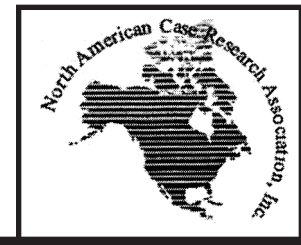


Frog's Leap Winery in 2011— The Sustainability Agenda [Case and Video]



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There's an old saying in the wine industry that goes, "In order to make a small fortune you need to start out with a *large* one." Unfortunately, I'd never heard of that "rule" before I started out. I came here to the Napa Valley 27 years ago with \$40 in my pocket, sold my motorcycle for \$5,000 to start a winery, and now I owe \$22 million to the bank. And I still haven't been able to buy back my motorcycle, because the current loan covenants with the bank do not permit me to ride, so I'm not sure that I am a success story, really. —John Williams, founder & CEO, Frog's Leap Winery.¹

From the autumn of 1999 to late spring 2011, most Napa Valley premium wineries were embracing modernity—launching websites, using viral marketing, developing wine clubs, and shifting distribution channels from on-premises accounts to direct sales. John Williams, the co-founder, owner, and CEO/winemaker of Frog's Leap Winery in Rutherford, California, had followed suit by making modest investments in these marketing programs. Williams nevertheless remained skeptical that these changes would dictate his winery's future. In May 2011, Williams reflected upon his heritage as the son of upstate New York dairy farmers and his 35 years' working in the wine industry, since graduation from Cornell University. Williams not only displayed his normally irreverent humor, but also acknowledged that he had quietly developed the industry's most sophisticated environmental management system.² Environmental management systems (EMS) had risen in importance for wine businesses, as they confronted survival threats from the natural world, such as rising energy prices, water scarcity, mounting concerns about chemical exposure, and climate change.³ Yet Williams wondered aloud: "How could Frog's Leap, which has grabbed the 'low-hanging fruit' of environmental management, become even more sustainable?" See **Exhibit 1** for a timeline of events in Frog's Leap's evolution.

NAPA VALLEY AND THE PREMIUM WINE INDUSTRY

Napa Valley was a prominent American Viticultural Area (AVA) in California's North Coast wine-producing region, which encompassed Lake, Napa, Mendocino, and Sonoma counties. [See "Glossary of Common Wine Industry Terminology" at the end of this case.] Since 1999, the number of premium wineries in the North Coast had

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grown from 329 to 1,250.⁴ Of that number, nearly 92 percent could be classified as small or 'boutique' wineries, that is, those producing fewer than 50,000 cases per year. The number of boutique wineries increased dramatically during the twelve-year period, from 249 to 1,133. By contrast, midsized wineries (those producing between 50,000–499,999 cases per year) and large wineries (those producing more than 499,999 cases per year) grew more modestly in number during the same period, from 80 to 117.

After the height of the global economic downturn in 2008–2009, during the following year the premium wine industry witnessed a small but significant rebound in growth. Mid-priced and high-priced wines led that growth. See **Table 1** for data comprising the U.S. premium wine industry's percent sales growth, margins, and pretax profits from 2002–2010. See **Table 2** showing volume and value changes for various price points of wines during 2010.

Table 1 U.S. PREMIUM WINE INDUSTRY—KEY FINANCIAL DATA, 2002–2010

	12/31/02	12/31/03	12/31/04	12/31/05	12/31/06	12/31/07	12/31/08	12/31/09	12/31/10
Sales Growth (yr. on yr.)	5.2%	17.6%	25.5%	19.4%	21.2%	22.3%	2.0%	-3.8%	10.8%
Gross Margin	51.5%	50.2%	51.5%	52.8%	54.5%	57.1%	55.3%	52.4%	53.7%
Pretax Profit	3.2%	6.3%	7.6%	12.6%	11.3%	16.3%	9.5%	2.2%	6.7%

Source: Silicon Valley Bank, 2011–12 *State of the Wine Industry*, April 2011, p. 11.

Table 2 U.S. Premium Wine Industry—Price Segment Data, 12/31/09–12/31/10

Last 52 wks \$ share	Price segment	Value % change		Volume % change	
		Last 52 wks	Last 26 wks	Last 52 wks	Last 26 wks
100.0%	Total table wine	+4.5%	+4.8	+3.2%	+3.5
8.4	\$0—\$2.99	-1.3	-2.5	-2.4	-2.6
29.3	\$3—\$5.99	+4.4	+4.2	+4.8	+4.9
20.2	\$6—\$8.99	-3.4	-3.3	-1.0	-0.9
20.8	\$9—\$11.99	+10.0	+10.5	+12.4	+12.5
10.0	\$12—\$14.99	+7.8	+8.1	+10.3	+10.2
6.2	\$15—\$19.99	+7.0	+9.4	+7.7	+10.3
5.0	>\$20	+11.4	+11.8	+9.2	+11.0

Note: shaded areas indicate double-digit growth.

Source: The Nielsen Companies, in Silicon Valley Bank, 2011–12 *State of the Wine Industry*, April 2011, p. 4.

CONSUMER SEGMENTS FOR PREMIUM WINES

The U.S. surpassed both France and Italy in 2008 as the world's largest consumer of wine by dollar value. In 2010, U.S. wine consumption in terms of volume reached an all-time peak of 2.54 gallons per resident over 21. In that same year, 25–44 year-olds emerged as the largest segment of wine consumers, supplanting the 'Baby-Boom' generation that had led much of the industry's growth during the prior 30 years. See **Table 3** for 2010 data on consumer demographics of the U.S. wine industry.

Table 3 U.S. WINE INDUSTRY—2010 CONSUMER DEMOGRAPHICS DATA

	Unemployment Rate	% of population	% of wine drinking population
Race/Ethnicity			
White	8.5%	68.9%	78.5%
Hispanic	13.0%	13.4%	8.9%
African-American	15.8%	10.8%	7.3%
Age			
21–24	15.3%	7.4%	4.0%
25–34	10.1%	18.7%	13.6%
35–44	7.8%	19.6%	16.3%
45–54	7.5%	20.6%	22.0%
55+	6.9%	33.7%	44.1%
Education			
High school diploma	15.3%	19.2%	10.2%
Some college	10.6%	28.4%	20.2%
College grad	4.9%	24.3%	39.9%

Source: The Nielsen Companies, in Silicon Valley Bank, 2011–12 *State of the Wine Industry*, April 2011, p. 13.

Trends in consumer health awareness also had a considerable impact on U.S. wine consumption. The 'Baby-Boomers' increasingly desired to stave off aging and infirmity by incorporating better nutrition and wellness into their lives. The postulated positive health aspects of drinking red wine in moderation contributed to increasing wine sales across all age groups.

So-called "green" consumers comprised an emerging demographic segment called LOHAS (Lifestyles of Health and Sustainability). This segment sought a better world for themselves and their children. LOHAS consumers were savvy, sophisticated, ecologically and economically aware and believed that society had reached a watershed moment in history because of increasing public scrutiny of corporations' environmental and ethical practices.⁵ The LOHAS consumer focused on health and fitness, the environment, personal development, sustainable living and social justice. The segment was estimated at about 38 million people, or 17 percent of the U.S. adult population,

with spending power of \$209 billion annually.⁶ Among all ages of consumers, younger consumers, aged 14–24, were reported to be most concerned about issues such as climate change and environmental protection, and were the major drivers of growth in the LOHAS segment. See **Table 4** for demographic data on “green” consumers vs. all consumers.

Table 4 THE GREEN CONSUMER

	All consumers	“Green” consumers
Average age	44	40
Gender		
Female	51%	54%
Male	49%	46%
Ethnicity		
Caucasian/other	75%	62%
Hispanic	13%	21%
African–American	11%	16%
College educated	25%	31%
Median household income	\$58,700	\$65,700

Source: Brooks, S. (2009). The green consumer, *Restaurant Business*, September, pp. 20–21.

Yet considerable confusion remained among wine consumers of all ages regarding organic wine vs. wine made from organically grown grapes. Organic wine was fermented and aged without sulfites, regardless of how the grapes were grown. Wine made from organically grown grapes might or might not have sulfites added to preserve shelf life. The two products were considerably different in origin, composition, and potential shelf lives.⁷ Furthermore, wines labeled as organic or biodynamic were typically placed in a separate section away from other mainstream brands in supermarkets and specialist shops. Nevertheless, U.S. sales of certified organic wine and those made with organic grapes reached \$80 million in 2006, and rose to nearly \$130 million in 2008, an increase of 28% over 2004, according to the Organic Trade Association.⁸

SUSTAINING THE CALIFORNIA WINE INDUSTRY

After a period of unprecedented and sustained growth from 2002–2007, wine producers sought an edge to differentiate their brands and also to reduce costs during the 2008–2009 industry downturn. Many wineries faced financial difficulties due to market saturation. Almost all 6,785 wineries across the U.S. (of which 3,306 were in California) faced downward pressure on prices and margins. Some industry observers opined that wine producers faced a newly “hyper-competitive” trading environment: the rate of new brand introductions slowed in 2009 and 2010, in a period when wholesalers and distributors of wine were struggling to sell off a backlog of wine inventory and thus less receptive to taking on new wines to sell.⁹

Barbara Banke was co-proprietor of Jackson Family Wines in Santa Rosa, California (Sonoma County), a wine business known for its Kendall-Jackson, Hartford Family, Matanzas Creek, and Cardinale brands. Banke listed sustainability as one of the greatest challenges the wine industry faced in 2011:

We've had a reduction in the workforce last year, and we focused on controlling our costs and not investing so much capital. We have a constant battle to get the recognition we deserve with all the work we've done on sustainability. The industry is very green—and yet that's something that's not widely known. The California wine industry should work on enhancing its reputation for sustainability.¹⁰

To many in the wine industry, sustainability was defined as the 'triple bottom line,' meaning that producers needed to measure the impacts of their activities upon 'people, planet, and profit,' that is, creating social, environmental, and economic value. That the wine industry was greening was borne out by a report issued by the California Sustainable Winegrowing Alliance in 2009.¹¹ Some 1,237 California vineyard and 329 winery owners voluntarily participated in the Sustainable Winegrowing Program (SWP), despite widespread perceptions that sustainable farming practices increased the cost of production and lowered crop yields. Information about the SWP is shown in **Exhibit 2**. According to the Napa Valley Vintners Association, Napa Valley boasted 404 premium wineries, of which 60 were classified as "Green" or "Sustainable" in some fashion. See **Exhibit 3** for more information on the 60 "Green" wineries in Napa in 2011.

Frog's Leap had hosted a Sustainable Wine Growers conference each year since 2006. The purpose of these conferences was to share information and best practices. Attendance had grown from ten to over 250 California wineries (out of 329 members of the California Sustainable Winegrowing Alliance) in just five years. At the 2010 conference, Ted Hall, owner of Long Meadow Ranch, an organic Napa vineyard located in the Mayacamas Mountains above the valley, said:

There is only one reason we farm organically, and that's because it results in higher quality and lower costs. Organic growing could double the life of a vineyard, perhaps to 40 years. That should be considered in calculating its costs. The fundamental objective of organic farming is to create a healthy plant. We're trying to create a plant that is balanced and appropriate for its site, slope and conditions. A healthy plant can produce fantastic flavors at full physiological ripeness without practices like water stress and long hang-time that can weaken the plant. You have to take a systems approach to organic growing. You can't just substitute organic pesticides or fertilizers for conventional chemicals. As much as we like to believe when we tell the rest of the world about the value of the Napa Valley appellation, not every piece of [Napa vineyard] property is suitable for growing quality grapes [organically] at a reasonable cost.¹²

A 2011 survey of 98 U.S. wine producers found that wineries appeared highly aware of sustainability issues and recognized the importance of caring for the environment.¹³ Notably, about one third of the respondents had increased investment in EMS during the recent recession. However, although many reportedly had adopted some sustainable practices such as organic and biodynamic cultivation, energy efficient production, and dry farming, the *perceived* benefits of going beyond those practices to the adoption of a formal EMS program remained unclear. There was a perception of a cost advantage benefit to a formal EMS program, but not necessarily a differentiation benefit, with the possible exception of an increased ability to enter new market segments.

FROG'S LEAP IN 2011

Frog's Leap commenced production with 653 cases of Sauvignon Blanc in 1981. By 2010 the winery produced 62,000 cases of predominantly red wines. Varietal brands included white wines made from Sauvignon Blanc (\$18 retail) and Chardonnay grapes (\$26), and red wines from Zinfandel (\$27), Merlot (\$34), two wines made from Cabernet Sauvignon (\$42 and \$70), and Petite Sirah (\$35). Frog's Leap also sold the amusingly named Frogenbeerenauslese (\$25), a 100 percent Riesling, and La Grenouille Rougante (\$14), a rosé blend made from Gamay and a touch of Riesling. In addition, the winery produced its own olive oil and honey.¹⁴

Staff headcount at Frog's Leap grew 100 percent over 12 years, from 25 to 50 personnel. Most of the new hires were fieldworkers. Other employees included those in its tasting room, such as Shannon Oren, Tasting Room Assistant. In 2011, three managers reported to John Williams. Paula Moschetti, after five years' service as enologist for the firm, was promoted to Assistant Winemaker. Jonah Beer, former director of sales for Stag's Leap Wine Cellars, was hired as Director of Sales, Marketing and Public Relations in August 2003, and soon after became the winery's first General Manager. Upon the retirement of Gary Gates, Frog's Leap's longtime financial consultant, the firm hired Doug DeMerritt as its Chief Financial Officer. DeMerritt had served in a similar capacity at another Napa winery, Duckhorn Vineyards, from 2002 until that company's acquisition by a private equity firm in August 2007.

From 1999 to 2010, Frog's Leap purchased 100 acres of vineyards in the surrounding Rutherford area in Napa Valley, effectively doubling its acreage under production in an area where land for vineyards was valuable and seldom available for purchase. Wine case production grew comparatively more modestly, from 59,000 cases to 62,000 cases. Williams commented,

The true growth of Frog's Leap over the last ten years has been the acquisition and planting of vineyards which has reduced our income, increased our debt and added significantly to our operating costs in the short term BUT has guaranteed a high quality source of grapes for the future—a future which seems to be heading in the direction of grape supply shortage and rising prices.

Company net sales grew from \$7 million in 1999 to \$12 million in 2010. Frog Leap's portfolio of premium wines was sold primarily via what was called the "Three-tier distribution" chain in the alcoholic beverages industry. Resellers included wine specialists and selected supermarkets (off-premises accounts) or restaurants and hotels (on-premises accounts). Approximately 80 percent of 2010 company net sales in the U.S. were to resellers. Exports, primarily to Japan, accounted for about 7 percent to 8 percent of company net sales. The remainder was sold to consumers from Frog's Leap's tasting room and hospitality center, opened in 2006, and its "Fellowship of the Frog" wine club, created in 2009. Direct sales to consumers, where permitted by state laws regarding the sale of alcohol, had become increasingly important to wineries during the 2008–2010 recession to reduce backlogged inventories of wine. Direct sales to consumers also generated higher gross profit margins for wineries than sales to resellers, as wineries could charge consumers full retail prices (or provide a slight discount for wine club members), whereas wines to resellers typically sold at 50 percent off the retail price, in order to provide markup incentives for moving products along the chain.

Although Frog's Leap's reputation in the wine industry had begun with a 1982 review by Terry Robards in the *New York Times* ("Frog's Leap: A Prince of A Wine"),

Williams subsequently paid little attention to ratings of his wines by popular wine critics. While many winemakers and winery owners depended on high ratings by wine critics to drive consumer demand, Williams commented on the fact that only two of his wines had ever been reviewed:

. . . we built our brand on Frog's Leap and fun. We started developing a loyal following that reduced our reliance on establishing our brand through traditional channels. I've made wine for 27 years, and I think [that] only two of our wines have ever been reviewed by Robert Parker [editor of *Wine Advocate*]. That's just fine with me. I don't have to worry about reviews that fail to recognize the brilliance of our wines, because our customers will go out and buy the wine because they love it no matter what other people say. The love of our brand evolved out of our approach, and it has allowed me to be freer as a winemaker, and more edgy in my winemaking.¹⁵

A PHILOSOPHY OF SUSTAINABILITY

Frog's Leap adhered to pre-1970s Napa Valley winemaking traditions, such as dry farming. Dry farming involved growing grape vines without using drip irrigation systems. Growing grapes without drip irrigation resulted in minimal water use and a more European style and wine flavor profile, with far lower alcohol content and fruitiness than the wines that had been produced by other Napa Valley wineries since 1970.

Other EMS practices adopted by Frog's Leap over the years included organic and biodynamic growing techniques. According to Williams, both techniques primarily involved building soil health through the use of cover crops and compost. Healthy, living soils produced healthy, living plants that naturally resisted disease. Natural-based soil fertility worked to regulate the vigor of the grapevine and naturally conferred its health and balance to the fruit, and thus to the fermenting wine, thereby avoiding many of the problems he would otherwise have had to confront in the wine cellar at a later stage of the production process.

Creating its own source of compost was another money saver for Frog's Leap. Field workers gathered the major byproducts of winemaking (like stems and pomace, or grape skins), added in all the coffee grounds, garden waste, and vegetable or fruit scraps from the kitchen, covered the pile, and let it turn into compost. Temperature readings indicated when and how often the compost pile needed to be turned. Frog's Leap saved money by not paying someone to haul the waste away, which was in keeping with the tenets of sustainable farming.

Why did Frog's Leap convert its grape production to organic and biodynamic and develop an EMS? According to Paula Moschetti, Assistant Winemaker,

It's what we believe. We know that it not only produces better quality wine, but it just makes sense for the quality of life for the employees; it makes sense for giving back to society; it makes sense for the environment. Like everybody says, 'Respect where the grapes are grown.' We try to optimize that, but also to not take wine too seriously. We want to make great, world-class wine, but with a sense of humor, a tongue-in-cheek attitude. And I think people really respond to that.¹⁶

Meanwhile, Frog's Leap moved towards energy self-sufficiency via investments in geothermal and solar power. Williams would not disclose the cost of the geothermal system, but it was known to be one of the relatively few such systems in California. Cost of the solar power system, installed in February 2005, was \$1.2 million, offset by a

\$600,000 cash rebate from the local power utility company. That system generated sufficient electricity to power 150 homes, and any excess power generated was sold back to the public utility. Jonah Beer, General Manager, described some of the cost advantages provided by Frog's Leap's energy systems:

There is virtually no cost to operate the geothermal heating and cooling system . . . and the cost payback is only about six years. It comes with a 30-year warranty for the pumps, and the wells have a lifetime warranty. The exchanger itself is 70 percent more efficient at its job because it only has to do one thing. Plus, our pumps use the electricity from our own solar power. The savings from solar is very obvious; what's amazing is that everyone *isn't* doing it. While the up-front cost estimate was \$1.2 million, Pacific Gas & Electric (PG&E) gave [us] a \$600,000 cash rebate up front, and [our] bank gave [us] a loan on the rest. As far as payback goes, we're actually paying less on the loan per month than we were paying on our electric bill. We're cash flow positive, and we'll be paid back in seven years. The system has a 25-year warranty. So we get 18 years of free electricity. Even if you don't care about green at all, it's kind of silly not to do it. [Our] system produces 450,000 KW-hours of electricity, which will save CO₂ emissions equal to not driving four million miles.¹⁷

In 2006 Frog's Leap opened the industry's first LEED certified wine tasting and office facility, primarily from recycled building materials. LEED was an acronym for Leadership in Energy and Environmental Design. Buildings attained LEED certification from the U.S. Green Business Council. Lower operation costs were typically associated with a LEED building: approximately 30 to 40 percent less energy use and 40 percent less water. Application for LEED certification of an existing property could cost upwards of \$10,000, depending upon the size of the building, the number of rooms, and the level of certification sought.¹⁸

Frog's Leap provided full-time, year-round employment and benefits for winery personnel, who were mostly immigrant laborers. According to Williams:

The Mexican workforce has been wonderful for us, and we try to return that favor. The workers don't have to be laid off after pruning in January until tying canes in May, or from leafing until harvest. In between, our workers can prune trees, turn compost, bottle Sauvignon Blanc, harvest broccoli, rack and wash barrels, thin pears and apples, bottle Merlot, etc. They work full time—and get paid, three-week vacations, 401(k) plans and health benefits. We also have fewer safety issues, because they're well-trained and experienced. They're an engaged and highly motivated workforce. Are there higher overall labor costs? How can you really measure your labor costs? The workers get stable wages, they don't have to worry about housing and healthcare and where their kids go to school. They're a community of workers. There are fewer problems with documentation, better health, less crime and use of the community's safety net.¹⁹

While other winery operators remained dubious about the cost/benefit tradeoff of investing in EMS and providing full-time employment to immigrant workers, Frog's Leap remained mostly profitable during the 2009–10 recession.²⁰ To generate incremental cash flows, Frog's Leap augmented its sales via conventional distribution channels by an innovative "wine-by-the glass" program using kegs (instead of bottles) of wine, and by initiating direct-to-consumer programs, including a tasting room, and "Fellowship of the Frog" wine club. See **Exhibit 4** for the disguised income statements provided by Frog's Leap for fiscal years 2000–01 and 2009–10. See **Exhibit 5** for the disguised balance sheets for fiscal years 2000–01 and 2009–10. Williams commented:

Over the long term, we have seen that our methods are viable. This is not just an experiment. We are a thriving business with above average margins and below average operating expenses. Our cost here for making a bottle of wine is equal to or less than the industry average.²¹

For purposes of comparison, see **Exhibit 6** for 2000–01 and 2009–10 financial ratios compiled by Silicon Valley Bank, based on actual data from several anonymous wineries similar in size to Frog’s Leap.

A reporter for the *San Francisco Chronicle* opined, “Frog’s Leap could be the poster child for a new generation of Napa wineries: beautifully appointed, genteel, terroir-oriented and dedicated to a green agenda.”²²

OPEN OTHER END

Early in Frog’s Leap’s history, John Williams had managed to persuade the U.S. Alcohol Tobacco Tax and Trade Bureau (known in the industry as the TTB) that has to approve all bottle labeling that it was not frivolous to mark the bottom of his wine bottles with a sage precaution: “Open Other End”. The word “Ribbit” was printed on the cork of every bottle of Frog’ Leap wine.

Humorous presentations aside, Williams remained serious about sustaining growth of his business while remaining at the same level of production output. “How can we continue to grow sales and profits while remaining a small winery production-wise? I know that some business people are trained to think outside of the box, but first I want to know *where* the box is and what is *in* the box before I think about what’s outside,” he quipped in May 2011.

One option for sustaining Frog’s Leap’s growth was to pursue other EMS projects. Williams maintained that Frog’s Leap still had a long way to go to become a truly sustainable winery:

We’re not 100 percent there. We’re not even close. But we’ve done a lot of interesting things, and a lot of the big projects are behind us. Now we’re into some of the more fun and challenging ideas that will help us take our philosophy further: Healthier field workers; healthier, longer living vineyards; enriched soil fertility; less erosion; lessened environmental contamination; greater trust with our consumers; and even considerably higher wine quality, converting farm equipment to biodiesel and reducing employee car use by commuting. Start-ups are going to be more expensive. There’s no getting around it. However, if you take the long view of it, once you get past 10 years, the costs are less, and you’ve got a vineyard that will outlast everyone else’s.²³

Over time, it has developed that every decision at Frog’s Leap is weighed at least in some measure by its social and ecological costs and benefits. We believe that these are the kinds of questions all businesses will have to ask and answer if we wish [to have] a sustainable future. . . .²⁴

Williams felt that pursuing any new sustainability projects in the near-to-medium term would have highly uncertain associated costs and benefits. Building out the direct-to-consumer sales channels (tasting room and wine club) was another option under consideration, but might come at the expense of taking attention away from distributors. A longer-term question about sustainability was also nagging at him: Frog’s Leap’s debt load. Williams and his former wife, Julie (who now owned another winery, Trés Sabores), had three sons who would presumably take over the business someday:

Right now my kids think my legacy is \$22 million of debt (laughs). You know I don't really think about my legacy too often. I'm happy about growing grapes and making wine and having fun doing it. But I believe our winery has changed the dialogue about the healthy growing of grapes, conservation of soil and natural resources. I hope to be remembered for that.²⁵

Williams' eldest son was working for another winery, his middle child was starting business school in Fall 2011, and his youngest was preparing to start law school. Now entering his mid-50s, Williams wondered aloud how to "position the business to be successful for the next 10–20 years, after which time the transition to that next generation would *inevitably* begin."

GLOSSARY OF COMMON WINE INDUSTRY

TERMINOLOGY

American Viticultural Area (AVA)—A designated "viticultural area" (e.g. Napa Valley, Sonoma, Central Coast) that must produce 85 percent of the grapes processed for bottling and sale. For a specified vineyard name, a particular vineyard must grow 95 percent of the grapes and all grapes used must be from the AVA.

Appellation—Similar to an AVA, the term appellation is used by other wine producing nations to demarcate a legally defined and specific region where wine grapes are grown. A wine claiming to be sourced from a named boundary (e.g. Côtes du Rhône in France, Chianti in Italy, or Rioja in Spain) must be comprised of at least 75 percent of the grapes grown within that boundary.

Biodynamics—Biodynamics, a growing agricultural movement both in the U.S. and internationally, is based on a series of lectures given in the 1920s by Austrian philosopher Rudolf Steiner. The movement views the vineyard (or farm) as an ecological whole—not just the vines, but also the soil, insects and other local flora and fauna. Like organic farmers, biodynamic growers are interested in naturally healthy plants, and in enriching their soil without artificial fertilizers or pesticides. Where biodynamics differs from classic organics, however, is in the belief that agriculture can be aligned to the spiritual forces of the cosmos. This may mean harvesting grapes when the moon is passing in front of a certain constellation, or sometimes by creating a homeopathic mixture that, when sprayed on the vines, will—in theory—help the grapes ripen and improve their flavors.

Brand—The name of the product. This can be a made-up name, the name of the actual producer, a virtual winery, or it could be a restaurant or grocery store chain that contracts with a winery for a "special label" purchase.

Chai—A barrel *chai* is a wine shed, or other **storage** place above ground, used for storing **casks**, common in Bordeaux. Usually different types of wine are kept in separate sheds. The New World counterpart to the *chai* may be called the barrel hall. In Bordeaux, the person in charge of vinification and ageing of all wine made at an estate, or the *chais* of a **négociant**, is titled a *Maitre de Chai*.

Dry farming—For most of the history of agriculture, grape growers dry-farmed their lands, and they still do in many wineries in Europe. Then, in the 1970s, drip irrigation conquered the world. A farming practice as old as agriculture itself fell to the wayside as wells were drilled, streams tapped, and pipes and hoses were run through thousands of acres of vineyards and orchards. By no coincidence, water supplies have now entered an

era of decline in California, where land is subsiding in many regions as the aquifers below are emptied. Above ground, many small streams have drained into the earth; they may still flow—just underground. Dry-farmed wines, many sources say, are better, as grapevines, working under stressed conditions, produce smaller grapes than watered vines. The result is a greater quantity of tannin-rich skins and seeds to volume of juice, which can render denser, richer wines. For a dry farmer, the challenge is to lock the winter and spring rainfall in the soil for the duration of the dry season.

Economy wine—Regardless of where they are produced, table wines that retail for less than \$3.00 per 750ml bottle are deemed to be in the generic, economy, or “jug” wine category.

Organic grapes—Organically grown grapes follow a broad definition of organic farming issued by the U.S. Department of Agriculture: “Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely on crop rotations, crop residues, animal manures, legumes, green manures, off farm organic wastes and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients and to control insects, weeds and other pests. The concept of soil as a ‘living system’ is central to this definition.” Wines made from organically grown grapes must be referred to as “wines made from organic grapes” (or organically grown grapes), as they are allowed to contain up to 100 ppm of added sulfites.

Organic wine—Organic wine is defined by the U.S. Department of Agriculture as “a wine made from organically grown grapes *and* without any added sulfites.”

Premium wine—Wines selling for more than \$3.00 per bottle are considered to be in the premium wine category. Most bottled wines in the premium category show a vintage date on their labels, that is, the product is made with at least 95 percent of grapes harvested, crushed and fermented in the calendar year shown on the label and also uses grapes from an appellation of origin (i.e. Napa Valley, Central Coast, Willamette Valley). Several market segments within the premium category are based on retail price points, typically double the wholesale value of a bottle or case of wine. *Impact Databank, Review & Forecast of the Wine Industry*, classifies wines “Sub-Premium” as those that retail for \$3.00 to \$6.00 per bottle; the “Premium” category retail for \$7.00 to \$9.99; the “Super-Premium” category retail for \$10.00 to \$13.99 per bottle, while the “Deluxe” segment are wines commanding a retail price above \$14.00. Motto Kryla Fisher, a Napa Valley wine consulting firm, further refines the “Deluxe” segment into sub-segments: “Ultra Premium” wines, priced from \$14.00 to \$29.99, and “Luxury” wines, that retail in excess of \$30.00 per bottle.

Three-tier distribution—A myriad of state laws and regulations restricting the sale of alcoholic beverages generally require wineries to use a “three-tier” distribution system (winery to distributor to retailer to consumer). However, distributor consolidation (through termination or acquisition) increased substantially since the May 16, 2005 *Granholm v. Heald* U.S. Supreme Court decision, prohibiting discrimination between in-state products and products from out-of-state, and that subsequently served to increase liberalization of shipping wine across some state lines, direct from producers to consumers.

Varietal—A type of grape (i.e., Merlot, Cabernet Sauvignon, Zinfandel, Chardonnay, etc.). To declare a “varietal” on the label, at least 75 percent of the wine must consist of

that variety of grape. Some wineries use almost 100 percent of the same varietal. Some blend a principal varietal (the one named on the label) with wines made from other varieties of the same color for better flavor balance. Others blend in “filler” varieties, which usually go unlisted, to get the most out of their supply of then-popular varieties, which are the ones touted on the label. If the label mentions a varietal, it will always be in conjunction with an appellation to inform consumers of the source of the varietal grape.

Vintage—The year in which the harvest of the wine grapes occurs. By law, grapes grown in a declared vintage year (harvest year) must account for 95 percent of the wine if the label declares a vintage year.

Source: Casewriters’ research; MDM Distribution.

NOTES

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Exhibit 1 Evolution of Frog's Leap Winery

Year	Major events
1884	Welcoming building built as the Adamson Winery
1972	As undergraduate at Cornell, John Williams obtains internship at Taylor Wine Company, falls in love with wine as a result
1975	While touring Napa Valley with a friend, John meets Larry Turley at Larry's newly bought farmstead; returns in summer to begin graduate work in enology at UC Davis; starts working part-time at Stag's Leap Wine Cellars (under Warren Winiarski); makes (and consumes) with Turley the first unofficial Frog's Leap vintage, a fizzy Chardonnay
1980	John returns to Napa Valley to become head winemaker at Spring Mountain, marries Julie Johnson; first Frog's Leap vintage, a Cabernet Sauvignon, is (somewhat unofficially) crushed
1981	John Williams forms Frog's Leap Winery in Napa with Larry Turley; winery is bonded; winery makes its first Sauvignon Blanc and Zinfandel
1984	Julie Williams becomes Frog's Leap's first employee
1985	John leaves Spring Mountain to work full-time at Frog's Leap
1989	Frog's Leap certifies its first organic vineyard
1992	First Frog's Leap Merlot (1990) is released
1993	Larry and John agree to create separate wineries; John and Julie buy Frog's Leap from Larry and begin to look for new home for winery; Larry starts Turley Wine Cellars on original Frog's Leap site (the Frog Farm)
1994—1995	John and Julie purchase defunct Adamson Winery from Freemark Abbey and re-start Frog's Leap at the "Red Barn" ranch in Rutherford
1999	First appearance of winery's Rutherford label (1996 vintage); underground barrel chai (barrel hall) next to the Red Barn completed; John and Julie are divorced; Julie starts her own winery, Tres Sabores
2002	At urging of John, Rutherford Dust Society begins Napa River Restoration project; debut of winery's Syrah and La Grenouille Rouganté, a dry rosé
2005	Photovoltaic system goes live after installation of 1,020 panels at the Red Barn vineyard; original green mailbox at winery entrance is removed and road signage to winery added
2006	Frog's Leap completes ten-year plan for winery and opens new LEED certified hospitality and administrative offices; Red Barn rebuilt
2009	Frog's Leap creates wine club, "Fellowship of the Frog" and begins developing "wine by the glass program" by packaging wines for delivery to restaurants in half kegs

Sources: Casewriters' research; Beer, J. (2007), *Organically Sublime, Sustainably Ridiculous: The First Quarter Century of Frog's Leap*, Kennett Square, PA: Union Street Press.

Exhibit 2 About the California Sustainable Winegrowing Program

Wine Institute and the California Association of Wine Growers (CAWG) partnered to design and launch the Sustainable Winegrowing Program (SWP) in 2002. The California Sustainable Winegrowing Alliance (CSWA) was incorporated a year later to continue implementing this program.

Mission

The long-term mission for the SWP includes:

- Establishing voluntary high standards of sustainable practices to be followed and maintained by the entire California wine community;
- Enhancing grower-to-grower and vintner-to-vintner education on the importance of sustainable practices and how self-governance improves the economic viability and future of the wine community; and
- Demonstrating how working closely with neighbors, communities, and other stakeholders to maintain an open dialogue addresses concerns, enhances mutual respect, and accelerates positive results.

Vision

The vision of the SWP is the sustainability of the California wine community for future generations. In the context of winegrowing, the program defines sustainability as wine grape growing and winemaking practices that are sensitive to the environment (Environmentally Sound), responsive to the needs and interest of society at-large (Socially Equitable), and economically feasible to implement and maintain (Economically Feasible). The combination of these three principles is often referred to as the three E's of sustainability. These important principles are translated into information and education about specific practices that are documented in the program's comprehensive Code workbook and are conveyed during the program's targeted education events that are aimed to encourage the adoption of improvements over time.

SWP Voluntary Participation data (as of July, 2009)

Vineyard Data Comparison	2004	2009	
Number of Distinct Vineyard Organizations	813	1,237	
Total Vineyard Acres Farmed by 1,237 Organizations	223,971	358,121	(68.1% of 526,000 total statewide acres)
Number of Vineyard Acres Accessed by the 1,237 Organizations	137,859	241,325	(45.9% of 526,000 total statewide acres)
Number of Vineyard Organizations that Submitted Assessment Results	614	868	(70.2% of 1,237 total organizations)
Total Vineyard Acres from 868 Organizations Assessed and Submitted	124,576	206,899	(39.3% of 526,000 total statewide acres)

Winery Data Comparison	2004	2009	
Number of Distinct Winery Organizations	128	329	
Total Winery Cases Produced by 329 Organizations	145.6M	150M	(62.5% of 240 million total statewide cases)
Number of Winery Cases Assessed by 329 Organizations	126.6M	141.5M	(59% of 240 million total statewide cases)
Number of Winery Organizations that Submitted Assessment Results	86	173	(52.6% of 329 total organizations)
Total Winery Cases from 173 Organizations Assessed and Submitted	96.8M	134.6M	(56.1% of 240 million total statewide cases)

Sources: California Wine Community, Sustainability Report 2009, pp. 6–7; Brodt, S. & Thrupp, A. (2009, July), "Understanding Adoption and Impacts of Sustainable Practices in California Vineyards," California Sustainable Winegrowing Alliance, pp. 5–8, www.sustainablewinegrowing.org.

Exhibit 3 “Green” Wineries in Napa Valley as of 2011

		Annual case production (est.)	Certified Napa Green Land (1)	Certified Napa Green Winery (2)	Sustainable practices (3)
1	Araujo Estate Wines	5,000–49,999	X	X	X
2	Artesa	50,000–499,999	X		X
3	Beaulieu Vineyard	500,000+	X		X
4	Beringer Vineyards	500,000+	X	X	X
5	Boeschen Vineyards	<1,000		X	X
6	Bouchaine Vineyards	5,000–49,999	X		X
7	CADE Winery	5,000–49,999		X	X
8	Cain Vineyard & Winery	5,000–49,999	X		X
9	Cakebread Cellars	50,000–499,999	X	X	X
10	Chateau Boswell Winery	1,000–4,999	X	X	X
11	Chateau Montelena	5,000–49,999		X	X
12	Clark–Claudon Vineyards	1,000–4,999	X		X
13	Clos Du Val	50,000–499,999	X	X	X
14	Clos Pegase	5,000–49,999	X		X
15	CONSTANT	1,000–4,999		X	X
16	Cuvaison Estate Wines	50,000–499,999	X	X	X
17	Duckhorn Vineyards	50,000–499,999	X		X
18	Etude	5,000–49,999	X	X	X
19	Franciscan Estate	50,000–499,999	X	X	
20	Frog’s Leap	50,000–499,999	X	X	X
21	Gargiulo Vineyards	1,000–4,999	X		
22	HALL	5,000–49,999	X		X
23	HdV Wines–Hyde de Villaine	1,000–4,999	X		X
24	Heitz Wine Cellars	5,000–49,999	X		X
25	Hess Collection Winery, The	500,000+	X	X	X
26	Honig Vineyard & Winery	5,000–49,999	X		X
27	Jericho Canyon Vineyard	1,000–4,999	X	X	X
28	Joseph Phelps Vineyards	50,000–499,999	X		X
29	Judd’s Hill	1,000–4,999		X	X
30	Krupp Brothers	5,000–49,999	X		X
31	Ladera Vineyards	5,000–49,999	X		X
32	Larkmead Vineyards	5,000–49,999		X	X
33	Long Meadow Ranch Winery	5,000–49,999	X		X
34	Markham Vineyards	50,000–499,999	X		
35	Merryvale Vineyards	50,000–499,999	X	X	X
36	Mumm Napa	50,000–499,999		X	X
37	Opus One	5,000–49,999	X	X	X
38	Ovid Napa Valley	<1,000		X	X
39	Parry Cellars	5,000–49,999	X		X
40	Peju	<1,000	X		X
41	Quintessa	5,000–49,999	X		X
42	Robert Craig Winery	5,000–49,999		X	X
43	Robert Mondavi Winery	50,000–499,999	X		X
44	Saintsbury	50,000–499,999	X		X

Exhibit 3 continued

		Annual case production (est.)	Certified Napa Green Land (1)	Certified Napa Green Winery (2)	Sustainable practices (3)
45	Salvestrin	1,000–4,999	X		X
46	Schramsberg Vineyards	50,000–499,999	X	X	
47	Silver Oak Cellars	5,000–49,999	X		
48	Silverado Vineyards	50,000–499,999	X		X
49	Spottswoode Estate Vineyard & Winery	1,000–4,999	X	X	X
50	St. Supéry Estate	50,000–499,999	X		X
51	Stag's Leap Wine Cellars (4)	50,000–499,999	X	X	X
52	Stags' Leap Winery (5)	50,000–499,999	X		
53	Sterling Vineyards	50,000–499,999	X	X	X
54	Stony Hill Vineyard	5,000–49,999	X		X
55	Trefethen Family Vineyards	50,000–499,999	X	X	X
56	Trinchero Napa Valley	500,000+	X		X
57	V. Sattui Winery	50,000–499,999	X		X
58	Volker Eisele Family Estate	50,000–499,999	X		
59	White Rock Vineyards	1,000–4,999	X		X
60	William Hill Estate Winery	50,000–499,999	X		X

Notes:

1. The **Certified Napa Green Land** program was a third party certified, voluntary program for Napa vintners and grape growers. The program sought to restore, protect and enhance the regional watershed and included restoration of wildlife habitat, healthy riparian environments, and sustainable agricultural practices. As of 2011, approximately 45,000 acres were enrolled in this program and more than 19,000 acres were certified.
2. Founded in 2007, the **Certified Napa Green Winery** designation was developed by the Napa Valley Vintners Association in coordination with the County's Department of Environmental Management (DEM), and was based on the Association of Bay Area Government's (ABAG) Green Business Program. ABAG's winery-specific checklist included: water conservation, energy conservation, pollution prevention, and solid waste reduction.
3. The Napa Valley Vintners Association defined **Sustainable practices** as environmentally sound, economically viable, and socially responsible winegrowing methods. Examples of sustainable practices that pertained to resource conservation and/or effective vineyard management included:
 - Cover crops
 - Reduced tillage
 - Reduced risk pesticides
 - Use only organic inputs
 - Erosion control measures
 - Hedgerows/habitat management
 - Installing bird boxes
 - Integrated Pest Management (monitoring of pests & beneficial plants, reduced-risk materials, leaf-pulling)
 - Energy conservation
 - Weather station
 - Renewable energy (solar, biofuels)
 - Creek and river restoration

Exhibit 3 continued

4. Founder Warren Winiarski sold Stag's Leap Winery in 2007 to a joint venture between Chateau Ste. Michelle (Washington state) and Marchesi Antinori (Italy). Notably, Stag's Leap's Cabernet Sauvignon won a gold medal in the famous Paris wine tasting in 1978, an event that suddenly put Napa on the map as a global wine producer. Warren Winiarski was John Williams' first employer in the Napa wine industry.
5. Often misspelled and confused with Stag's Leap Winery, Stags' Leap was purchased by Beringer Wine Estates in 1999, and is currently owned by Treasury Wine Estates, a recent spinoff of Foster's Group (Australia).

Sources: Napa Valley Vintners Association Green Wineries Program, http://www.napavintners.com/wineries/napa_green_wineries.asp, accessed May 23, 2011, company websites, *Wines and Vines*.

Exhibit 4 Frog's Leap Winery Statements of Income,
2000—2001 and 2009—2010

<i>All dollar amounts are in \$000</i>	FY 2000	% of Sales	FY 2001	% of Sales	FY 2009	% of Sales	FY 2010	% of Sales
Cases Sold	61,000		54,000		53,000		62,000	
Sales	\$9,638	100%	\$9,180	100%	\$10,017	100%	\$12,152	100%
Costs of Goods Sold	4,514	46.8%	4,050	44.1%	4,346	43.4%	4,960	40.8%
Gross Profit	5,124	53.2%	5,130	55.9%	5,671	56.6%	7,192	59.2%
Operating Expenses:								
Sales & Marketing	1,580	16.4%	1,615	17.6%	2,853	28.5%	3,337	27.5%
General & administrative	1,200	12.5%	1,300	14.2%	1,678	16.8%	1,483	12.2%
Total Operating Expenses	2,780	28.8%	2,915	31.8%	4,531	45.2%	4,820	39.7%
Operating Income	2,344	24.3%	2,215	24.1%	1,140	11.4%	2,372	19.5%
Interest Expense	450	4.7%	875	9.5%	1,420	14.2%	1,420	11.7%
Earnings bef. Tax	\$1,894	19.7%	\$1,340	14.6%	\$(280)	-2.8%	\$952	7.8%
Depreciation & Amortization	675	7.0%	900	9.8%	1,250	12.5%	1,100	9.1%

Source: Frog's Leap Winery. Some data have been disguised by the company, but the relationships are accurate.

Exhibit 5 Frog's Leap Winery Balance Sheets,
2000–2001 and 2009–2010 (FYE 12/31)

<i>All amounts are in \$000</i>	FYI 2000	<i>% of Total Assets</i>	FY 2001	<i>% of Total Assets</i>	FY 2009	<i>% of Total Assets</i>	FY 2010	<i>% of Total Assets</i>
ASSETS								
Current Assets								
Cash	\$130	0.7%	\$80	0.4%	\$10	0.0%	\$20	0.1%
Accounts Receivable	400	2.1%	550	2.6%	1,650	4.1%	1,950	5.0%
Inventory	6,500	33.5%	7,560	35.5%	12,010	30.1%	11,550	29.5%
Prepaid and other expenses	125	0.6%	250	1.2%	320	0.8%	325	0.8%
Total Current Assets	7,155	36.9%	8,440	39.6%	13,990	35.0%	13,845	35.4%
Property, Plant and Equipment	15,250	78.6%	16,150	75.8%	36,750	92.1%	37,100	94.9%
Less: Accumulated Depreciation & Amort.	3,150	16.2%	3,450	16.2%	10,925	27.4%	11,950	30.6%
Net Property, Plant and Equipment	12,100	62.4%	12,700	59.6%	25,825	64.7%	25,150	64.3%
Other Assets	150	0.8%	175	0.8%	100	0.3%	110	0.3%
Total Assets	\$19,405	100.0%	\$21,315	100.0%	\$39,915	100.0%	\$39,105	100.0%
LIABILITIES & CAPITAL								
Current Liabilities								
Notes Payable	\$3,150	16.2%	\$4,370	20.5%	\$2,425	6.1%	\$2,425	6.2%
Accounts Payable and Accruals	2,610	13.5%	1,470	6.9%	2,325	5.8%	2,150	5.5%
Current Portion of LTD	540	2.8%	960	4.5%	890	2.2%	950	2.4%
Total Current Liabilities	6,300	32.5%	6,800	31.9%	5,665	14.2%	5,525	14.1%
Long Term Debt	5,030	25.9%	7,040	33.0%	20,400	51.1%	19,500	49.9%
Total Liabilities	11,330	58.4%	13,840	64.9%	26,065	65.3%	25,025	64.0%
Shareholder Equity	8,075	41.6%	7,475	35.1%	13,850	34.7%	14,080	36.0%
Total Liabilities and Equity	\$19,405	100.0%	\$21,315	100.0%	\$39,915	100.0%	\$39,105	100.0%

Source: Frog's Leap Winery. Some data have been disguised by the company, but the relationships are accurate.

Exhibit 6 Financial Ratios for Similar-Sized Wineries,
2000–2001 and 2009–2010

	FYI 2000	FY 2001		FY 2009	FY 2010
Growth Rate, Cased Goods Revenue		-14.1%			+2.9%
Current Ratio (x)	2.11x	1.76x		1.91x	2.29x
Quick Ratio (x)	0.49x	0.30x		0.22x	0.08x
Working Capital (\$000)	\$4,203	\$3,941		\$6,063	\$8,518
Cased Goods Revenues/Net Working Capital (x)	1.67x	1.53x		1.84x	1.35x
Account Receivable Days (365)	95.3	91.1		39.8	14.8
Inventory Days	575	805		1,118	1,533
Tangible Net Worth (TNW, \$000)	\$4,499	\$4,361		\$12,863	\$13,597
Total Liabilities to TNW (x)	0.9x	1.3x		1.6x	1.7x
Senior Liabilities/TNW + Subordinate Debt (x)	0.9x	1.3x		1.4x	1.4x
Gross Profit Margin (%)	45.70%	45.30%		67.20%	70.00%
Sales & Marketing Expenses/Sales (% of sales)	9.50%	12.20%		10.90%	9.80%
Net Margin (Return on Sales, %)	14.70%	5.70%		9.10%	9.70%
EBITDA (\$000)	\$1,528	\$799		\$3,964	\$4,269
EBITDA, Less Distributions or Dividends (\$000)	\$218	\$325		\$3,502	\$4,062
Debt Service Coverage (x)	6.4x	3.9x		2.0x	2.4x
Total Interest/Total Senior Debt (%)	7.50%	4.90%		6.80%	6.00%
Conventional ROE (%)	22.70%	7.80%		7.90%	8.20%
Operating Return on Assets (%)	11.90%	3.50%		3.00%	3.10%

Source: Casewriter's research, based on data provided by Silicon Valley Bank that were compiled from anonymous wineries similar in size to Frog's Leap. For more highly aggregated financial data, see: Jordan, D.J., Aguilar, D., & Gilinsky, A. (2010), "Benchmarking Northern California Wineries," *Wine Business Monthly*, October, 60–67.