

Grapes of Wrath?:
The Evolution of Value-Adding
in the Wine Industry

Sarah Bellos, Adam Fox, and Michelle Upton

Cornell University

Why study the wine industry?

Wine production has been a part of Western culture for over 8000 years. From ancient Mesopotamia to modern France, wine has undoubtedly had significant economic and social impacts. Today, wine production has spread worldwide with hotspots on five continents including France, the United States, South Africa, Chile, and Australia. Agricultural industries like wine production can have profound effects on the vitality of the natural landscape. The sheer geographic span of the wine industry makes it a particularly interesting case for investigation within an environmental context. Specifically, an analysis of the use of market-based mechanisms in the wine industry is important for devising management strategies that can promote environmental conservation alongside economic prosperity.

The concept of a livelihood that is dependent on the natural resource base is the central idea behind working landscapes - systems of production that provide economic incentives for the responsible management of natural resources in a community. Wineries are good examples of working landscapes, because many communities are solely dependent on wine production for their survival, and thus economic incentives exist for their preservation. The wine industry also covers three sectors of the economy: agriculture, manufacturing, and trade. This allows for farmers to vertically integrate and implement value-adding strategies such as on-site processing, community-specific branding, organic production, and a commitment to the environment. These strategies are used by wineries to increase profit margins while maintaining the vitality of the landscape. An examination of these

value-adding strategies within the wine industry illustrates an evolution in market-based mechanisms that promote the stewardship of natural resources. Ultimately, this sheds light on the complex relationships between consumers, organizations, private wineries, and government that can potentially compel positive change in the environmental arena.

How do wineries affect the environment?

Viticulture is not free from environmental problems commonly associated with agriculture. Vineyards can damage the environment by polluting the soil and water with fertilizers, pesticides, and other chemicals used in grape production. Additionally, when new vineyards are opened for production, there is often a clearing of forests or wetlands, which leads to a fragmenting of the landscape and loss of wildlife.

An example of a conflict between wine producers and environmentalists took place in the Sacramento Valley surrounding the conversion of dairy farms and natural areas into vineyards. Clearing the area would result in the loss of habitat for the sandhill crane¹. The potential loss of crane winter habitat was taken up by many environmentalists who opposed increases in vineyard lands. In dealing with this problem, it is important to ask how much and what kind of habitat is destroyed and what is left surrounding the vineyard². Rather than making blanket statements that farming in general or grape-

¹ Romero, C. (March 10, 2000). *Horizon, Nature Conservancy buy land: The organic milk company might someday build there*. Retrieved October 15, 2003 from <http://www.buffzone.com/business/10bcow.html>.

² Ohmart, C. (2001). *Vineyard Views: Farming is an unnatural act. Wines and Vines Magazine*.

growing in particular have negative impacts on the environment, we must examine each case specifically in order to gain an accurate perspective. The Sacramento Bee - the newspaper that first shed light on this issue - recently noted that wineries in the area "prevent the state's most productive farmland from being developed"³. Thus, in some cases, vineyards can actually be better for the environment, especially when considering alternative land uses such as residential housing and suburban strip malls. While some may argue that vineyard preservation simply displaces development into more rural locales, it is unlikely that new development would occur in such isolated places. Instead, wineries around small towns can prevent development on the periphery where it is most likely to occur.

This idea of land-use is critical to understanding how wineries can benefit the environment. Wineries under proper management can be preferable when compared to other uses including intensive agriculture with other crops and suburban sprawl development. Intensive farming of other crops is more likely to have adverse effects on water quality and soil health. More inputs of water and pesticides would generally be needed, which in turn would lead to more highly polluted runoff. Wine production, by contrast, is an ecological component of our landscape that prevents soil erosion and filters groundwater. Developing the land can likewise significantly affect environmental quality. Suburban development disrupts the environment in many ways by destroying wildlife habitats; compacting and removing soil; and

³ Vellinga, M. L. (October 12, 2003). Last stance: Conservationists race to protect south county. *Sacramento Bee*. Retrieved October 15, 2003 from <http://www.sacbee.com/content/business/agriculture/story/7587324p-8528318c.html>.

polluting with runoff and emissions from lawns, buildings, and cars. In many wine-producing areas, such as the North Fork of Long Island, there is considerable development pressure. And unfortunately, once such areas are paved over, they cannot be returned to farmland.

The USDA estimates that 1.5 million acres of farmland have been taken out of production annually since the 1960s⁴. As a result, many people are beginning to support agricultural preservation and conservation because it protects a rural way of life, environmental quality, local economies, and aesthetics⁵. Wineries combine traditional farming with the industrialized process of wine making, which spawns commercial activities associated with retail sales and tourism. Declines in grape and wine production can lead to a weakening of regional economies through the loss of direct employment, diminution of the tax base, and further loss of income if associated businesses such as tourism suffer⁶. If the economy begins to fail with the loss of vineyard land, the working landscape concept exemplified by wineries ceases to exist along with any incentive for environmental stewardship.

What are some value-adding strategies being employed by wineries?

On-site processing

The wine industry is one of the best examples of successful on-site processing as a value-added product. Instead of simply selling grapes for processing elsewhere, they can be fermented and bottled on-

⁴ Farmland Protection Program: Notice of Request for Proposals. (May 28, 1997). *Federal Register*, 62(102), 28836-28839.

⁵ Duke, J. M. & Aull-Hydeb, R. (2002). Identifying public preferences for land preservation using the analytic hierarchy process. *Ecological Economics*, 42 (1-2).

⁶ New York Senate Research Service. (1984). *Tending the Vineyards: Renewed Growth for New York's Grape/Wine Industry*. April 1984. Albany, New York.

site to produce wine for a higher profit than raw grapes. On-site processing of wine has been done for centuries, which is what makes wine itself a value-added industry.

In many countries, including the United States, France and Italy, wine labels are required to have information about estate bottling and/or the winery itself. Estate bottling information shows whether or not the wine was produced and bottled in the same place that the grapes were grown. Typically most of the best wines are grown, processed, and bottled all in the same place. This allows for consistent quality control, and it saves the producer money by cutting costs associated with the transport of grapes to other sites for further processing.

While most wine is produced on-site, there are a few large beverage companies that act solely as distributors of bulk wine and grape juice. Lamanuzzi & Pantaleo, for example, only distribute juice and wine to a final producer. They do not actually make their own wine but instead sell it to wineries that may need an additional amount of juice to create a specific blend⁷. The products being sold by Lamunzzi & Pantaleo as well as other distributors are not used for high-end wines. Instead, they are jug or box wines produced by large distributors such as Sutter Home, Korbel and Gallo. This type of wine is inexpensive and drinkable, but it is not of high quality when compared to wines that are grown, processed, and bottled by a single winery.

Community-specific branding

⁷ Ciatti, J. W. (October 23, 2003). Personal interview.

Like on-site processing, community-specific branding is not new to the wine industry. In 1855, at the request of the Emperor of France Napoleon III, the Bordeaux Chamber of Commerce established a classification system for wine based on its geographical origin⁸. This system is still used today, and it dictates the price of many Bordeaux wines. Similar geographically-based classification schemes are used throughout the world.

In recent years, certain segments of the wine industry have been working hard to differentiate their wine products based on geography. Australia, for instance, has been investigating ways to augment tourism surrounding its extensive wine industry⁹. By marketing an area based on natural amenities and the quality of the wine produced, wineries can capitalize on their boutique, romanticized image. This in turn promotes eco-tourism by attracting tourists to bucolic locales such as New York's Finger Lakes wine region. Many of the wines produced in this area print small driving maps on their bottle labels highlighting their location in order to promote regional eco-tourism. This also encourages consumers to purchase locally-produced wine, because doing so supports the economy of their own community.

The variety of jobs created by a wine region that utilizes community-specific branding in this way helps sustain community livelihood. Additionally, community-specific branding creates a sense of pride with a wine product that is inextricably tied to the local landscape. This contributes to the preservation of the rural

⁸ Guy, K. M. (2003). *When Champagne Became French: Wine and The Making of a National Identity*. Maryland: The Johns Hopkins University Press.

⁹ Beames, G. (2003). The Rock, the Reef and the grape: The challenges of developing wine tourism in regional Australia. *Journal of Vacation Marketing*, 9 (3).

environment since people are able to recognize the importance of the land for their continued livelihood. Ultimately, there is an incentive for the community to preserve the natural resources of the area for economic benefit now and in the future, which is the basis behind the concept of a working landscape.

Organic production

The production of organically grown grapes has increased significantly in recent years. It is no longer seen as a fad but rather a way to return to a traditional style of farming as well as an excellent opportunity for growers to take advantage of the value added to their product by selling at an increased price.

Farm sustainability can be viewed based on economic viability, conservation of resources, social responsibility, environmental safety, and acceptable yields of high quality¹⁰. While organic farms are not necessarily sustainable, they do tend to meet more of these criteria than conventional farms. Conventional farming, which increased in popularity after World War II, was based on use of synthetic chemicals including fertilizers, fungicides, and soil fumigants. Organic farming, on the other hand, excludes the use of such agricultural chemicals. Most organic operations involve traditional practices of crop rotation, use of green manure and compost, organic pesticides made from natural products, and integrated pest management or biological control of pests¹¹. Increasingly, organic

¹⁰ Franson, P. (2002). Organic, Biodynamic or Sustainable Growing: Integrated or Separate? *Vineyard and Winery*, 28(4). Retrieved October 26, 2003 from http://www.vwm-online.com/Magazine/Archive/2002/Vol28_No4/Growing.htm.

¹¹ Sawyer, C. (2003). Full Exposure: Hidden Nuances Behind the New Organic Grape Trend. *Vineyard and Winery*, 29(2).

farms are also now using mechanical cultivation and information technologies, particularly Global Positioning Systems (GPS), to monitor crops. These tools can help ensure that the correct amounts of nutrients and water are being applied to the grape crop, which reduces input costs and environmental impact.

New USDA labeling regulations issued on October 21, 2002 have defined uniform organic standards for the wine industry. This will enable consumers to better understand what kind of organic product they are buying. The three levels of classification are "100% organic", "organic" (at least 95% organic), and "Made with organic grapes" (at least 70% organic). Of these labels, the first two are permitted to display the USDA organic symbol as a form of eco-labeling, if they choose to do so. These new standards will likely clear up confusion surrounding the composition of "organic wines" while adding value to the product. According to L. Ann Thrupp, the new manager of Organic Development at Fetzer vineyards, "I'm very optimistic about the outlook for organic viticulture. It's not that hard and it's environmentally sound, economically viable and socially responsible¹²." Thrupp, who previously worked at the EPA and the World Resources Institute, was recently hired by Fetzer and can be seen as an example of the company's commitment to organic agricultural production. Her idea highlights the fact that, compared to other crops, it is not difficult to grow grapes organically and doing so can cut costs while decreasing environmental impact.

¹² Franson, P. (June 9, 2003). *Fetzer Vineyards Ups the Ante in Organic Growing*. Retrieved October 27, 2003 from <http://www.winebusiness.com/GrapeGrowing/Webarticle.cfm?AID=73766&IssueId=73745>.

Environmental commitment

A handful of innovative wineries are adding value to their wine product through a direct commitment to environmental conservation. These wineries typically employ scientists to monitor crops for moisture levels and disease. This helps to maintain a system of low-input agriculture where the use of pesticides and water is minimized. Drip irrigation, for example, is being employed to significantly reduce water use while preventing the runoff of pesticides into the surrounding landscape. Low-Input Viticulture and Enology (LIVE), an Oregon-based non-profit, requires that its wineries subscribe to such low-input agricultural methods. LIVE requires that its members set aside at least 5% of their vineyard land as ecological compensation areas and use cover crops to protect the soil from erosion¹³. In addition, LIVE encourages the use of buffer strips around riparian zones to prevent agricultural runoff, serve as a windbreak, and provide wildlife habitats around wineries¹⁴. The protection of riparian zones is an important issue for LIVE, because of the salmon fishery-winery interface that occurs in Oregon. Erosion and runoff from hillside vineyards can deposit silt into streams, which reduces the ability of native salmon to spawn and thrive in the cold, clear water they require. Recently, LIVE partnered with Salmon Safe, another non-profit environmental group in Oregon, to identify and certify wine

¹³ Low-Input Viticulture and Enology. (2001). *Technical Guidelines*. Retrieved October 20, 2003 from <http://www.liveinc.org/lguidelines.html>.

¹⁴ Ibid.

producers that meet environmental quality standards that do not endanger salmon habitats¹⁵.

This formation of partnerships between different environmental non-profit organizations is an important aspect of environmental commitment in the wine industry. The Banrock Station winery in Australia, for example, has developed partnerships in 10 countries to help support wetland restoration efforts around the world¹⁶. On their 3,400-acre property in the Murray-Darling River Basin, Banrock Station has been restoring wetland habitats destroyed by decades of rabbit grazing, stock grazing, and timber production¹⁷. Locks have also been removed to reintroduce the natural fluctuation of wet and dry seasons, which is critical to the vitality of wetland ecosystems. As a result, native flora and fauna are returning to the area once again.

The Big Picture

Wineries promote a reciprocal relationship between the community and its natural capital, which essentially forms the basis of the working landscape concept. There exists an incentive to preserve the natural integrity of the land in order to maintain an image that attracts customers and tourists. By viewing wineries as working landscapes, important value-adding strategies can be examined as market-based mechanisms that simultaneously promote environmental preservation and economic prosperity. Perhaps more importantly, wineries illustrate an evolution in value-adding strategies. On-site

¹⁵ Salmon Safe. (2003). *Certification for Vineyards*. Retrieved October 20, 2003 from <http://www.salmonsafe.org/wine/winepartners.cfm>.

¹⁶ Banrock Station. *Nature Reserves*. Retrieved October 19, 2003 from <http://www.banrockstation.com/nature.asp>.

¹⁷ Ibid.

processing which was used early on in the development of wine made it one of the first value-added industries. Community-specific branding, which has likewise been used for many years, is now taking on a different meaning with the use of localities to promote eco-tourism. Organic farming and environmental commitment are relatively new ideas that have surfaced in recent years as value-adding strategies to promote farm sustainability and increase profits.

While it may seem as though value-adding and environmental stewardship is alive and well in the wine industry, there is still a long way to go before many of these practices become commonplace. Wine generally remains an industry that caters to high-class tastes and preferences, and given its early origins, it is not hard to see why change has been slow and why additional steps have not been taken to develop a sense of social responsibility. Labels that differentiate wines based on some of these value-adding strategies are extremely difficult to find in many places. Wines such as Banrock Station that are relatively easy to find given national distribution in the United States do not specifically advertise an environmental commitment on the bottle label. Only with some research can consumers gain knowledge about environmental initiatives being undertaken by specific wineries.

Despite resistance to change, it is ultimately important to see that change is in fact taking place. The development of labeling programs by the federal government and non-profit organizations is a testament to the existence of dynamic working relationships between consumers, non-profit organizations, private wineries, and government. Consumer advocacy and awareness along with non-profit organizational

support can help drive institutional change in the industry to produce benefits for the environment. Likewise, innovative firms in the industry can help bring awareness of environmental issues to consumers and the media in order to promote broader changes within the industry and government. Understanding these relationships is essential to continuing the drive toward the development of sustainable industries such as wine that can strike a balance between profit and environmental stewardship.

Index of Resources

How do wineries affect the environment?

Ohmart, C. (2001). Vineyard Views: Farming is an unnatural act. *Wines and Vines Magazine*.

Ohmart, C. (2001). Vineyard Views: Is Winegrape-growing Bad for the Environment? *Wines and Vines Magazine*.

Romero, C. (March 10, 2000). *Horizon, Nature Conservancy buy land: The organic milk company might someday build there*. Retrieved October 15, 2003 from <http://www.buffzone.com/business/10bcow.html>.

Uncork New York. *Vineyard Management: Soil Management and Disease Control* (p. 75-76). Retrieved October 18, 2003 from http://www.uncorknewyork.com/informationstation/newstouse/wine_course.pdf.

Vellinga, M. L. (October 12, 2003). Last stance: Conservationists race to protect south county. *Sacramento Bee*. Retrieved October 15, 2003 from <http://www.sacbee.com/content/business/agriculture/story/7587324p-8528318c.html>.

On-site processing

Bachmann, J. (2001). *Adding Value to Farm Products: An Overview*. Retrieved October 23, 2003 from <http://attra.ncat.org/attra-pub/PDF/valueovr.pdf>.

Uncork New York. *Reading the New York Wine Label* (p. 83). Retrieved October 18, 2003 from http://www.uncorknewyork.com/informationstation/newstouse/wine_course.pdf.

Wine Institute. (1998). *Federal Regulations*. Retrieved October 23, 2003.

http://www.wineinstitute.org/fedlaw/regs/27cfr_part4/4_26.htm.

Wine Institute. (1997). *No Viticultural Area, No Estate Bottling*.

Retrieved October 23, 2003 from

http://wineinstitute.org/ava/tenthings/avas_estatebottled.htm.

Community-specific branding

Agricultural Marketing Resource Center. *Wine Tours*. Retrieved October

20, 2003 from <http://www.agmrc.org/agritourism/winetours.html>.

Beames, G. (2003). The Rock, the Reef and the grape: The challenges of developing wine tourism in regional Australia. *Journal of Vacation Marketing*, 9(3).

Cornell University Community, Food & Agriculture Program. *Agritourism*

Marketing Study Results. Retrieved October 20, 2003 from

http://www.cals.cornell.edu/agfoodcommunity/afs_temp3.cfm?topicID=270.

Uncork New York. *The New York Wine Course and Reference* (p.68, 30-33).

Retrieved October 18, 2003 from

http://www.uncorknewyork.com/informationstation/newstouse/wine_course.pdf.

Organic Production

Franson, P. (June 9, 2003). *Fetzer Vineyards Ups the Ante in Organic Growing*. Retrieved October 27, 2003 from

<http://www.winebusiness.com/GrapeGrowing/Webarticle.cfm?AID=73766&IssueId=73745>.

Franson, P. (June 3, 2003). *New Organic Labeling Policy Solves Some Problems, Creates Others*. Retrieved October 20, 2003 from <http://www.winebusiness.com/html/MonthlyArticle.cfm?Aid=73768&issueId=73745>.

Franson, P. (2002). Organic, Biodynamic or Sustainable Growing: Integrated or Separate? *Vineyard and Winery*, 28(4).

Leahy, Richard. (2003). Sustainable Viticulture in the East. *Vineyard and Winery*, 29(1).

Lodi-Woodbridge Winegrape Commission. (2002). *Sustainable Viticulture*. Retrieved October 20, 2003 from <http://www.lodiwine.com/sustainableviticulture1.shtml>.

Ohmart, C. (2001). *Vineyard Views: What is Sustainable Viticulture?* Retrieved October 20, 2003 from <http://www.lodiwine.com/whatissustainableviticulture.pdf>.

Sawyer, C. (2003). Full Exposure: Hidden Nuances Behind the New Organic Grape Trend. *Vineyard and Winery*, 29(2).

USDA Agricultural Marketing Service. *National Organic Program* (7 CFR Part 205) Retrieved October 19, 2003 from <http://www.ams.usda.gov/nop/NOP/standards.html>.

Wine Business Monthly. (2003). *Labeling Alcoholic Beverage Containers*. Retrieved October 20, 2003 from http://www.winebusiness.com/Archives/Monthly/2003/organic_labels.pdf.

Environmental commitment

Banrock Station. *Nature Reserves*. Retrieved October 19, 2003 from <http://www.banrockstation.com/nature.asp>.

- Franson, P. (2000). Vineyard Development in a Sustainable Context. *Vineyard & Winery Management*, 26(3). Retrieved October 26, 2003 from http://www.vwm-online.com/Magazine/Archive/2000/Vol26_No3/Sustainable.html.
- Low-Input Viticulture and Enology. (2001). *Technical Guidelines*. Retrieved October 20, 2003 from <http://www.liveinc.org/lguidelines.html>.
- Ohmart, C. & Chandler, M. (1998). *Winery Interest in Eco Labeling: Results from Interviews with California Wineries* (p. 18-25). Retrieved October 28, 2003 from <http://www.sarep.ucdavis.edu/pubs/other/ecolabeling/Proceedings98.html>.
- Patterson, T.(2002). *All the Way LIVE in Oregon*. Retrieved October 26, 2003 from http://www.vwm-online.com/Magazine/Archive/2002/Vol28_No5/Oregon.htm.
- Salmon Safe. (2003). *Certification for Vineyards*. Retrieved October 20, 2003 from <http://www.salmonsafe.org/wine/winepartners.cfm>.

Additional Internet Links

Wine Institute

<http://www.wineinstitute.org/>

Central Coast Vineyard Team

"Positive Points System Program"

<http://www.vineyardteam.org/>

Lodi-Woodbridge Winegrape Commission

"Sustainable Viticulture Program"

<http://www.lodiwine.com/sustainableviticulture1.shtml>

Napa Sustainable Winegrowing Group

www.nswg.org/infoonnswg.htm

Sonoma County Grape Growers Association
"Resources for Growers"
<http://www.scgga.org/>

Sonoma Valley Vintners and Growers
"Environmental Facts"
www.sonomavalleywine.com/sv-enviro.html

Fetzer Vineyards
"Environmental Philosophy"
www.fetzer.com/letsfetzer/stor_envi.html

Environmental Rating Agency
"Eco Survey of California Vineyards and Wineries"
www.eco-rating.com/sces.html

Non-Profit Organizations
Appropriate Technology Transfer for Rural Area (ATTRA)
<http://www.attra.org/>

California Council for Environmental and Economic Balance
<http://www.cceeb.org/>

Coalition for Environmental Responsible Economies
<http://www.ceres.org/>

Community Alliance with Family Farmers
<http://www.caff.org/>

Ecological Farming Association
<http://www.csa-efc.org/>

The Natural Step
<http://www.thenaturalstep.org/>

Oregon Low-Input Viticulture & Enology
<http://www.liveinc.org/>

Sustainable Farming Connection
www.ibiblio.org/farming-connection

Henry A. Wallace Institute for Sustainable Agriculture
<http://www.hawiaa.org/>

World Sustainable Agriculture Association
www.igc.org/wsaala

WineVision
"American Wine for the 21st Century"
<http://www.winevision.org/>

Alternative Farming Systems Information Center
www.nalusda.gov/afsic

National Biological Control Institute
www.aphis.usda.gov/nbci/nbci.html

Natural Resources Conservation Service
<http://www.ca.nrcs.usda.gov/>

Sustainable Agriculture Network
<http://www.sare.org/>

Western Region Sustainable Agriculture Research and Education
<http://wsare.usu.edu/>

Organic Winegrowing Resources
California Certified Organic Farmers
<http://www.ccof.org/>

Updated List of Organic Certifiers
<http://web.iquest.net/ofma/certy2k.htm>

National Organic Standards "Final Rule"
www.ams.usda.gov/nop/nop2000/nop2/finalrulepages/finalrulemap.htm

Organic Wine Guild
<http://www.organicwineguild.com/>

Organic Grapes into Wine Alliance
<http://www.organicwine.com/>