case 36

Benziger Family Winery

Murray Silverman
San Francisco State University

Tom Lanphar
California Department of Toxic Substances Control

Matt Atkinson, ranch manager at Benziger Family Winery (BFW), was overseeing the development of the winery's environmental management system (EMS). Matt was working with Chris Benziger, partner and national sales manager, to ensure that development of the EMS was consistent with BFW's operational and strategic direction. It was February 2003 and Matt and Chris had already invested countless hours in the EMS, which was being developed with assistance from the California Environmental Protection Agency (Cal/EPA). Through its EMS winery pilot project, Cal/EPA hoped to design an EMS template that eventually could be made available to other wineries. Furthermore, Cal/EPA was attempting to develop a template that was consistent with ISO 14001, an internationally recognized standard for environmental management systems. Cal/EPA had selected BFW in June 2000 as one of two pilot wineries because of the winery's proactive commitment to environmental policies and the significant environmental advances it had already made.

Matt believed that considerable progress had been made on the company's EMS. With Cal/EPA's assistance, BFW had developed a formal environmental policy, identified and prioritized its environmental impacts, and established objectives and targets. However, there were still many steps to be carried out in establishing a full-fledged EMS. Further development would require time-consuming efforts in writing standardized operating procedures and in establishing document control and record-keeping procedures. Also, because Matt and Chris had been the primary participants developing the system, the rest of the organization would have to become involved and staff training would be required. In light of the financial investments and time that would be required from management and employees, Matt and Chris had to decide whether to aggressively pursue ISO 14001 certification. The alternative was to continue to develop an EMS as time and resources permitted, leaving open the possibility of eventually pursuing ISO 14001 certification.

 The authors gratefully acknowledge a Business and International Education (BIE) grant from the U.S. Department of Education and a matching grant from the College of Business at San Francisco State University in support of this case research.

BENZIGER FAMILY WINERY'S HISTORY

Mike Benziger, general partner and founder of Benziger Family Winery, grew up working in his father's wine import business in New York City. His dream was to grow his own grapes and make his own wine. Mike was the oldest of Helen and Bruno Benziger's seven children. Bruno worked for 23 years in the wine import business, starting out with his father, Joseph, who founded the Park-Benziger Import Company in 1933 in New York City. Mike and his siblings worked in the family business, selling and delivering wine throughout the city's five boroughs. After graduating college in 1973, Mike relocated to Europe with his wife, Mary; the couple worked in vineyards and cellars as they moved from region to region. In 1975, Mike took a cellar position with Stony Ridge Winery in California, where as assistant winemaker he took a giant leap forward in appreciating the craft end of the business, sparking his continuing passion for the creation of truly great wine.

As their desire to start their own winery grew more insistent, Mike and Mary spent their free time

searching for the ideal site. While driving through the charming little northern California town of Glen Ellen, on a sudden impulse Mike turned into a narrow road winding up the mountain. One particular plot of land, the 85-acre Sonoma Mountain Ranch, a hanging volcanic valley spread across the side of the mountain, was the site he had been seeking. In October of 1981, Mike convinced the reluctant owner to sell and, borrowing a substantial amount from his father, initiated an all-consuming adventure for three generations of the Benziger family.

Soon after, Mike's father, Bruno Benziger, sold his share of Park-Benziger and moved to the Sonoma Mountain Ranch. Mike's younger brothers, Bob and Joe, sold their successful wine shop in upscale Scarsdale, New York, and followed closely behind their parents. Joe studied enology and viticulture at Santa Rosa Junior College and the University of California at Davis. As winemaker, Joe supervised every aspect of the production of all Benziger wines from fermentation to bottling. Bob helped build the wine distribution network and eventually took charge of business development. Brother Jerry arrived in 1981 and settled into winemaking.

The three youngest Benzigers were also involved in the family business. Mike's sister Patsy developed and ran the Benziger Family Winery Apprenticeship Program, perpetuating the family tradition by arranging for the Benziger children and the children of employees to spend six weeks working in each of the winery's departments during their high school and college years. Chris earned a degree in marketing from the University of San Francisco and was the national sales manager. Kathy, the youngest of Bruno and Helen's seven children, earned a degree in management from Sonoma State University. She was in charge of sales in the eastern region of the United States. Tim Wallace, Patsy's husband, a Harvard Business School graduate, was president and chief operating officer. He was in charge of all aspects of sales and marketing, finance and administration, and the hospitality and wine-tasting function. Mike Benziger supervised the vineyard and wine production. The winery employed 49 people full-time, and 29 people were either part-time or seasonal workers.

BFW was a medium-sized winery producing 180,000 cases of ultrapremium wine per year, with annual revenues of about $15 million. Superpremium wines ($8–$14 a bottle) accounted for 60 percent of case volume, ultrapremium wines ($15–$25 a bottle) accounted for 30 percent, and luxury wines (over $25 a bottle) accounted for the remaining 10 percent. BFW was about to launch a new brand, Tribute, that would be an estate wine (grown from grapes in the company's own vineyards) selling in the range of $50–$60 a bottle. Eventually, the company hoped to sell 4,000 cases of Tribute annually. Currently, BFW exported 10 percent of its total case volume and was targeting 20 percent as a long-term goal. Most of its exports were to Canada and Europe. European markets expressed a significant amount of interest in biodynamic and organic wines, and BFW therefore planned to target Tribute exports to the European market.

BENZIGER'S ENVIRONMENTAL INITIATIVES

BFW was a recognized leader in environmentally responsible winemaking. Its environmental practices extended to both its vineyards and wine production. In 1999, BFW was one of the initial wineries certified by the Sonoma County Green Business Program (SCGBP), on the basis of its proactive environmental programs within its winery operations. In April 2000, BFW won Cal/EPA's Department of Pesticide Regulation's Integrated Pest Management Innovators Award.

The Sonoma Mountain Ranch site held a remarkable diversity of soils. Twenty-one distinct types of soil were identified and grouped by the Benzigers into "flavor blocks." The variety of soil types related to one of the key elements of BFW's philosophy—farming for flavors, a method of carefully tailoring viticultural techniques to soil type, exposure, and climate in order to produce fruit of optimal complexity, concentration, and intensity. Sixty-five acres of vines were planted at the ranch, and another 20-acre parcel was planted with vines in nearby Sonoma Valley.

At the root of the Benziger family's environmental stewardship was a goal to "produce world-class wines that had a sense of place"—that is, wines that contained the unique personality and character of the place where the grapes were grown. The Benzigers' approach was to farm in concert with nature and not in opposition to it. According to Mike Benziger, chemical pesticides and fertilizers reduced the unique

and natural characteristics of a vineyard and its grapes. Restoring the biologic capital of a vineyard (the ability of nature to provide services such as pest control, fertilizing, and moisture retention) enhanced the unique qualities of the wine. To achieve the natural conditions they sought in their vineyards, the Benziger family practiced biodynamic farming. While similar to organic agriculture in that chemicals were eliminated, biodynamic farming went further in that it attempted to respond to the earth's natural energies and cycles. The Benziger family's two Sonoma County vineyards were certified in 2000 by the Demeter Association, the international organization that monitored and approved biodynamic practices. Chris Benziger estimated that biodynamic farming increased grape-growing costs by about 10 percent. According to BFW's Web site (www.benziger.com), the principles of biodynamic farming included:

- Promoting the unique environment of a given site by minimizing outside influences and by utilizing only farm-produced composts and manure for soil preparation. At BFW, compost developed by combining waste from the winery with manure from a local dairy was spread over the vineyard, increasing both soil fertility and vitality. The resulting increase in the diversity of soil organisms eliminated the need for soil fumigants. The soil's water-holding capacity was also increased, reducing irrigation needs.
- Using no chemically synthesized fertilizers, pesticides, herbicides, fungicides, or fumigants, and no hormones, antibiotics, growth regulators, or genetically modified organisms. Reliance on these synthetics reduced the vine's natural ability to absorb nutrients from the soil, leaving it susceptible to disease.
- Employing a series of eight herbal preparations that were applied to the soil to promote soil vitality through increased microbiologic activity and diversity (these were considered as vitamins for the plants and soil). The more nutrient-rich and biologically diverse the soils, the more character imparted to the wine.
- Using cover crops and companion plants to maximize the health of the vineyard environment. BFW's cover crops, planted between vineyard rows, served to reduce soil erosion, fertilize soil through nitrogen fixation, and attract beneficial insects. Also, BFW had set aside areas in the vineyard for plants that attracted beneficial insects (insectaries).

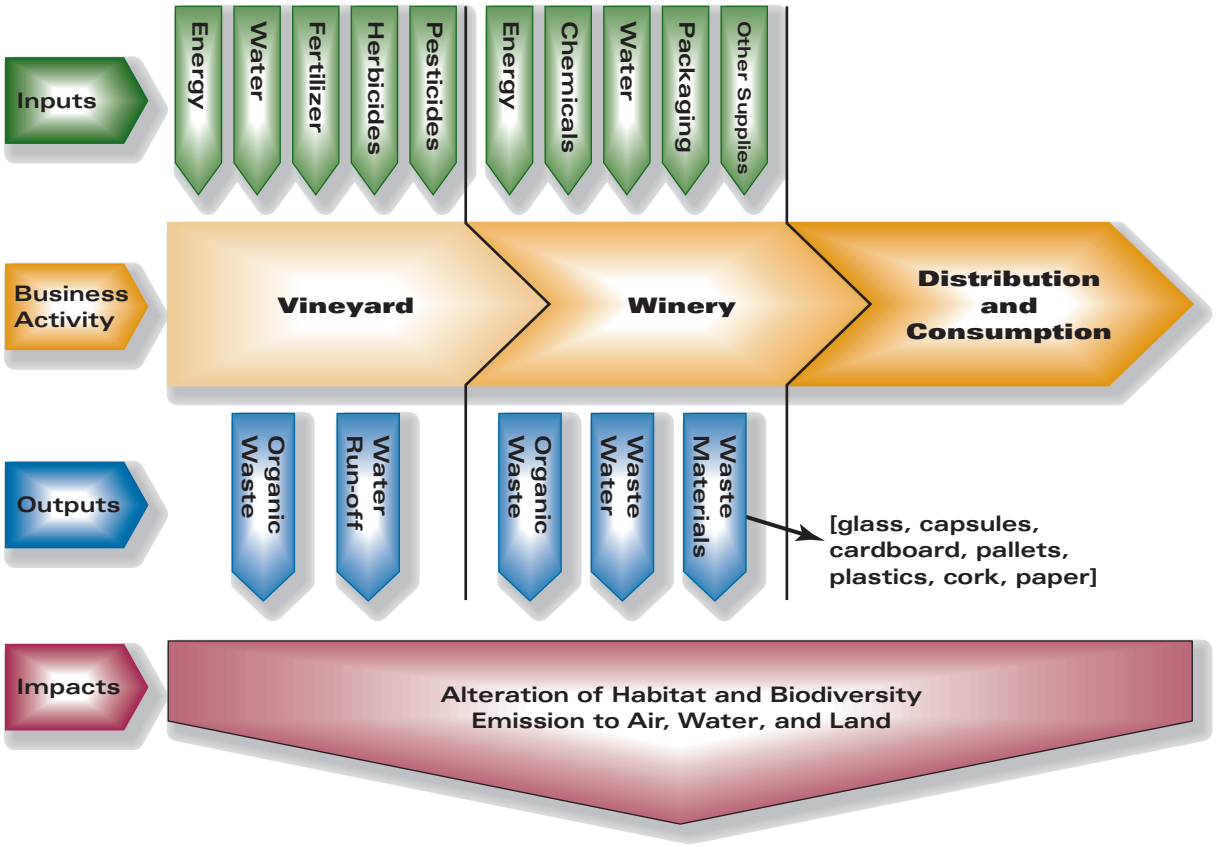
BFW's vineyards supplied only a small proportion of the winery's grapes; the balance of the grapes was bought from more than 60 growers. To improve quality and to teach them the techniques, costs, and benefits associated with sustainable agricultural practices, BFW educated its growers in the farming methods employed in its own vineyards. It conducted a quarterly series of "hot topic" seminars demonstrating practices such as canopy management, irrigation, and weed control. According to Matt Atkinson, the message was: "The quality of your grapes will improve if you follow our practices."

Environmental practices at BFW also extended into the winery, as reflected by BFW's being certified by the Sonoma County Green Business Program (SCGBP). The SCGBP provided technical assistance to businesses in the areas of compliance, resource conservation, and pollution prevention. The SCGBP certified that a business was in full environmental compliance and met the Green Business standard for beyond-compliance environmental practices in the areas of energy and water conservation, solid waste reduction, and pollution prevention. As part of the Green Business certification process, BFW demonstrated a 2-million-gallon-per-year water savings through recycling all wastewater generated by the winery. Its wastewater was biologically treated in a series of ponds and wetlands and supplied 75 percent of the winery's vineyard irrigation needs. Significant reductions in solid waste were also shown. Forty-one percent of the winery's waste stream was recycled. To reduce energy costs associated with wine storage, BFW constructed a set of wine caves in its vineyard hillside. This 22,000-square-foot facility maintained a natural temperature of 63 degrees Fahrenheit, significantly reducing the energy requirements for storing the company's wines.

ENVIRONMENTAL PRACTICES IN THE WINE INDUSTRY

The U.S. wine industry ranked fourth in the world in terms of volume of wine produced and consisted of approximately 1,500 wineries. The industry, however,

exhibit 1 Typical Environmental Impacts in Vineyards and Wineries



was highly concentrated, with the top 10 wineries accounting for 70 percent of U.S. production by volume. Wine was grown and produced in every state except Alaska, but the U.S. wine industry was dominated by California, whose 800+ wineries accounted for more than 90 percent of the wine produced and exported by U.S. wineries. The Pacific Northwest (Washington, Oregon, and Idaho) had over 200 wineries that were developing an excellent reputation for quality wines. An estimated 245 million cases of wine, representing over 6,500 brands, were consumed in the United States in 2002; some 23 brands sold at least 2 million cases each and represented about 40 percent of total consumption.

The supply chain for the wine industry started with wine-grape growers and proceeded to wineries, where the grapes were crushed, fermented, clarified, stabilized, and aged. Eventually, the wines were bottled and shipped through the distribution channels to wholesalers, then to retailers who sold to the end consumer. A very small proportion of the wine circumvented the traditional distribution channels and was sold directly from the winery to the end consumer. While some smaller wineries grew all their own wine grapes, most wineries purchased some of their grapes from independent growers. There were a large number of independent wine-grape growers who sold their grapes under contract to specific wineries or on the open market.

Exhibit 1 displays the chief environmental impacts associated with a typical winery. Environmental impacts associated with growing wine grapes were agricultural, while those in the wineries were related to food processing. A comprehensive listing of all the potential environmental impacts associated with vineyard and winery operations would be too extensive to be listed here, but the most significant include the following:

- Vineyard inputs included fertilizers (both synthetic and natural), pesticides, water for irrigation, and energy to power equipment in the field. While there were natural pesticides and pest control approaches, a majority of vineyards used synthetic chemical pesticides in the form of insecticides, herbicides, and fungicides. According to California's 1998 "Annual Pesticide Use Report," there were over 34 million pounds of pesticides applied to wine grapes, using 298 different chemicals. These chemicals, while varying in terms of level of toxicity, were detrimental to air, water, and soil quality. They also had harmful impacts on vineyard workers, neighbors, and animals sharing the local habitat. A major issue with synthetic fertilizers was their potential to contaminate local water supplies due to inappropriate or excessive application. Water shortages could also be an issue in many geographic areas. Energy issues associated with the use of fossil fuels related to greenhouse gas emissions, depletion of natural resources, and air quality impacts. There was also significant consumption of energy in producing the commonly utilized synthetic nitrogen fertilizers.
- Winery inputs included energy (cooling during the fermentation process, maintaining storage temperature, pumping, running equipment, etc.); water (barrels and vats needed to be constantly cleaned and rinsed, as did all other equipment, to ensure a minimum level of bacteria that might interfere with the controlled processes in the winery); chemicals (cleansers, diatomaceous earth, sulfur gas, refrigerants, etc.); and packaging materials (including glass, corks, wood pallets, glues, cardboard, metal, and plastic foil). Winery operational water issues related to the treatment of waste water containing organic matter, nitrates, and phosphorous. Chemical issues varied according to the chemical but could include spills and various air, soil, and water quality impacts. Packaging materials impacted natural resource stocks and posed landfill issues.

Wineries varied considerably in their efforts and effectiveness in dealing with their environmental impacts. A small percentage of wineries and growers had certified some or all of their vineyards as organic. To be organically certified, a winery could use no synthetic fertilizers or pesticides. A vineyard could be certified organic following a three-year transition period. In 2002, approximately 10,000 acres of wine grapes in California were certified organic, out of a total of 434,000 acres. In the early 1980s, Frey Winery became the first winery to produce organic wines. By 2000, Frey was selling 40,000 cases a year of organic wine. Fetzer Winery was also an early industry leader in attempting to mitigate its environmental impacts. It certified the vineyards it owned as organic in 1986 and since then had also engaged in a series of practices that reduced the environmental impacts of its winery operations and administration. These practices included energy efficiency initiatives (building an energy-efficient administration building with thick rammed-earth walls, installing photovoltaic panels to supplement electricity requirements, and building earthen berms around its warehouse to reduce energy requirements for cooling), winery wastewater treatment using reed-bed ponds and recycling the cleansed water for irrigation, elimination of chlorine use, establishment of a comprehensive companywide recycling program, and establishment of an in-house barrel restoration program.

Wine industry associations were playing an important role in moving the industry to become more environmentally sustainable. A number of regional associations had been supporting a pesticide reduction approach called integrated pest management (IPM). If pesticides were used, they were selectively applied on the basis of data from close monitoring of pest infestations. Preemptive applications of broad-spectrum pesticides throughout the vineyard were discouraged. IPM practitioners limited pesticide use to applications that were economically rational. In 1998, the industry created a national initiative called WineVision, whose agenda included a Sustainability Task Force. A WineVision goal was to be a wine industry leader internationally in sustainable practices. One task force was a joint effort by the California Association of Winegrape Growers (CAWG) and the Wine Institute to create a code of sustainable practices for the industry. The purposes of the code were to "establish voluntary high standards of sustainable practices to be followed and maintained by the entire wine community" and to "promote farming and winemaking practices that are sensitive to the environment, responsive to the needs and interests of society-at-large, and are economically feasible in practice."

WINERY ENVIRONMENTAL PRACTICES AND MARKETPLACE ADVANTAGE

There were many opportunities for wineries to attain marketplace recognition and advantage via their environmental practices. These advantages were typically secondary considerations for the U.S. wine consumer. A wine's quality, price point, and reputation were primary considerations, and thus the environmental attributes could play a role in consumers' choices among comparable offerings. Wineries could promote specific environmental aspects of their grape-growing practices, such as organic or biodynamic certification. Or they could publicize their water, energy, or other initiatives in their winery operations. These practices and initiatives could become a point of differentiation in the tasting-room selling process, in sales calls, and during wine-tasting events. The label on the wine bottle could extol environmental aspects or certifications. The winery's literature and Web site could promote the environmental dimension. Most important, wineries were always seeking good public relations (PR) through articles in industry magazines and other publications. New environmental initiatives could often generate free PR.

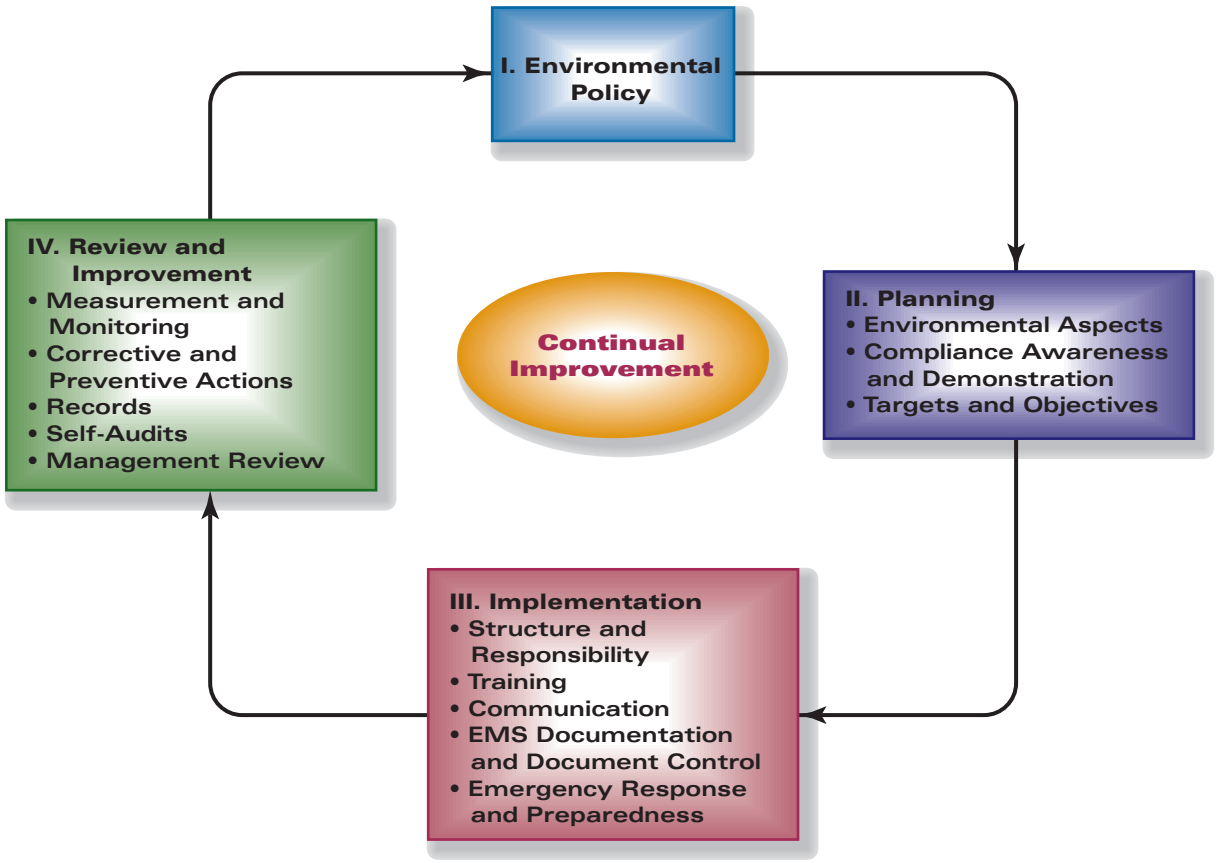
In 2001, wines made from organic grapes and labeled as such constituted 1 percent of the U.S. wine market, representing a retail value of $190 million. That segment of the industry was growing by 20 percent annually. In California, approximately one-third of the wineries farmed their own vineyards organically. They did so because they believed it enhanced the quality of their wine. However, only one in four of those wineries were certified organic—and only a few of those claimed credit for being certified on their label.

Wineries had two main reasons for not promoting their organic practices. First, the initial organic wines that came on the market in the 1980s were not considered comparable to traditional wines at similar price points, and the reputation of organic wines had suffered ever since. Part of the problem was that sulfur dioxide, a preservative in the winemaking process, was not added to the organic wines. Unless the wine was bottled according to certain procedures and maintained within a certain temperature range during distribution and subsequent storage, too low a sulfite level could result in a significant deterioration in quality. Second, there had been confusion in the U.S. market regarding the definition of organic wine. Until 2002, wines could not be called organic because there was no official, standard definition of the term. The U.S. Department of Agriculture had recently defined a standard for organic wine, but because this standard included a requirement that there be no added sulfites, most wines did not qualify. Wineries could label their wines as "made with organic grapes" so long as the grapes were certified organic and sulfite levels did not exceed 100 parts per million. Still, potential confusion among consumers, coupled with the poor reputation of organic wine's quality, meant that promoting wine grapes as organic could be detrimental in U.S. markets.

While organic certification did not seem to provide much in the way of competitive advantage in U.S. markets, export markets were a different matter. Wine consumers throughout the European Union sought organic foods in general and valued organic wines. The considerable success of Fetzer's Bonterra brand in the United Kingdom could be attributed in part to the organic grapes used in making the wine. Similarly, Japanese distributors importing wines made from certified organic grapes promoted that aspect in their highly environmentally sensitive country.

BFW did not explicitly advertise or label the biodynamic or environmental aspects of its wines. However, there was a small but growing number of distributors and retailers interested in BFW's environmental accomplishments, and Chris Benziger did not hesitate to use those selling points in his sales calls when the opportunity presented itself. According to Chris, one of BFW's primary distributors frequently emphasized the winery's biodynamic practices as a selling point, and Chris was seeing more wine consumers at tastings and auctions buying BFW wines because of the winery's environmental practices. BFW's brochures and Web site featured those practices, the winery's tasting-room personnel were trained to explain them, and winery tours highlighted them.

exhibit 2 **Elements of an Environmental Management System (EMS)**



CALIFORNIA EPA'S EMS PILOT PROGRAM

The years following the formation of the U.S. Environmental Protection Agency in 1970 were characterized primarily by a command-and-control approach to regulating business organizations. The 1990s witnessed federal and state agencies experimenting with a range of more flexible options to reduce environmental risks, including market incentives and voluntary programs. In 1998, the California Environmental Protection Agency (Cal/EPA) established an Innovation Initiative and joined with the U.S. EPA, nongovernmental organizations (NGOs), business, academia, and other state EPAs as a member of the Multi-State Working Group (MSWG) to study the environmental benefits of environmental management systems (EMSs) as a tool for enhancing environmental protection and achieving sustainable development. The MSWG participants and observers included all 50 states, several of which were actively engaged in approximately 50 EMS pilot projects. The EMS pilot project goal was to evaluate the potential of EMSs to achieve environmental results within and beyond the limitations of the existing regulatory system.

An EMS was a managerial process designed to help an organization meet environmental objectives and demonstrate improved environmental performance (see Exhibit 2). It entailed a continuous cycle of planning, implementing, reviewing, and improving. An EMS could be informal, with minimal documentation; this was a common approach in small companies. Or it could be formal and fully documented, an approach often taken by larger organizations that had

many high-risk issues to manage. Many organizations had an EMS whose primary purpose was to allow the organization to stay in compliance with regulations. However, an EMS could be designed to take an organization well beyond compliance, allowing it to proactively minimize its significant environmental aspects. This type of proactive EMS was what the regulators and a wide range of other stakeholders were seeking. However, prior to the development of the ISO 14000 series standards, outside stakeholders could not assess the adequacy of an organization's EMS. ISO 14000 was an attempt to develop a widely accepted, uniform approach to certifying that a company's or facility's EMS was an organizationally integrated, beyond-compliance system to continually improve environmental performance.

The International Organization for Standardization (ISO) was widely recognized and accepted in the global business community. Facilities certified to ISO 9001 could assure their customers that their quality management systems met the standards and guidelines established by the ISO. While pursuing certification was voluntary, more and more businesses were requiring that their suppliers be ISO 9001 certified. Following the success of the ISO 9000 standards, ISO began to develop the ISO 14000 series of guidelines and standards to aid companies dealing with environmental issues. In order to be ISO 14001 certified, a company/facility needed to have an EMS that met ISO guidelines.

ISO 14001 was the basic EMS standard within ISO 14000 to which firms certified. Meeting ISO 14001 standards could be time-consuming and costly. The initial costs included both system development costs and ISO registration fees. If an external consultant was used, the cash outlay could easily exceed $100,000. If the system was developed internally, staff time requirements would be substantial, but costs would be reduced. Other costs would include ongoing system maintenance costs. These costs would come in the form of staff time devoted to overseeing the system, planning and monitoring it, entering data, training workers, and so on. Among the many potential benefits that could be realized from an ISO 14001–certified EMS system were (1) enhanced public image among external stakeholders, (2) systematization of existing environmental activities, (3) competitive advantage in markets where consumers were sensitive to environmental product attributes, (4) cost savings due to waste reduction and avoidance of environmental liabilities, (5) relaxed regulatory oversight, and (6) improved environmental performance.

exhibit 3 **Top 15 Countries in Terms of Number of ISO 14001 Registrations**

Country	Number of ISO 14001 Certifications
Japan	2,124
Germany	1,400
United Kingdom	947
Sweden	645
Taiwan	506
United States	480
Korea	463
Netherlands	443
Switzerland	370
Denmark	350
Australia	300
France	285
Spain	234
Austria	200
Finland	191

Source: Reinhard Peglau, *Worldwide Statistics on EMAS-Registered Companies and ISO 14001 Certified Organizations* (Berlin: Federal Environmental Agency, June 1999).

The number of ISO-certified companies in the 15 countries with the most registrations is shown in Exhibit 3. By June 1999, there were 480 companies in the United States with ISO 14001 certifications, none of which were wineries. A number of wineries outside the United States had been certified. In 1998, a New Zealand winery was the first winery to be ISO 14001 certified. By 2001, Allied Domecq, with global wine holdings and among the 20 largest U.S. wineries, had been actively pursuing ISO 14001 certification for its production facilities. Its wine brands included Clos du Bois, Callaway Coastal, Atlas Peak, William Hill, and Buena Vista from California; Balbi and Graffigna from Argentina; Marques de Arienzo, Siglo, Campo Viejo, Tarsus, and Aura from Spain; and Montana from New Zealand. It had achieved ISO 14001 certification at 28 sites globally, representing more than 80 percent of its production volume, but had not yet certified a U.S. facility.

The Cal/EPA EMS winery pilot project involved two wineries in Sonoma County, Benziger Family Winery and Davis Bynum Winery. Cal/EPA selected Davis Bynum and BFW in June 2000 as pilot wineries after receiving stakeholder suggestions to include agriculture in the EMS project. Wineries were considered because of their importance in California's economy and their environmental impacts—especially in the areas of water quality and availability, pesticide use, habitat loss, and urban encroachment. Another consideration was the effort of the wine industry to become environmentally responsible. Both the grape-growing and winemaking operations were included in the pilot project.

The Cal/EPA project manager was Tom Lanphar, senior hazardous substances scientist for the Department of Toxic Substances Control. The pilot project with the Sonoma wineries had as its objectives to determine (1) whether and how the use of an EMS by a regulated entity increased public health and environmental protection over current requirements, and (2) whether and how the use of an EMS provided the public greater information on the nature and extent of public health and environmental effects than information provided by current regulatory requirements. Lanphar believed that BFW and Davis Bynum were the only smaller wineries actively developing EMSs that were consistent with ISO 14001 certifications.

DEVELOPMENT AND IMPLEMENTATION OF BENZIGER FAMILY WINERY'S EMS

Chris Benziger and Matt Atkinson had several motivations for participating in the pilot project and developing an EMS at BFW. Prior to the pilot program, their environmental initiatives were not part of a systematic planning process. Thus, they saw an EMS as a logical next step in organizing their existing environmental programs into a comprehensive system that would provide (1) better understanding of their environmental impacts, (2) systematic planning for meeting their environmental responsibilities, and (3) monitoring and follow-up. The potential for cost-saving initiatives and improvements in wine quality further motivated them. And they hoped to use the EMS as an educational tool for their employees and suppliers. Finally, they viewed this as an opportunity for BFW to be among the first U.S. wineries to be ISO 14001 certified, enhancing their reputation as an environmental leader in the wine industry.

The technical assistance being provided by Cal/EPA through the EMS winery pilot project was substantial. The pilot project extended through December of 2001. During the one-and-a-half-year period of the project, there were meetings every two weeks that included Tom Lanphar from the EPA, Matt Atkinson from BFW, and representatives from Davis Bynum Winery. Also, Chris Benziger attended many of these meetings. The purpose of these meetings was to walk through the process of developing each winery's EMS. In addition, Cal/EPA and the U.S. EPA sponsored five all-day workshops that were open to the businesses in all of the EMS pilot projects. The first of these workshops was an overview of EMSs. Another was designed to assist in the development of an environmental policy statement consistent with ISO 14000. In addition to the workshops, Cal/EPA organized a series of stakeholder meetings that included the winery representatives, local industry associations, activists, and other wineries.

On the basis of its experiences in working with the two pilot wineries, Cal/EPA was developing a template in the form of a manual that any winery could use in developing an EMS. One part of this template was a Gap Analysis form, an EMS checklist consistent with ISO 14000 requirements (see Exhibit 4). Other sections of the template would include procedures and examples to assist wineries in completing the various steps listed in the Gap Analysis.

One of the first steps involved in developing an EMS was to write or update the organization's environmental policy. Prior to the pilot project, BFW did not have a formal environmental policy. Matt attended a Cal/EPA and U.S. EPA workshop that focused in large part on environmental policies. Following the workshop, he and Chris drafted an environmental policy. They shared the draft and received helpful feedback at a Cal/EPA-sponsored stakeholder meeting. The final environmental policy statement (Exhibit 5) was then shared with BFW employees at a staff meeting. BFW planned to post the statement on its Web site.

To assist with identifying significant environmental impacts, Cal/EPA developed (1) the Vineyard

exhibit 4 EMS Gap Analysis for Benziger Family Winery, February 2003

A Gap Analysis compares current methods for managing environmental responsibilities with the required elements of the ISO 14001 EMS standard. The purpose of a Gap Analysis is to help a firm understand the differences between its current system and the required elements of an ISO 14001 EMS. The following outlines the main elements of an EMS consistent with ISO 14001 and the current status of Benziger Family Winery's EMS.

Environmental Policy	Yes	No
Do you have an environmental policy? Benziger has developed an environmental policy that includes commitments to continual improvement, the prevention of pollution, and staying in compliance with relevant environmental regulations.	X	
Environmental Aspects	**Yes**	**No**
Have you conducted an analysis of the environmental impacts of your activities, products or services? Using the Aspects Register developed by Cal/EPA, environmental impacts had been prioritized according to a systematic procedure.	X	
Legal and Other Requirements	**Yes**	**No**
Do you have a procedure to identify legal and other environmental requirements that are applicable to your activities, products or services? The ranch manager is responsible for identifying legal and other environmental requirements; no formal procedure is written. Ranch manager will write one. Estimated time to complete: 2 hours.		X
Objectives and Targets	**Yes**	**No**
Do you have documented environmental objectives and targets? Objective and targets have been developed and documented based on significant environmental aspects and legal requirements.	X	
Environmental Management Programs: Action Plans	**Yes**	**No**
Have you established programs for achieving objectives and programs? Action plans (environmental management programs) have been written and identify responsibilities, resources needed, and time frame for implementation and completion.	X	
Structure and Responsibility	**Yes**	**No**
Has top management appointed specific management representative(s) to have the responsibility for ensuring that the environmental management system is established, implemented, and maintained? The ranch manager has been given the responsibility for ensuring the EMS is established, implemented and maintained. More specific responsibilities still must be defined.	X	

(continues)

exhibit 4 (continued)

Structure and Responsibility	Yes	No
Are other personnel roles and responsibilities defined, documented, and communicated in order to facilitate effective environmental management, and are adequate resources (human, technical, and financial) provided for implementation and control of the environmental management system? Responsibility matrix has been produced; however, specific names must still be defined. Ranch manager will complete. Estimated time: 4 hours.		X
Training, Awareness and Competence	**Yes**	**No**
Are all personnel whose work may create a significant environmental impact trained to minimize potential impacts? Training of personnel does occur on a regular basis to meet regulatory requirements; however, additional training needs based on EMS aspects and impacts are still being planned based on training matrix in the EMS. Ranch manager and department managers and supervisors are responsible. Estimated time: Planning and writing training programs: 8 hours. Training given on continual basis.		X
Communication	**Yes**	**No**
Do you have procedures for informing personnel about the elements of your EMS? Communication plan is still in development. Environmental Committee (department managers) will complete procedure. Estimated time: 6 hours.		X
EMS Documentation	**Yes**	**No**
Are the core elements of your EMS and their interaction documented in either paper or electronic form? An EMS binder has been created to maintain relevant documents; however, binder does not contain all necessary documents for a completed EMS. Ranch manager is responsible. Estimated time: 40 hours.		X
Document Control	**Yes**	**No**
Have you established document control procedures that ensure that documents are created and maintained in a proper and consistent manner? Procedure is in the process of being developed. Ranch manager is responsible. Estimated time: 1 hour.		X
Operational Control	**Yes**	**No**
Have you identified operations, activities, goods, and services that are associated with significant environmental aspects and impacts of your organization? Procedure for identifying significant environmental aspects and impacts link these with operations, activities, goods or services.	X	

(continues)

exhibit 4 (continued)

Operational Control	Yes	No
Do you have established documented procedures for operations and activities that cover situations which might result in adverse environmental impacts or deviations from your environmental policy or objectives and targets? The need for developing standard operation procedures (SOPs) is included within objectives and targets. Some SOPs have been created. Three more SOPs need writing. Relevant department manager and ranch manager are responsible. Estimated time for completion: 24 hours per SOP for total of 72 hours.		X
Emergency Preparedness and Response	**Yes**	**No**
Do procedures exist for identifying the potential for and response to accidents and emergency situations and for preventing and mitigation of the environmental impacts that may be associated with emergencies? Plan currently exists. An updated plan is in process of final approval. Company president, ranch manager, and executive secretary are responsible. Estimated time for completion: 4 hours.	X	
Monitoring and Measurement	**Yes**	**No**
Do documented procedures exist to regularly monitor and measure the key characteristics of operations having a significant impact on the environment? Do these procedures require the recording of information to track performance and conformance with objectives and targets? Draft procedure exists. Ranch manager is responsible. Estimated time for completion: 2 hours.		X
Nonconformance and Corrective and Preventative Action	**Yes**	**No**
Do you have procedures for defining responsibility and authority for handling nonconformances and for taking action to mitigate any impacts? Draft procedure exists. Ranch manager is responsible. Estimated time for completion: 2 hours.		X
Records	**Yes**	**No**
Do you have procedures for the identification, maintenance, and disposition of environmental records, including training and audit results? Draft procedure exists. Ranch manager is responsible. Estimated time for completion: 2 hours.		X
EMS Audit	**Yes**	**No**
Do you have a program and procedures for periodic EMS audits? Can the audits determine whether your EMS conforms to the ISO 14001 standard? This topic is yet to be discussed by the environmental committee. Estimated time: unknown.		X
Do you have procedures that establish the audit scope, frequency, methods, responsibilities, and requirements for conducting audits and reporting results? Procedures will be written once the environmental committee makes decisions about audit protocols.		X

(continues)

exhibit 4 (concluded)

Management Review	Yes	No
Does your top management regularly review the EMS to ensure its suitability, adequacy, and effectiveness? EMS estimated completion date is fall of 2003 and first management review is scheduled for winter of 2003.		X

exhibit 5 Benziger Family Winery Environmental Policy

Benziger Family Winery is committed to identifying and promoting the most environmentally safe and sustainable business and farming practices.

We believe that sound environmental policy will lead to an increase in product quality as well as the social well-being of our employees and community.

We will:

- Continually monitor and improve environmental performance through an EMS.
- Appoint an environmental committee to propose annual targets and objectives for management approval.
- Integrate environmental consideration across all business functions (vineyard, winemaking, purchasing, etc.).
- Comply fully with the letter and spirit of environmental laws and regulations.
- Seek to prevent pollution before it is produced and reduce the amount of waste at our facilities.
- Recycle whenever possible and use environmentally preferred materials.
- Communicate this policy throughout the company and provide appropriate training and educate employees to be environmentally responsible on the job and at home.
- Manage our natural resources in an environmentally sensitive manner and use energy efficiently throughout our operations.
- Continuously work to improve our adherence to these principals and report to our stakeholders.
- Make this policy available to our customers, our community members, and the general public.

Operations and Winery Operations Aspects Register, a comprehensive description of possible environmental impacts in a winery's vineyard and winemaking operations, and (2) a Procedure for Identifying and Evaluating Environmental Aspects and Impacts. The procedure had the winery first identify its environmental impacts using the Aspects Register, then it provided a method of assigning points to each impact according to whether the impact was regulated (0 = not regulated, 2 = regulated); the level of environmental harm the winery experienced in relation to that impact (0 = low, 1 = moderate, and 2 = high); and whether it was covered in the winery's environmental policy (0 = not covered, 2 = covered). One more point was added if there were other environmental concerns.

Using this procedure, Matt and Chris developed a list of BFW's significant environmental vineyard and winery impacts (see Exhibit 6). They circulated this list of BFW's significant aspects to other managers in the winery and asked for validation and input on what they might have missed. Managers from winery operations, sales and marketing, administration, and hospitality/wine tasting reviewed and approved the list without any additions or suggested changes. BFW's most significant impacts in the vineyard were stormwater containment, spillage/leakage, and fuel consumption. In the winery, the most significant impacts included fuel consumption, spillage/leakage, mercury-containing lights and ballast, and use of refrigerants. Stormwater was an issue because of the potential for erosion and the

exhibit 6 **Significant Vineyard Aspects of Benziger Family Winery (Scale: 1 = excellent; 10 = poor)**

Aspect	Score
Stormwater	7
Use of electricity	5
Removing water from aquifer	5
Use of plastic	2
Use of water	5
Waste plastic	2
Use of sulphur	4
Use of fences and barriers	2
Spillage or leakage (solvent, plastic, metal, construction materials)	7
Air emissions	4
Fuel consumption	7
Noise	2
Landfill disposal (wood, plastic, metal, construction materials)	2
Use of electricity	5
Noise	2
Fuel consumption	7
Use of propylene glycol	2
Use of refrigerants	6
Generation of CO_2	2
Air emissions	4
Use of wood	3
Use of diatomaceous earth	6
Use of sulphur	4
Use of glass	3
Use of corks	3
Use of glues	2
Use of paper	3
Use of cardboard	3
Use of metal and plastic foil	3
Use of plastic	3
Use of water	5
Waste electric equipment	2
Use of Styrofoam	3
Mercury-containing lights and ballasts	6
Use of paint	6

washing of sediment into local streams. Spillage and leakage were issues, especially in relation to diesel oil, glycol refrigerants, and cleaning agents. Fuel consumption was an issue not only because it generated pollution but also because BFW's environmental policy specifically called for "managing our natural resources" and "using energy efficiently."

Following prioritization of significant environmental impacts, objectives and targets were developed at the end of 2001 (see Exhibit 7). Cal/EPA provided an Objectives and Targets Procedure along with technical assistance. In setting objectives, Cal/EPA suggested considering the winery's environmental policy; impacts; applicable legal requirements; stakeholder views; technological options; and financial, operational, and other business requirements. Targets were to be quantitative, realistic, measurable, and linked to environmental aspects. Matt and Chris felt that BFW already had an adequate approach to stormwater containment. They thought that their objectives should advance their progress in developing a full-fledged EMS. Thus, a number of formal objectives were developed in terms of completing standard operating procedures. In terms of energy efficiency, Mike Benziger wanted to see significant reduction in energy use and pushed for a 20 percent reduction in electrical consumption by the end of 2002.

ISSUES IN DEVELOPING BENZIGER FAMILY WINERY'S EMS

By the beginning of 2002, Cal/EPA's pilot program had officially ended, although Tom Lanphar continued to provide assistance on an informal basis. During 2002, progress was made on many of the objectives and targets listed in Exhibit 7. Water use was monitored in 2002, creating a baseline for future reduction targets. Proposals were being reviewed for a photovoltaic system that would partially reduce dependence on the electrical grid. Standard operating procedures for the safe handling and use of dietamaceous earth were developed. (Dietamaceous earth was used in the winemaking process and presented a respiratory risk to employees.)

In February of 2003, Tom and Matt met and filled out the Gap Analysis, indicating what had been accomplished and what steps would be required to complete the EMS. There were many steps remaining in the development of an EMS that was in conformance with ISO 14001 standards. These steps included training personnel, developing and implementing a plan to communicate and inform employees about the EMS, keeping records, developing

exhibit 7 Objectives and Targets for Benziger Winery and Vineyard Operations

Objective	Target	Status	Regulated		Non Regulated
			Meets	Beyond	
1. Reduce electrical consumption by 20 percent	20 percent by 12/02	In process			X
2. Monitor water use to establish 2002 baseline, set performance target in 2003	By 12/02	In process			X
3. Minimize dependency on nonrenewable electrical energy sources by generating 5 percent of needs	Generate 5% of energy needs by 12/02	In process			X
4. Write standard operating procedure (SOP) for safe handling and disposal of hazardous materials	By 09/02	In process			X
5. Write SOP for safe handling and disposal of diatomaceous earth	By 12/02	In process			X
6. Develop Environmentally Preferred Purchasing policy and program for more efficient use of resources.	By 07/02	In process			X
7. Write SOP for refrigerant handling to prevent accidental discharge	By 12/02	In process			X

procedures and establishing measurement and monitoring capabilities. Approximately 150 hours would be required to complete development of the EMS. At least 100 hours of Matt's time would be required, and because other demands on his time were significant and hard to predict, completion of his EMS tasks could take six to nine months. However, the time required could be longer depending on the level of cooperation and support forthcoming from the managers and employees who needed to be involved in the development of the EMS.

Later in 2003, Tom Lanphar met with Matt Atkinson and Chris Benziger to discuss BFW's EMS. Chris stated, "Pursuit of ISO 14001 certification was the right thing to do . . . The winery was committed to its ultimate development." If BFW was able to complete the required steps on the Gap Analysis, Tom estimated that the cost to then become certified would be approximately $20,000. This would include preaudit assistance from a consultant at $1,000 a day for five days and certification costs of $15,000.

However, Matt and Chris identified a number of challenges facing them. Externally, the wine industry was facing an unprecedented economic squeeze due to a glut of wine grapes and increasing international competition. This meant that time and money for system development would be extremely tight. Tim Wallace, BFW's president, was supportive of winery's environmental agenda but wanted any decision regarding investments in EMS development to make "good business sense." Second, there were internal impediments. Buy-in from all of the managers was not complete. It would not be easy to convince all of the managers that the payoff from an ISO 14000 system justified the investment in employee time that would be required to complete the EMS. The EMS was seen as "Matt's thing." As a result, it had been difficult for Chris and Matt to get managers to participate in developing and implementing the system. There was an Environmental Committee composed of just Chris and Matt, but they knew they had to broaden the committee's membership and engender organizational support if the EMS was ultimately to be successful. Third, the marketability and PR value of a winery's environmental pedigrees was intangible. While there was certainly a strong demand for organic wines and eco-labels in Europe, it was unclear as to when this would translate into mainstream demand in the U.S. domestic market.