wine Institute, US Wine export report

Table 5: percentage of wineries and percentage of production by geographic region in 2004

Region	% of wineries	% of total production
Northeast	11.8	5.8
Southeast	7.9	0.8
Great Lakes	9.0	0.06
Midwest	6.8	005
Rocky Mountains	3.4	0.02
California	45.3	89.3
Northwest	15.8	3.6
Total	100	99.63*

*Total does not reach 100% due to incomplete state data

Source: US Department of Commerce. (2005). *U.S. wine industry outlook*

Table 6: CA wine shipments

Year	**California Winery Shipments to All Markets in the U.S. and Abroad (**millions of gallons)	**California Winery Shipments to the U.S. Market (**millions of gallons)
2005	532.4	441
2004	521.7	428
2003	493.5	417
2002	464.3	401
2001	449.1	387
2000	445.9	392
1999	443.1	397
1998	432.5	385
1997	423.1	384

Source: The Wine Institute, 2005 Sales Report

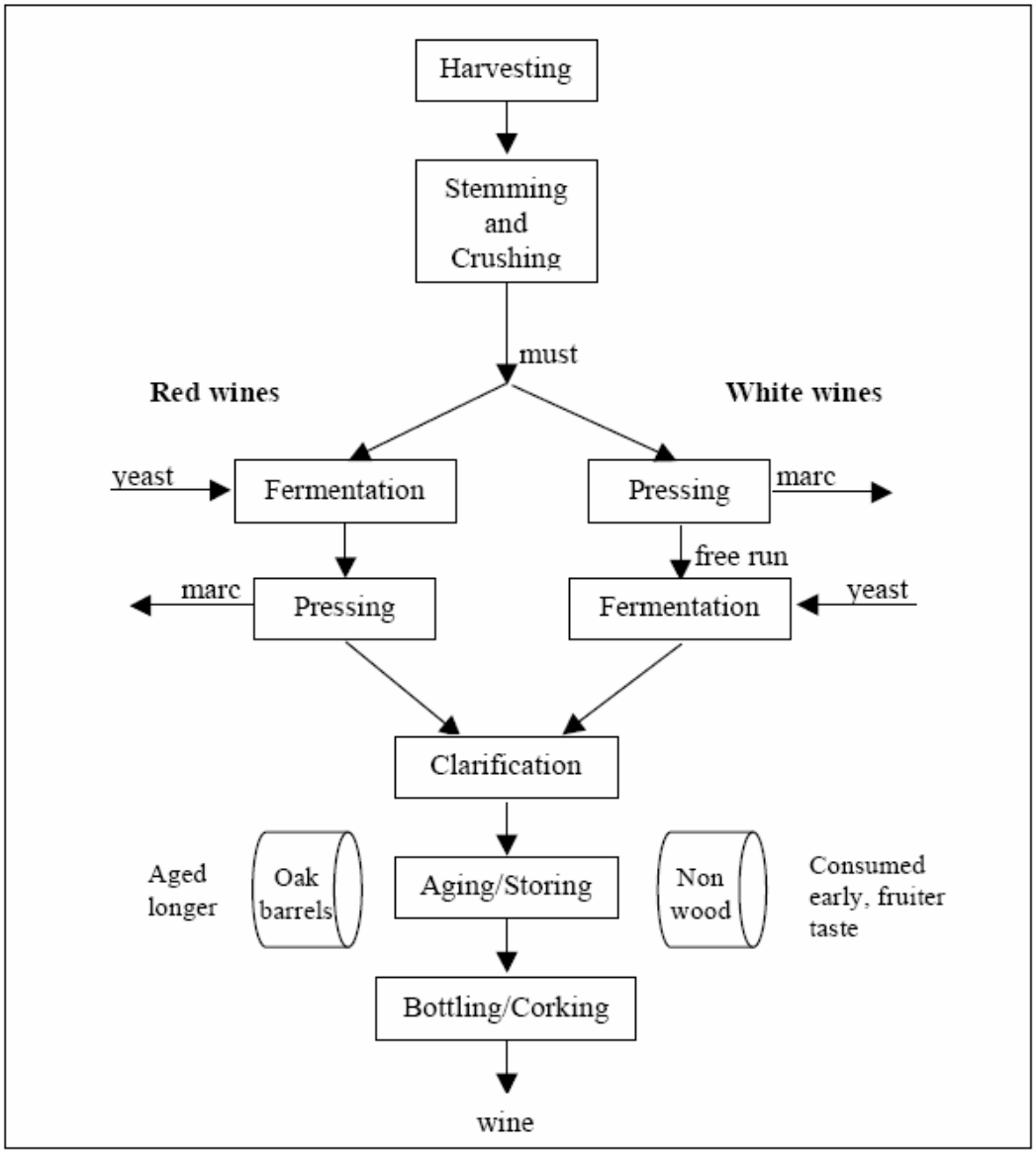
Table 7: Pesticides use in CA, 2004

	MANCOZEB	METHYL BROMIDE	SIMAZINE	SULFUR
Grapes	45,646	6,500	207,275	21,981,106
Tomato	27,678	319,662	-	757,991
Almond	-	114,188	141,185	296,382
Orange	-	9,400	236,820	47,320
Walnut	-	244,415	93,246	98

Source: California Pesticide Information Portal (CalPIP)

Appendix III: Wine making process

Wine making process



Source: Lawrence Berkeley National Laboratory, (2005)
Best winery guidebook: Benchmarking and energy and water saving tool for the wine industry

Description of Wine making process (white, red, and sparkling)

Source: http://www.manick.com/Wine/Winemaking.html

In general, the winemaking process is comprised of the following processes: growing (vineyard management), harvesting, crushing, pressing, fermentation, aging and finishing. We include the growing phase since many winemakers are now intimately involved in the grape growing (viniculture) process, although this is not always the case.

Depending on the grape variety and the growing season, grapes usually ripen in late August to early October. After the winemaker determines that the fruit exhibits the appropriate characteristics (sugars, acids, etc.) and optimum flavors, little time is wasted in harvesting the grapes. The grapes are harvested and loaded into bins that are trucked to the winery in a short amount of time. Often the winemaker will separate the best grapes from the best vineyards to be used in the production of "vineyard specific" or premium wines.

Once the fruit is at the winery, the production of white, blush and red wines differ.

White Wine Production Source: http://www.manick.com/Wine/Winemaking.html

At the winery, grapes are usually loaded into crusher/destemmers that remove the stems and gently break the skins of the grapes. The juice that emerges from this process is called free-run. Presses will gently extract the remaining juice, usually by way of large bladders that are filled with air. The juice is immediately removed from the skins and seeds, and is pumped into large fermentation tanks made of stainless steel or oak. .

The winemaker will normally add a cultured yeast to the juice within the fermentation tanks. The yeast initiates the fermentation process as it eventually turns the natural sugars into carbon dioxide and alcohol. The fermentation process is normally halted in the production of white wines so that some sugar remains in the finished wine.

Some white wines undergo a second fermentation called malolactic fermentation, which converts the malic acid in the wine to lactic acid. This helps to soften the wine and generally provides buttery or toasty flavors to the wine.

Following fermentation, wines that are to be barrel-aged are poured into wooden barrels for aging. Most barrels contain 60 gallons of wine and are most often made of American, French or Hungarian oak. Depending on the amount of oaky influence desired, new or used barrels may be used and in some cases, oak chips may be added to the barrels. Wines are periodically pumped from one barrel to another so that the solids may be removed from the bottoms of the barrels in a process called racking. While the wine is in the barrels, the winemaker monitors the pH (acidity) of the wine and keeps air out of the barrels by keeping them completely full in a process called topping. Wines that are not aged in oak barrels (generally lighter/sweeter white wines) are moved directly from the steel tanks to bottles.

After months of aging in barrels, the wine is bottled and stored so that the wine may continue to age. Prior to bottling, the winemaker may choose to blend one or more wines of different varietals or vineyards to achieve the desired characteristics and flavors. When the winemaker feels the wine has sufficiently aged, the bottles will be labeled, boxed and shipped to distributors and/or consumers. Contrary to popular belief, some white wines, such as full-bodied Chardonnays and dry Rieslings, will mature in the bottle over time.

Red Wine Production Source: http://www.manick.com/Wine/Winemaking.html

At the winery, grapes are loaded into crusher/destemmers that remove the stems and gently break the skins of the grapes. The fruit is then transferred into large fermentation tanks made of oak or stainless steel. Skins and seeds remain in contact with the juice during the first part of the fermenting process, as the skins are responsible for the deep red color and acidity (tannins) of red wines. Blush wines are allowed to remain in contact with the skins for a limited amount of time before being separated when the desired color is achieved.

The winemaker will normally add a cultured yeast to the juice within the fermentation tanks. The yeast initiates the fermentation process as it eventually turns the natural sugars into carbon dioxide and alcohol. Red wines are allowed to ferment completely so that no residual sugar remains. When the desired characteristics due to skin contact are achieved, the winemaker will draw off wine from the solids, or must, and transfer the must to a press to remove the stems and seeds from the wine. Wine that is drawn off the solids is called free-run wine, while the wine that is extracted in a press is called press wine.

Following fermentation, wines that are to be barrel-aged are poured into wooden barrels for aging. Most barrels contain 60 gallons of wine and are most often made of American, French or Hungarian oak. Depending on the amount of oaky influence desired, new or used barrels may be used and in some cases, oak chips may be added to the barrels. Wines are periodically pumped from one barrel to another so that the solids may be removed from the bottoms of the barrels in a process called racking. While the wine is in the barrels, the winemaker monitors the pH (acidity) of the wine and keeps air out of the barrels by keeping them completely full in a process called topping.

After months, and possibly years, of aging in barrels, the wine is bottled and stored so that the wine may continue to age. Prior to bottling, the winemaker may choose to blend one or more wines of different varietals or vineyards to achieve the desired characteristics and flavors. When the winemaker feels the wine has sufficiently aged, the bottles will be labeled, boxed and shipped to distributors and/or consumers. It should be noted that, when properly stored, some wines (such as Cabernet Sauvignon and other reds) can continue to age within the bottle for many years, largely due to the tannins in the wine.

Source: http://www.manick.com/Wine/Winemaking.html

Appendix IV: Organic Certification Procedures and Cost

Summary of Certification Procedures from the National Organic Program

The U.S. Department of Agriculture (USDA) will accredit State, private, and foreign organizations or persons to become "certifying agents." Certifying agents will certify that production and handling practices meet the national standards.

Who needs to be certified?

Operations or portions of operations that produce or handle agricultural products that are intended to be sold, labeled, or represented as "100 percent organic," "organic," or "made with organic ingredients" or food group(s).

Who does NOT need to be certified?

Farms and handling operations that sell less than $5,000 a year in organic agricultural products. Although exempt from certification, these producers and handlers must abide by the national standards for organic products and may label their products as organic. Handlers, including final retailers, that do not process or repackage products. Handlers that only handle products with less than 70 percent organic ingredients. A handling operation or portion of an operation that is a retail food establishment that processes or prepares, on the premises of the establishment, raw and ready-to-eat food labeled organic. A handling operation that chooses to use the word organic only on the information panel. A handling operation that handles products that are packaged or otherwise enclosed in a container prior to being received by the operation and remain in the same package.

How will farmers and handlers become certified?

An applicant will submit specific information to an accredited certifying agent. Information will include:

Type of operation. History of substances applied to land for the previous 3 years. Organic products being grown, raised, or processed. Applicant's organic plan, which includes practices and substances used in production. The organic plan also must describe the monitoring practices to be performed to verify that the plan is effectively implemented, the record-keeping system, and the practices to prevent commingling of organic and nonorganic products and to prevent contact of products with prohibited substances.

Applicants for certification will have to keep accurate post-certification records for 5 years concerning the production, harvesting, and handling of agricultural products that are to be sold as organic.

These records should document that the operation is in compliance with the regulations and verify the information provided to the certifying agent. Access to these records must be provided to authorized representatives of USDA, including the certifying agent.

Inspection and certification process

Certifying agents will review applications for certification eligibility. A qualified inspector will conduct an on-site inspection of the applicant's operation. Inspections will be scheduled when the inspector can observe the practices used to produce or handle organic products and talk to someone knowledgeable about the operation.

The certifying agent will review the information submitted by the applicant and the inspector's report. If this information shows that the applicant is complying with the relevant standards and requirements, the

certifying agent will grant certification and issue a certificate. Certification will remain in effect until terminated, either voluntarily or through the enforcement process.

Annual inspections will be conducted of each certified operation, and updates of information will be provided annually to the certifying agent in advance of conducting these inspections. Certifying agents must be notified by a producer immediately of any changes affecting an operation's compliance with the regulations, such as application of a prohibited pesticide to a field.

Compliance review and enforcement measures

The rule will permit USDA or the certifying agent to conduct unannounced inspections at any time to adequately enforce the regulations. The Organic Foods Production Act also requires that residue tests be performed to help in enforcement of the regulations. Certifying agents and USDA will conduct residue tests of organically produced products when there is reason to believe that they have been contaminated with prohibited substances. If any detectable residues are present an investigation will be conducted to determine their source.

Cost of Organic Certification

From the California Certified Organic Farmers (CCOF) Web site:
Certification costs include three factors:

- Application Fee $275 – Due with first year application only.

- Inspection Costs – Billed on a time and materials basis upon completion of the inspection. An inspection cost estimate is included in all new client fee estimates and 90% of CCOF inspections are less than $500, while the majority of are even lower.

- Annual Certification Cost –These costs are based on the Gross Organic Production Value (GOPV) of the CCOF certified products. Please review calculating GOPV and the table below to arrive at your annual fee.

Farm GOPV is calculated as all farm gate organic sales.

Processors and handlers deduct the cost of organic goods from gross organic sales to arrive at their fee category. This ensures that you only pay for the cost of certifying your value added process not the value of the ingredients that have already paid for certification.

CCOF Certification Services Fee Schedule (all amounts in dollars)

Gross Organic Production Value Between		Fee	
At Least	Not More Than	Producer	Handler
$0	$10,000 *	$170	
10,000	$20,000 *	250	
20,001	$50,000 **	300	
50,001	100,000 ***	475	$475
100,001	200,000	550	550
200,001	300,000	650	650
300,001	400,000	800	800
400,001	500,000	950	950
500,001	600,000	1,350	1,350
600,001	700,000	1,550	1,550
700,001	1,000,000	2,000	2,000
1,000,001	1,500,000	3,000	3,000
1,500,001	2,000,000	3,500	3,500
2,000,001	2,500,000	4,000	4,000
2,500,001	3,000,000	4,500	4,500
3,000,001	3,500,000	5,000	5,000
3,500,001	4,000,000	5,500	5,500
4,000,001	5,500,000	6,500	6,500
5,500,001	10,000,000	9,000	9,000
10,000,001	15,000,000	15,500	15,500
Greater than 15,000,000 (MAX)		20,500	20,500

Notes: * = All organic operations only
** = Minimum fee for mixed organic and conventional (all types, all crops)
*** = Minimum fee for clients outside of the 50 United States.

Additional Services – CCOF charges modest fees for additional services such as international standards verification, additional processing facilities, mid year additions of acreage or processed products, and completion of export documents.

Appendix V: Biodynamic Certification Procedures and Cost

PROCEDURES FOR CERTIFICATION BY DEMETER ASSOCIATION and STELLAR CERTIFICATION SERVICES

Initial Step: Contact our office for the Grower and/or Processor Guidelines and Standards for Certification and a certification packet from the Demeter Association, Inc. and Stellar Certification Services, specifying whether you have a Biodynamic facility and/or an organic facility. Fill out the application forms and return them to the office with the application fee. If you have any on-farm processing or grower-contracted processing, please complete the additional application forms and enclose the applicable fee. (See Certification Fee Schedule.) The application forms are available electronically from the office, or on our website www.demeter-usa.org Applicants are encouraged to file forms electronically to make the renewal process easier in subsequent years. Hard copies are also available.

Next: The office will make arrangements for a visit to your operation by an inspector. The inspector will be in touch with you to set a time. During the visit, the inspector will verify the information on your application and obtain any additional data needed to complete the inspection. Following the visit, the inspector will submit a report to the Demeter and Stellar office. The inspector's report is then submitted to the Evaluation Circle, which makes a recommendation on whether your operation can be certified, and if so, what requirements must be met, and into what category certification falls (i.e. Demeter Certified Biodynamic ®, In-Conversion to Demeter Biodynamic ®, Aurora Certified Organic™, and/or Stellar NOP Organic). The office considers the recommendation and makes a decision on certification.

Then: The office conveys its decision, along with any requirements that must be addressed, by letter to the applicant, to which a written and signed response is required. A copy of the inspector's report will also be sent to you. Upon receipt of your signed response, if certification has been approved, the office will send the appropriate contract and logo to establish a formal certification and licensing relationship. The contract is signed in duplicate by both parties. You will receive an original copy for your records, along with a certificate. Your facility is then certified until the next renewal period.

Subsequently: At the beginning of every year, a renewal information packet and contract are sent to you to be filled out, signed, and returned with the renewal fee. The cycle begins again, with the annual visit during the growing season by an inspector, at which time records, input material labels, and other data pertaining to farm/facility management are reviewed. A report is again submitted to the office and again reviewed by the Evaluation Circle. You will be notified of the results as soon as the review is complete, together with any requirements or suggestions.

Finances: Please refer to the Certification Fee Schedule for applicable fees. If the application process does not proceed to certification, whether by your choice or failure to qualify, the application fee will be refunded, less a $100 administrative fee and any inspection costs incurred. If a licensee is decertified during the year, there is no refund. The licensee will be invoiced for costs involved in de-certification. Royalty is due on sales up to the date that certification is revoked.

Labeling Rights: Any off-farm packager or processor buying product from the grower and wishing to use our certification mark must enter into a separate licensing agreement with the Demeter Association and/or Stellar Certification Services. It is the Grower/Processor's responsibility to notify packagers and processors of this requirement, prior to sale of certified products and to notify Demeter/Stellar also.

Please do not hesitate to contact the Demeter office if you have questions.

PO Box 1390 Philomath, OR 97370 (541) 929-7148 *phone* (541) 929-4387 *fax*
demeter@peak.org

2006 DEMETER CERTIFICATION FEE SCHEDULE

PLEASE NOTE: We offer – for one fee – certification by either or both Demeter Association, Inc. and Stellar Certification Services, Inc. per the following fee schedule.

If you are a **grower-processor** or utilize a **grower-contracted processor,** please note a change in the fee schedule and read this paragraph carefully. The fee for this type of application has increased from $100.00 to $250.00. The reason for this is that it is necessary for the office and the inspector to approach this element of your operation as a processor that is separate from the verification work necessary for only the farm. If you utilize a **grower-contracted processor** that holds a current, valid organic certificate from another NOP-accredited certifier, the grower-contracted processor fee is $50.00 to cover the administrative costs of reviewing the application and verifying the product formulations and labels of all your products that flow through the contracted processor. An inspector does not need to visit the facility unless circumstances dictate a need to visit. We realize there are many different scenarios out there and that there is a fine line between general farm post-harvest activity and on-farm processing. If you are unsure of how your operation fits into this schedule, please contact us.

1. 2006 CERTIFICATION FEES
   A. New application fee for Farms and Processors…….$ 470.00*
   B. New application fee for Traders…….$ 200.00
   C. Renewal application fee for Farms and Processors (due March 15, 2006)…….$ 310.00*
   Renewal application fee for Traders…….$ 150.00
   D. Grower-processor (new and renewal)…….$ 250.00*
   E. Grower-contracted Processor (new and renewal, each site)…….$ 250.00*
   F. Grower-contracted Processor w/ current NOP certification from other certifier….$ 50.00
   G. Storage facility or Warehouse inspection fee at another location……....$ 50.00
   H. Assessment to EU 2092/91 and or JAS Farm…….$ 100.00
   I. Assessment to EU 2092/91 and/or JAS Processor……..$ 250.00

   *These fees include $160 towards annual inspection costs.

2. 2006 ANNUAL INSPECTION COSTS (*excess of $160.00)……billed after visit

3. 2006 FARM ROYALTY PAYMENT SCHEDULE (due March 15, 2006)
   A. 2005 Domestic Royalty: 2005 gross domestic sales of certified products @ 0.5%
      ($75 minimum royalty applies)……...…….your calculation
   B. 2005 Export Royalty: 2005 gross export sales of certified product @0.75%..your calculation

4. 2006 PROCESSING ROYALTY PAYMENT SCHEDULE (due March 15, 2006)
   A. 2005 Gross domestic sales of certified product under $1 million @ 0.5%
   B. 2005 Gross export sales of certified product under $1 million @ 0.625%
   C. 2005 Total gross sales of certified product in excess of $1 million @ 0.25%
   D. 2005 Gross domestic co-processing fees under $1 million @ 0.5%
   E. 2005 Gross domestic co-processing fees in excess of $1 million @ 0.25%

IMPORTANT: If you produce the raw ingredients for the certified products you sell (i.e. milk for cheese, grapes for wine), royalty payments are calculated on certified processed product sold.

5. 2006 TRADER ROYALTY PAYMENT SCHEDULE (due March 15, 2006)
   A. 2005 Gross sales of raw imported product under $1 million @ 0.375%
   B. 2005 Gross sales of imported manufactured product under $1 million @ 0.5%
   C. 2005 Total gross sales of all imported product in excess of $1 million @ 0.25%

6. NON-RENEWAL OF CERTIFICATION FEE
   A. Royalty on 2005 gross sales of certified product (due March 15, 2006)

      ($75 minimum royalty applies)……..……..your calculation

7. LATE FEES: *ALL RENEWALS ARE DUE ON March 15, 2006*
   Renewals mailed between March 16-March 31, 2006…….$ 50.00

   Renewals mailed on or after April 1, 2006……..……$ 150.00

Appendix VI: Cost Data

Table 1: Vineyard cost - costs to produce conventional winegrapes $/acre - cabernet sauvignon

Operation	Cash and Labor Costs per Acre				Total Annual Cost ($/acre)
	Labor Cost	Fuel,Lube & Repairs	Material Cost	Custom/ Rent	
Cultural:					
Spray Strip 2' (Roundup)	43	2	5	0	50
Mow Middles	43	14	0	0	57
Erosion Control-Materials/Labor	0	0	200	0	200
Frost Protection	22	0	31	0	53
Fertilizer through Drip	0	0	4	0	4
Irrigation	27	0	40	0	67
Disease - Mildew (Wettable Sulfur)	64	18	7	0	89
Disease - Mildew (Sulfur Dust)	64	17	12	0	93
Disease - Mildew (Flint)	21	6	19	0	47
Prune	417	0	0	0	417
Tying	67	0	0	0	67
Trunk/Cordon Suckering	362	0	0	0	362
Sucker/Shoot Thin/Shoot Position	362	0	0	0	362
Leaf & Lateral Removal/WireLift	536	0	0	0	536
Thin Crop	134	0	0	0	134
Vine/Cane Trim	11	5	0	0	16
Pickup	53	26	0	0	79
ATV	21	1	0	0	22
TOTAL GROWING COSTS	2247	89	318	0	2,655
Harvest:					
Harvest-Hand Labor	0	0	0	625	625
Harvest-Bin Handling	77	5	0	110	193
Haul	7	2	0	0	9
TOTAL HARVEST COSTS	84	7	0	735	827
TOTAL OPERATING COSTS/ACRE	2331	96	318	735	3,482
CASH OVERHEAD:					
Office Expense					300
Liability Insurance					17
Sanitation Fees					5
Property Taxes					1557
Property Insurance					106
Investment Repairs					18
TOTAL CASH OVERHEAD COSTS					2,003
TOTAL CASH COSTS/ACRE					5,485
NON-CASH OVERHEAD: Per producing Annual Cost					
Land					8750
Building					18
Tools-Shop/Field/Fuel Tanks					11
Wind Machine					44
Vineyard Establishment					2255
Equipment					359
TOTAL NON-CASH OVERHEAD COSTS					11,437
TOTAL COSTS/ACRE					16,922

Source: Weber Klonsky, De Moura, (2003) *Sample costs to establish a vineyard and produce wine grapes, Cabernet Sauvignon*, CA north coast region, Napa County 2005, University of California cooperative extension, UC Davis

Table 2: Vineyard cost - costs to produce conventional winegrapes $/acre - Chardonnay

Operation	Cash and Labor Costs per Acre				Total Annual Cost ($/acre)
	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	
Cultural:					
Prune - Winter	279	0	0	0	279
Prune: Winter- Retie & Move Wires	124	0	0	0	124
Weed: Vine Row Winter (Goal, Roundup)	20	2	17	0	39
Weed/Prune Floor Centers	10	4	0	0	14
Shred Prunings and Mow Non-pruning Centers	10	4	0	0	14
Disease: 2X - Copper & Sulphur	9	3	28	0	40
Frost Protection: Overhead Sprinklers 6X	47	0	28	0	75
Disease: Mildew 5X	53	15	8	0	76
Weed Floor Center - Mow Alternative Centers	10	4	0	0	14
Sucker: Cordons 2X	248	0	0	0	248
Canopy: Move Wires 2X	248	0	0	0	248
Sucker: Trunks	124	0	0	0	124
Insect: Leafhoppers (1X/3Yr (Provado)	9	3	10	0	22
Insect: Mites 2X/3Yr (Acramite)	18	6	35	0	59
Weed Floor Center - Disc Alt Center 2X	12	3	0	0	15
Weed Vine Row - Spring 2X/3Yr (Firepower)	4	0	3	0	7
Weed Vine Row - Spring 1X/3Yr (Rely)	9	3	4	0	16
Disease/Fert: (Rally/Solubor, Neutral Zinc)	28	9	49	0	86
Disease: Mildew Mid-Season 2X (Rally)	40	13	48	0	101
Fertilize: N (CaNO3)	0	0	12	0	12
Canopy Leaf removal	186	0	0	0	186
Canopy Hedging	10	5	0	0	15
Fertilize NPK (2-15-15)	0	0	66	0	66
Disease: Mildew 3X (Dusting Sulphur)	53	15	5	0	73
Disease: Mildew/Botrytis (Rally/Vanguard)	28	9	65	0	102
Crop Adjustment Fruit Thin	279	0	0	0	279
Irrigate: 12X	51	0	20	0	71
Disease: Mildew Late Season (Flint)	55	18	52	0	125
Fertilize: Potassium (Thiosulfate)	0	0	24	0	24
Pickup Truck Use	20	6	0	0	26
ATV Use	20	2	0	0	22
Pest Monitoring PCA	0	0	0	35	35
Additional operation	0	0	0	0	0
TOTAL GROWING COSTS	2,004	124	474	38	2,637
Harvest:					
Harvest & Haul	0	0	0	840	840
TOTAL HARVEST COSTS	0	0	0	840	840

Table 2: Continued

Operation	Cash and Labor Costs per Acre				Total Annual Cost ($/acre)
	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	
Postharvest:					
Irrigation: Overhead Sprinklers	23	0	14	0	37
Cover Crop: Disc Centers 1X/4Yr	3	1	0	0	4
Cover Crop: Plant 1X/4Yr	3	1	10	0	14
TOTAL POST HARVEST COSTS	29	2	24	0	55
Assessment:					
Sonoma County Grape Growers Assoc.	0	0	13	0	13
Russian River Valley Wine Growers	0	0	24	0	24
TOTAL ASSESMENT COSTS	0	0	37	0	37
TOTAL OPERATING COSTS/ACRE	2,033	126	535	878	3,569
CASH OVERHEAD:					
Liability Insurance					17
Manager's Salary					558
Office Expense					250
Sanitation Fees					15
Property Taxes					891
Property Insurance					90
Investment Repairs					143
TOTAL CASH OVERHEAD COSTS					1,964
TOTAL CASH COSTS/ACRE					5,620
NON-CASH OVERHEAD:					
Buildings 400 sq ft					21
Drip Irrigation System					144
Vineyard Establishment Cost					1,492
Frost Protection System					202
Fuel Tanks: 1-250 Gal					3
Land					5,225
Reservoir: 12 AcFt					242
Shop Tools					9
TOTAL NON-CASH OVERHEAD COSTS					7,337
TOTAL COSTS/ACRE					12,958

Source: Smith, Klonsky, Livingston, De Moura, (2004) *Sample costs to establish a vineyard and produce wine grapes, chardonnay*, CA north coast region, Sonoma County 2004 University of California cooperative extension, UC Davis

Table 3: Wine Making Cost

Description	Min Cost ($/Bottle)	Max Cost ($/Bottle)
Oak barrel	1	1.3
Bottle	0.3	2
Cork	0.2	1
Label	0.2	0.3
SubTotal	***1.7***	***4.6***
Marketing	0.7	1.5
Overhead	1.3	2.5

Sources:

Iowa State University Extension, Winery Financial Planning Book 2005

Bergman Euro-National, hat does it cost to produce a glass of wine, 2002

Oregon State University, Evaluation of wine production cost in Willamette Valley winery, 1999

Hesser, Amanda, (2003) *Why Wine costs what it does*, New York Times News Service, April 12, 2003, downloaded from azcentral.com on 11/10/06