

CALIFORNIA WINE COMMUNITY

# Sustainability Report

# Executive Summary

2004



PREPARED BY THE  
**California  
Sustainable  
Winegrowing  
Alliance**



# Executive Summary

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Welcome to the California Wine Community Sustainability Report 2004.

**This is the first time an entire sector has measured the level of sustainable practices among its members and reported the results publicly.**

The Sustainable Winegrowing Practices (SWP) program was initiated in 2001 with the desired outcome of earning a reputation as the world leader in the adoption of sustainable winegrowing practices. The program has gone through one full program cycle from design, development, implementation, data collection and analysis, to reporting in just over three years.

The full report is organized into 16 chapters. Chapter 2 provides an overview of the California Wine Community, the SWP program, and how to interpret the assessment results and future program targets. Chapters 3-15 present the assessment results for the thirteen sustainable winegrowing practices chapters from the SWP workbook. These chapters include viticulture, soil management, vineyard water management, pest management, wine quality, ecosystem management, energy efficiency, winery water conservation and quality, material handling, solid waste reduction and management, environmentally preferred purchasing, human resources and neighbors and community. In total, there are 221 criteria in the SWP workbook and each criterion has four categories on the level of sustainable practices adoption. The report concludes with a chapter on lessons learned and program next steps.

The assessment results demonstrate strengths within the California wine community where growers and vintners are doing a commendable job of balancing environmental, social and economic principles in how they practice their businesses. Areas for improvement are also pin-pointed in the results. Addressing these challenging areas will require time, money, innovation and, in some cases, outside expertise, new technologies, an improved regulatory framework, and partnerships.

A desired outcome of publishing this report is providing information that growers, vintners, neighbors, community members, nonprofits, government and private sector professionals can use to collaborate on implementing practical solutions to improve the adoption of more sustainable winegrowing practices.

This executive summary is organized into the following six sections:

- 1. About the California Wine Community**
- 2. About the Sustainable Winegrowing Practices Program**
- 3. How to Interpret the Assessment Results and Future Targets**
- 4. Sustainable Winegrowing Practices Strengths and Opportunities for Improvement**
- 5. Lessons Learned**
- 6. Program Next Steps**

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## 1. About the California Wine Community

Winegrapes are grown in 47 of California's 58 counties, covering 529,000 acres. Winegrapes are the third leading agricultural crop in annual revenues to California farmers at more than \$2 billion. California is the leading agricultural state in the nation with annual gross farm receipts at more than \$27 billion.

California produces 92 percent of all U.S. wine with more than 250 million cases per year. Wine is the state's number one finished agricultural product. If California were a nation, the

state would be the fourth leading wine-producing country in the world behind France, Italy and Spain. California wine has an economic impact of \$45.4 billion on the state, counting revenues to the wine industry and allied industries, direct, indirect, and induced economic benefits

More than 40 regional winegrower and vintner associations provide educational, public policy, and marketing services to local grower and winery members.

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## 2. About the Sustainable Winegrowing Practices Program

In 2001, Wine Institute partnered with the California Association of Winegrape Growers (CAWG) to design and execute the SWP program. The SWP program's mission, vision and values best describe the combination of factors that motivated the California wine community to design, develop, implement, and report on a comprehensive sustainability program.<sup>1</sup>

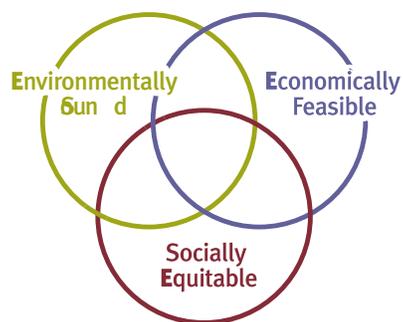
### MISSION

The long-term mission for the Code of SWP project includes:

- Establishing voluntary high standards of sustainable practices to be followed and maintained by the entire wine community;
- Enhancing winegrower-to-winegrower and vintner-to-vintner education on the importance of sustainable practices and how self-governing will enhance 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 can address concerns, enhance mutual respect, and accelerate results

### VISION

The vision of the SWP program is the long-term sustainability of the California wine community. To place the concept of sustainability into the context of winegrowing, the program defines sustainable winegrowing as growing and winemaking practices that are sensitive to the environment (**Environmentally Sound**), responsive to the needs and the interests of society-at-large (**Socially Equitable**), and are economically feasible to implement and maintain (**Economically Feasible**). The combination of these three principles is often referred to as the three “Es” of sustainability (see **Figure 1**).



**FIGURE 1** Sustainability as defined by the three overlapping principles of Environmentally Sound, Economically Feasible and Socially Equitable.

These three principles provide a framework to pursue sustainability. However, these important principles need to be translated into everyday operations of winegrowing and winemaking. To create a bridge between general principles and daily decision-making, the workbook is organized into 13 self-assessment chapters that translate the sustainability principles into specific winegrowing and winemaking areas.

### VALUES

This SWP program is guided by the following set of sustainability values:

- Produce the best quality winegrapes and wine possible.
- Provide leadership in protecting the environment and conserving natural resources.
- Maintain the long-term viability of agricultural lands.
- Support the economic and social wellbeing of farm and winery employees.
- Respect and communicate with neighbors and community members; respond to their concerns in a considerate manner.
- Enhance local communities through job creation, supporting local business and actively working on important community issues.
- Honor the California wine community's entrepreneurial spirit.
- Support research and education as well as monitor and evaluate existing practices to expedite continual improvements.

### BUILDING THE SWP WORKBOOK

Over an 18 month period, members of Wine Institute and CAWG met monthly to define the mission, vision, values and scope of the program and then build the sustainable winegrowing practices workbook content chapter-by-chapter.<sup>2</sup> Incorporated into the 490-page self assessment workbook is the collective knowledge and experience of a 50-member committee, input from

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<sup>1</sup>The SWP program mission, vision and values were first published in the California Code of Sustainable Winegrowing Practices Workbook, 2002, Wine Institute and California Association of Winegrape Growers, San Francisco, CA.

<sup>2</sup>The Viticulture, Soil Management, Vineyard Water Management, Pest Management and Wine Quality chapters of the SWP workbook were adapted from the Lodi Winegrower's Workbook: A Self-Assessment of Integrated Farming Practices, 2000, Lodi Woodbridge Winegrape Commission, Lodi, CA. The Central Coast Vineyard Team's Positive Point System also served as a model for the vineyard workbook chapters.

regional grower and vintner organization members and staff, and external reviewers that included researchers and farm advisors, government agencies, environmental and social equity groups.

The workbook includes a built-in measurement system. Participants assess their practices according to a four-category system. Category one illustrates practices which are considered to be the minimum level of sustainability for that practice but within regulatory compliance, if regulations exist. For example, **Table 1** illustrates the four performance categories for a criterion on “Organic Matter” in the Soil Management chapter. The categories represent increasing sustainability moving from right to left.

The workbook was released in October, 2002. The program is being implemented through a workbook workshop approach. This approach involves working with a local grower/winery host and inviting 10 or more growers and/or winemakers to a 3-hour workshop to literally have each participant go through the entire workbook and assess their practices. This approach was pioneered by the Lodi-Woodbridge Winegrape Commission. Many of the regional grower and vintner associations took the lead in introducing the SWP program to their members and hosting local SWP workbook workshops.

## WORKSHOP PARTICIPATION

Seventy-two workbook workshops were held over a 17-month period from November, 2002 through April, 2004.<sup>3</sup> Workshops have been held in 24 counties covering every major winegrowing region of the state. Over 1,000 growers and/or winemakers participated in an SWP workbook workshop. More than 800 vineyard enterprises and 125 winery facilities were represented at workshops. At the conclusion of each workshop, participants were asked to voluntarily submit their assessment results to contribute to the development of vineyard and winery baseline datasets. Collected assessments were entered into a relational database software application (SWP software) that included the county and larger winegrowing region for vineyards. Vineyard and winery participation results are presented in **Table 2** and **Table 3**.

The SWP assessment results presented in this report reflect a diverse range of vineyard and winery operations from many small producers to very large producers. The size distributions for vineyard and winery operations are presented in the full report.

The initial program goals were to have 10% of California’s 529,000 vineyard acres and 10% of the 250 million case winery production assessed using the SWP workbook in the initial

**TABLE 1:** Example of the 4-category Self-assessment Continuum of Increasing Sustainability

### SOIL MANAGEMENT - TILTH

CRITERIA	CATEGORY 4	CATEGORY 3	CATEGORY 2	CATEGORY 1
<b>4-8 Organic Matter</b> (Skip if organic matter sufficient for your soil type)	A combination of organic matter is added to the soil <b>annually</b> (e.g. permanent or annual cover crop, compost, and/or manure) <b>And</b> Tillage is reduced or eliminated to lower the rate of organic matter breakdown.	Some form of organic matter is added to the soil <b>annually</b> (e.g. annual cover crop, compost, manure, or a combination of cover crop and manure or compost).	Resident vegetation is allowed to grow in the winter.	No organic matter is added to the soil other than what the vine produces, and resident vegetation is minimized in the winter <b>And</b> The vineyard is clean tilled.
<i>Organic matter improves soil tilth and structure, improves aeration and infiltration, increases water-holding capacity, buffers soil pH, increases the availability of micronutrients, provides a source of plant nutrients, and feeds beneficial micro-organisms</i>				



<sup>3</sup> Workshops are on-going. The end of April 2004 was used as the cut-off date for analyzing and reporting assessment results for this report.

**TABLE 2.** Vineyard workshop participation results

Number of Distinct Vineyard Enterprises	<b>813 enterprises</b>	
Total Vineyard Acres Farmed by the 813 Enterprises	<b>223,971 acres</b>	(42.3% of 529,000 total Statewide acres)
Number of Vineyard Acres Assessed by the 813 Enterprises	<b>137,859 acres</b>	(26.1% of 529,000 total Statewide acres)
Number of Vineyard Enterprises that Submitted Assessment Results	<b>614 enterprises</b>	(75.5% of 813 total enterprises)
Total Vineyard Acres from 614 Enterprises Assessed and Submitted	<b>124,576 acres</b>	(23.5% of 529,000 total Statewide acres)

**TABLE 3.** Winery workshop participation results

Number of Distinct Winery Facilities	<b>128 facilities</b>	
Total Winery Cases Produced by 128 Facilities	<b>145.6 million cases</b>	(58.2 % of 250 million total statewide cases)
Number of Winery Cases Assessed by 128 Facilities	<b>126.6 million cases</b>	(50.6 % of 250 million total statewide cases)
Number of Winery Facilities that Submitted Assessment Results	<b>86 facilities</b>	(67.2% of 128 total facilities)
Total Winery Cases from 86 Facilities Assessed and Submitted	<b>96.8 million cases</b>	(38.7 % of 250 million total statewide cases)

round of workshops. *The goals were exceeded by 40% for winery case production (50% submitted, goal 10%) and 16.1% for vineyard acreage (26.1% submitted, goal 10%).*

### **SWP ASSESSMENT DATA COLLECTION, ANALYSIS AND REPORTING**

Assessment results from the 614 vineyard enterprises and 86 winery facilities were entered into the SWP software. Means were calculated for each chapter as well as for each vineyard and winery criteria (221 total criteria). The frequency distribution of category 4-3-2-1-N/A and missing data were also calculated for each criterion. The SWP program assures participants that their individual information is kept strictly confidential. At no time are individual names linked to reporting results.

Like all survey data, this report has limitations which should be considered when interpreting the results. It is not possible to know when responses reflect actual behavior. This disadvantage applies to all survey and assessment studies. Growers and wine-makers who did not attend a workshop or turn in their assessments may differ from those that did turn in their assessments. However, the data does represent more than 38% of the winery case production and more than 23% of the vineyard acres.

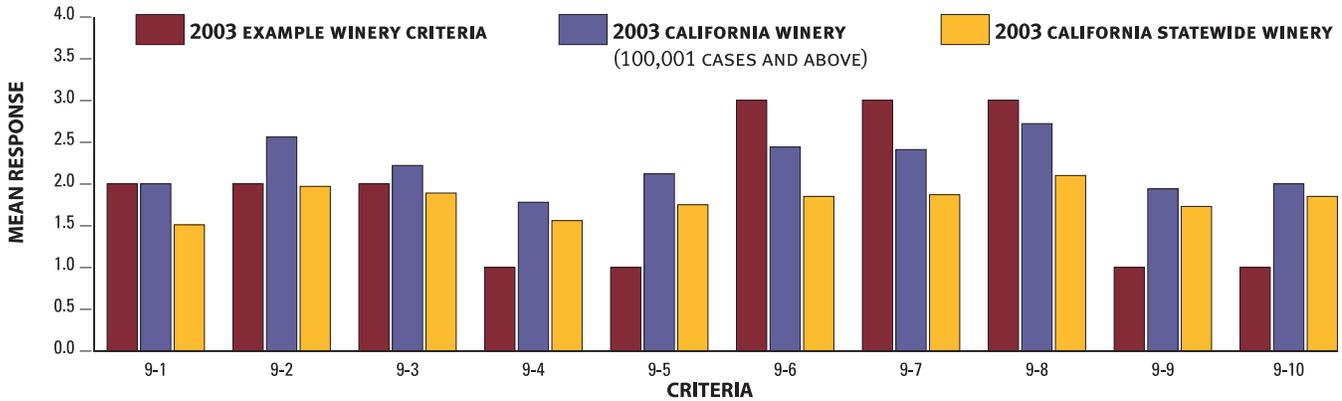
### **BENCHMARK REPORTS PROVIDED TO WORKSHOP PARTICIPANTS**

Vineyard and winery workshop participants that submitted their assessments were mailed confidential reports of their results compared to regional (vineyard) or size class (winery) averages and statewide averages. **Figure 2** presents a winery Criteria Mean Report with individual participants results, the average criteria results within their size class, and overall statewide results. This report allows participants to benchmark their operation relative to their region or size class and the state as a whole.

### **FEEDBACK TO REGIONS**

Confidential regional reports have also been sent to most of the regional grower and vintner associations in the state. At the regional level, these assessment reports are useful because they provide information on the practices for the region in comparison to statewide averages. The regional assessment reports allow organizations to target limited resources to the areas that need education and outreach to achieve improvement.

## CHAPTER 9 ENERGY EFFICIENCY



**FIGURE 2.** Example of a winery criteria mean report. The x-axis contains the Chapter and Criteria from the SWP workbook, for example 9-1 represents Chapter 9, Criteria 1. The y-axis contains the actual response for the individual winery and the mean responses (Category 1-4) for that question.

### SWP PARTNERSHIPS

The SWP program has benefited from partnerships with the California Department of Food and Agriculture, American Farmland Trust, and the University of California. CDFA awarded the project a \$280,000 “Buy California” competitive grant in November of 2002 that was instrumental in supporting program implementation. American Farmland Trust awarded the California Sustainable Winegrowing Alliance (CSWA) a \$150,000 competitive grant to promote and measure the adoption of integrated pest management (IPM) methods in the state and to pub-

licly report on the progress of the SWP project. The competitive grant was funded by the United States Environmental Protection Agency. The University of California (UC) Board of Regents, UC Division of Agriculture and Natural Resources, and the UC Statewide Integrated Pest Management Program granted the permission to reprint 58 photographs in the workbook. The workbook program has also benefited from the University of California providing longstanding research and extension contributions to generating and extending knowledge on winegrowing and natural resource management.

## 3. How to Interpret the Assessment Results and Future Targets

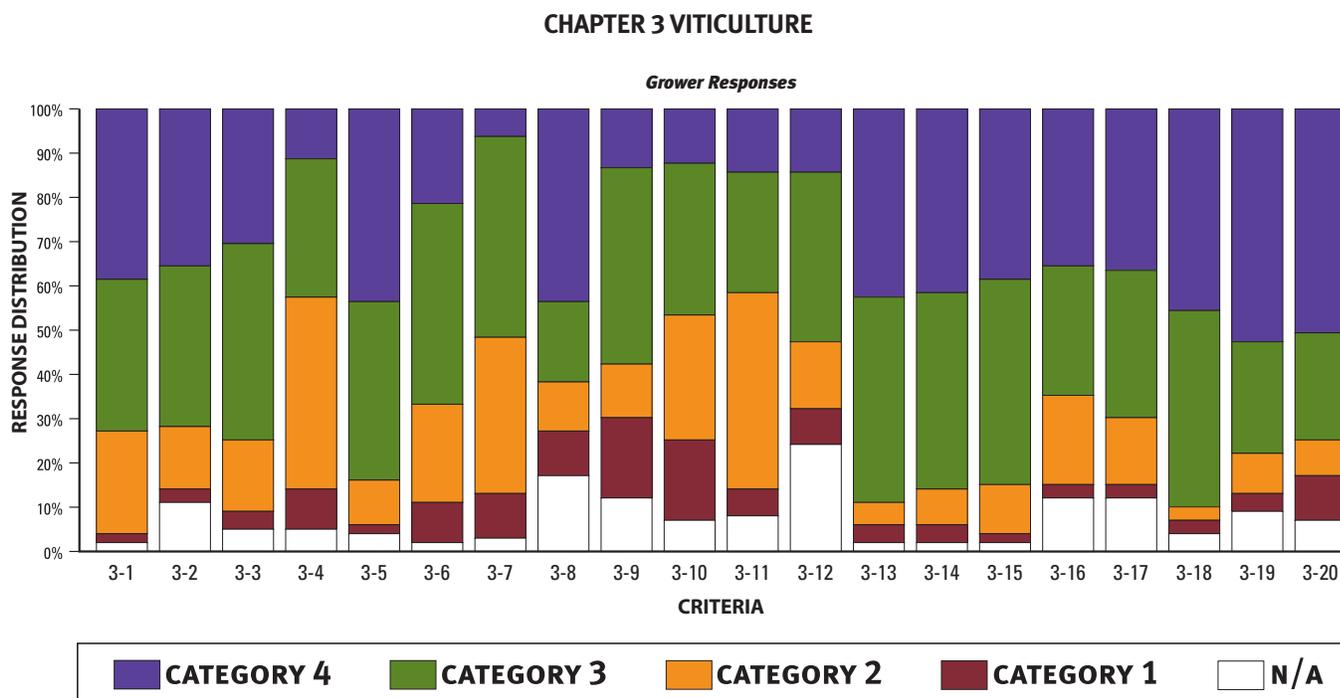
The full report presents the assessment results for each of the 221 criteria from the 13 workbook assessment chapters. Each chapter includes a graph, illustrating the percent distribution of responses from the winegrowers and/or vintners (**Figure 3**). Each chapter also includes a “Background” section, which provides an overview of current practices, followed by a detailed examination of the responses to each criterion in the workbook.

When interpreting the results between criteria it is **very important** to consider that the criteria are not all scaled the same, meaning that category “4s”, “3s”, “2s” and “1s” between criteria, and **more importantly** across chapters, do not represent the same level of sustainability. For example, it may be

much more difficult to implement a category “3” or “4” for some criteria. This is especially true for chapters 9 through 15.

At the end of every chapter is another graph, depicting targets for 20% continual improvement measured by the mean response for each criterion that is below “3”. For questions that had a mean of “3” or above, the 20% target is not included. These practices are well on their way to being sustainable and the overall goal for those not specifically illustrated is to demonstrate continuous improvement by the next report.

**FIGURE 3:** Example of a percentage distribution response graph. The x-axis contains the Chapter and Criteria from the SWP workbook, for example 3\_1 represents Chapter 3, Criteria 1. The y-axis shows the percentage breakdown for each question among five possible answers (N/A, & Category 1 through 4). The length of each color shows the percent response frequency.



## 4. Sustainable Winegrowing Practices Strengths and Opportunities for Improvement

This section summarizes the assessment results for each of 13 sustainable winegrowing practices chapters. A chapter by chapter comparison of the overall assessment results reveals that the percentage of growers or vintners that report using practices described in category “4” or “3” varies greatly between chapters. For example, in the Soil Management chapter 50% of the growers assessed their practices as a category “4” or “3” for 14 out of 15 of the criteria (93% of the time). In contrast, none of the growers assessed their practices as a category “4” or “3” for the Energy Efficiency (0 criteria out of 7) and the Environmentally Preferred Purchasing (0 criteria out of 5) chapters.

These results do not mean that vintners and growers are implementing fewer sustainable practices in some chapters or areas than in others. It does mean that some SWP workbook chapters include more challenging and complex criteria that may also require capital investment for new equipment or specialized research and expertise. This is the case particularly for the Human Resources, Material Handling, Solid Waste Reduction and Management, Neighbors and Community, Winery Water Conservation and Quality, Energy Efficiency, and Environmentally

Preferred Purchasing. These findings must be kept in mind when interpreting the assessment results.

### VITICULTURE (Vineyard)

**Chapter Purpose:** Provide growers with 7 criteria to assess the balance of their vines through canopy management and crop development practices and 13 criteria on developing new or replanting vineyards.

**Statewide Strengths:** More than 65% of growers reported implementing practices that lead to balanced vines.

**Contribution to Sustainability:** Balanced vines contribute to sustainability through increasing fruit quality (economic), and reducing the need for inputs such as water and fertilizers (environmental, social and economic).

**Statewide Opportunities for Improvements:** At least 30% of growers can increase fruit quality and decrease inputs by improving vine balance through canopy management (criteria 3-1 through 3-7).

**Notes:** Given the low number of new vineyard developments and replants in 2002 and 2003, workshop participants were asked to use criteria 3-8 to 3-20 as educational tools and to think back on how they developed or replanted a vineyard sometime in the past. Consequently, it is not appropriate to interpret these results relative to actual new plantings and replants.

## **SOIL MANAGEMENT (Vineyard)**

**Chapter Purpose:** Provide growers with 15 criteria to assess their overall soil management program including monitoring, nutrient management, soil quality and pollution prevention.

**Statewide Strengths:** The majority of growers reported implementing practices that together form an excellent overall soil management program. This set of practices includes conducting the appropriate soil and plant monitoring techniques, building soil organic matter through cover cropping and other practices, managing nutrients to achieve balanced vines, reducing nutrient loss, reducing compaction, and limiting soil erosion.

**Contribution to Sustainability:** Soil management contributes to sustainability through increasing fruit quality (economic), reducing the need for inputs such as water and fertilizers (environmental, social and economic), and preventing pollution from soil erosion and off-site movement of nutrients (environmental and social).

**Statewide Opportunities for Improvements:** There is an opportunity to improve soil management practices for 20% to 50% of growers, depending on the practices. There is a particular need to improve knowledge of soil series (criteria 4-10) and expand non-point source pollution prevention efforts (criteria 4-12) for 40% to 50% of the growers.

## **VINEYARD WATER MANAGEMENT (Vineyard)**

**Chapter Purpose:** Provide growers with 13 criteria to assess their water management strategy, off-site water movement, irrigation system set-up and maintenance, irrigation scheduling, and fertigation practices.

**Statewide Strengths:** The majority of growers reported practices that contribute to an excellent water management program. These practices include having a sound water management strategy, preventing off-site movement of water, using water conserving irrigation systems, using water budgets and deficit irrigation techniques, and using appropriate fertigation techniques.

**Contribution to Sustainability:** Water management contributes to sustainability through increasing fruit quality (economic), reducing the need for water and fertilizers inputs (environmental, social and economic), and preventing pollution from soil erosion and off-site movement of nutrients (environmental and social).

**Statewide Opportunities for Improvements:** There is an opportunity to improve specific water management practices for the majority of growers. These practices include monitoring and amending irrigation water (criteria 5-2), testing the distribution and uniformity of irrigation system (criteria 5-5), installing and monitoring flow meters (criteria 5-7), increasing knowledge of soil water holding capacity (criteria 5-8), and using available evapo-transpiration (ET) to help determine irrigation timing.

## **PEST MANAGEMENT (Vineyard)**

**Chapter Purpose:** Provide growers with 29 criteria to assess their insect, mite, disease, weed and vertebrate monitoring and management practices and 9 criteria to assess effectiveness and safety of pesticide application practices.

**Statewide Strengths:** The majority of growers report practices that together constitute an excellent insect, mite, disease, weed and vertebrate pest management program. The majority of growers also report implementing practices for using pesticides in an effective and safe manner including calibrating and maintaining application equipment; applying for proper coverage; using buffer zones; and going beyond legal requirements to manage drift, and reduce risks during storage, mixing and loading.

**Contribution to Sustainability:** Pest management best practices contribute to all three sustainability principles by reducing inputs (economic), preventing pollution (environmental), and reducing worker exposure (social).

**Statewide Opportunities for Improvements:** There is an opportunity for the majority of growers to train their vineyard employees to assist with insect and mite pest monitoring (criteria 6-9), improve weed monitoring protocols (criteria 6-20), and implement practices to increase vertebrate pest predators (criteria 6-29). Though the majority of growers report implementing best practices, there is an opportunity with the remaining minority of growers to improve pest management practices for most criteria.

## **WINE QUALITY (Vineyard and Winery)**

**Chapter Purpose:** Provide growers with 8 criteria to assess fruit quality, knowledge of wine produced from the vineyard, and knowledge of the wine industry. Provide vintners with 2 criteria to assess their knowledge of the wine industry.

**Statewide Strengths:** More than 70% of growers reported using best practices for evaluating field fruit maturity, tasting grapes with winery personnel, conducting appropriate juice chemical analysis, tasting wine made from their grapes, possessing a high-level of knowledge about wine quality, and determining which viticultural practices contribute to wine quality. More than 70% of vintners reported best practices for knowledge of wine quality.

**Contribution to Sustainability:** Wine quality is usually related to grape and wine prices. Thus, wine quality contributes directly to the economic sustainability of vineyards and wineries. Wine quality can also contribute indirectly to the social and environmental components by generating sufficient revenue to invest in practices that increase environmental and social benefits.

**Statewide Opportunities for Improvements:** There is an opportunity for more than 50% of the growers to improve their knowledge of the wine industry (criteria 7-6).

## **ECOSYSTEM MANAGEMENT (Vineyard and Winery)**

**Chapter Purpose:** Provide growers with 20 criteria and vintners with 11 criteria to assess how they have defined their resource base to be managed, the status of developing a sustainability strategy (mission, vision and values), the integration of ecosystem processes with winegrowing practices, and how winegrowing practices affect environmental quality.

**Statewide Strengths:** The majority of growers and vintners report that they have adopted practices that support ecosystem management including defining resources, implementing sustainability strategies, understanding and enhancing ecosystem functions and processes, and implementing practices that enhance or conserve important habitat types.

**Contribution to Sustainability:** Ecosystem management practices particularly contribute to environmental and social sustainability principles through protecting and enhancing overall environmental quality.

**Statewide Opportunities for Improvements:** There is an opportunity for the majority of growers and vintners to increase habitat enhancement for birds other than raptors (criteria 8-11) and increase collaboration with government agencies with respect to sensitive species (criteria 8-20).

## **ENERGY EFFICIENCY (Vineyard and Winery)**

**Chapter Purpose:** Provide growers with 7 criteria and vintners with 10 criteria to assess the following: state of their energy efficiency planning, monitoring, goals, and results; total energy consumed per ton of grapes and/or gallons of wine produced; extent of energy efficiency per major operation; and the extent of management support and employee training efforts to improve energy efficiency.

**Statewide Strengths:** Even though the energy efficiency criteria are extremely challenging, there are some growers and vintners for each criteria that reported using category “4” or “3” practices. The percent of reported use of category “4” or “3” practices by growers or vintners ranged from 3% to 27%, depending on the criteria. These growers and vintners can serve as mentors for future energy efficiency education and outreach efforts.

**Contribution to Sustainability:** Energy efficiency contributes to all three sustainability principles by saving money (economic), reducing regional energy demands (social), and preventing pollution (environmental, if the energy is from non-renewable sources).

**Statewide Opportunities for Improvements:** There are opportunities for the majority of growers and vintners to improve energy efficiency practices for all criteria.

## **WINERY WATER CONSERVATION AND QUALITY (Winery)**

**Chapter Purpose:** Provide vintners with 16 criteria to assess the following: the state of their water conservation and quality planning, monitoring, goals, and results; total water consumed per gallons of wine produced; the extent of water conservation practices per major operation; and the extent of management support and employee training efforts to improve water conservation.

**Statewide Strengths:** Though the winery water conservation and quality criteria are extremely challenging, more than 25% of vintners reported using the highest level of water conservation and quality practices in their crushing, pressing, barrel washing, and barrel soaking operations.

**Contribution to Sustainability:** Water conservation and quality contribute to all three sustainability principles by saving money (economic), reducing regional water demands (social), and protecting water quality (social and environmental).

**Statewide Opportunities for Improvements:** There are opportunities for the majority of vintners to improve their water conservation plans (criteria 10-1). Opportunities also exist for improving practices in one or more criteria for most vintners.

## **MATERIAL HANDLING (Vineyard and Winery)**

**Chapter Purpose:** Provide growers and vintners with 14 criteria to assess the following: state of their material handling planning, monitoring, goals, and results; the total hazardous materials handled per ton of grapes or gallon of wine produced; the extent of pollution released by major operations; and the extent of management support for and employee training in pollution prevention efforts.

**Statewide Strengths:** Though the material handling criteria are extremely challenging, more than 25% of growers reported using the highest level of material handling practices for hazardous material storage and disposal, and for handling tires, lubricants, oils, coolants, and solvents. Twenty-five percent of vintners reported using the highest level of material handling practices for hazardous material storage.

**Contribution to Sustainability:** Material handling best practices contribute to sustainability by greatly reducing risks from the use of hazardous materials (social and environmental) and potential liability issues (economic.)

**Statewide Opportunities for Improvements:** There are opportunities for improvement in one or more criteria for the majority of growers and vintners.

## **SOLID WASTE REDUCTION AND MANAGEMENT (Winery)**

**Chapter Purpose:** Provide vintners with 16 criteria to assess the following: the state of their solid waste reduction planning, monitoring, goals, and results; the total solid waste generated per ton of grapes and/or gallons of wine produced; the extent of solid waste generated per major operation; and the extent of management support for, and employee training in, solid waste reduction efforts.

**Statewide Strengths:** In 8 of the 16 criteria, 25% of vintners reported using the highest level of solid waste reduction and management practices. These criteria include pomace and lees, cooperage, glass, cardboard, packaging, metals, pallets, and landscape residues.

**Contribution to Sustainability:** Reducing and managing solid waste contributes to all three sustainability principles by saving money associated with the handling and disposal of solid waste (economic), reducing the amount of waste that enters regional disposal facilities (social), and reducing the environmental impacts from waste generation and disposal (environmental).

**Statewide Opportunities for Improvements:** There are opportunities for the majority of vintners to improve their solid waste reduction and management plans (criteria 12-1) as well as improve practices for handling packaging (criteria 12-10), corks (criteria 12-12), capsules (criteria 12-14) and wastes from food and beverages (criteria 12-16).

## **ENVIRONMENTALLY PREFERRED PURCHASING (Vineyard and Winery)**

**Chapter Purpose:** Provide growers with 5 criteria and vintners with 14 criteria to assess the following: state of their environmentally preferred purchasing (EPP) planning, monitoring, goals, and results; the purchasing impacts by operation; and the extent of management support for and employee training in EPP efforts.

**Statewide Strengths:** EPP is a new area of sustainable practices and the criteria are extremely challenging. Nonetheless, there are some growers and vintners for each EPP criteria that reported using category “4” or “3” practices. The percent of reported use of category “4” or “3” practices by growers or vintners ranged from 2% to 15% depending on the criteria. These growers and vintners can serve as mentors for future EPP education and outreach efforts.

**Contribution to Sustainability:** EPP contributes to all three sustainability principles by using environmentally preferred products and services and by supporting the growth of private sector companies committed to delivering environmentally preferred products and services.

**Statewide Opportunities for Improvements:** There are opportunities for the majority of growers and vintners to improve EPP practices for all criteria.

## **HUMAN RESOURCES (Vineyard and Winery)**

**Chapter Purpose:** Provide growers and vintners with 16 criteria to assess the following: state of their operations development of a mission, vision and values statements; the state of their human resource planning, monitoring, goals and results; the status of staff levels and recruitment to implement sustainable business strategies effectively; the extent of employee training and skills to accomplish work effectively; and the status of company culture for creating positive employees relations.

**Statewide Strengths:** More than 50% of growers and vintners reported the highest level of practices for staying informed about the industry and participating in industry activities. Other reported strengths for both growers and vintners include safety training, professional training and development, and participating in salary surveys.

**Contribution to Sustainability:** Human resources contributes to all three sustainability principles because how a vineyard and/or winery operation is organized, staffed and conducts business impacts the triple bottom line — the economic, social and environmental performance of a company.

**Statewide Opportunities for Improvements:** There are opportunities for the majority of growers to improve the following human resource areas: employee handbooks (criteria 14-12); using sustainability principles in employee performance, grievance, satisfaction and recognition practices (criteria 14-14); and in sustainability bonus systems (criteria 14-16). Opportunities for the majority of vintners include staffing and recruiting (criteria 14-3) and employee handbooks (criteria 14-12).

## **NEIGHBORS AND COMMUNITY (Vineyard and Winery)**

**Chapter Purpose:** Provide growers and vintners with 14 criteria to assess the following: state of their business sustainability strategy in the context of being good neighbors and community members; the state of their neighbor and community issues planning, monitoring, goals, and results; the current level of awareness regarding neighbor and community issues; and the extent of management support for and employee training in being good neighbors and community members.

**Statewide Strengths:** The SWP workbook sets a very high bar for practices that affect grower and vintner neighbors and the larger community within which they live and work. In 10 of the 14 chapter criteria, 25% or more of the growers and vintners reported the highest level of practices (category “4s” or “3s”). More than 50% of growers reported the highest level of practices for interacting with neighbors and communities on erosion control (criteria 15-11). Vintner strengths include community education issues (criteria 15-3) and minimizing visual impacts (criteria 15-10).

**Contribution to Sustainability:** Improving communications about and participation in neighbor and community issues strengthens community ties (social) and local economies (economic).

**Statewide Opportunities for Improvements:** There will always be opportunities to strengthen ties with neighbors and community members. The assessment results indicate the greatest opportunities for both growers and vintners include enhancing outreach and communication (criteria 15-14) and expanding involvement with local community housing issues (15-3).

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## 5. Lessons Learned

The SWP program has followed an adaptive management approach moving through the cycles of design, implementation, documentation and analysis, and refinements. During this process, a number of lessons learned come to light that may prove useful for other groups pursuing a comprehensive sustainable practices implementation program. Some of the lessons learned are also directly relevant to improving how the SWP program pursues its next steps.

**Leadership and Collaboration Led to Success** The leadership demonstrated by the state and regional associations and their grower and vintner members was instrumental to launching the program. Once a forum was created to define sustainable practices and later organize workshops, existing local leaders stepped forward to contribute, and a number of new leaders emerged. This grassroots leadership was essential in crafting sustainable practices relevant to regional conditions and different sized operations. Moreover, the high level of workshop participation (more than 1,000 individuals) and the submission of assessment results is directly attributable to the local leadership from regional associations, private companies, and interested individuals.

**Success Built Upon Existing Programs** There was no need to “re-create the wheel” when beginning to launch a program like the Code of Sustainable Winegrowing Practices. Successful regional sustainable viticulture programs existed within the industry that provided examples of what could work for designing and executing the assessment workshops around the state. For the vintners, the Sonoma Green Business Program provided specific environmental standards and the Wine Institute’s Code of Advertising Standards set an example of a proactive social responsibility program of self-governance.

**Continued Implementation & Improvement Requires Assistance** Sustaining this initial success will be a challenge, especially in the current climate of reduced publicly-funded and private foundation resources. The SWP program will need to secure additional resources to provide the tools and methodologies needed to foster large-scale adoption of sustainable practices. The assessment results identify “low-hanging fruit” or simple changes that can result in cutting costs and improving environmental practices. For example, now that the program and report have identified the need for

energy audits and, therefore, possible conservation programs, the next logical step is to move forward and assist businesses of all sizes to perform the audits.

**Trust and Cooperation Needed** Continual improvement will require thinking and acting outside of the traditional institutional boxes among the private sector, regulatory agencies, academia, and the nonprofit sector. Elements of mistrust among these various stakeholders co-exist with genuine interest and excitement in finding innovative ways of working together and crafting regulatory, research, extension, and private sector solutions to achieve measurable environmental, economic and social results. In these times of limited public and private resources, it is especially important to improve information flow among sectors, streamline regulatory approaches to focus on measurable outcomes – not bureaucratic processes, and create incentives for each sector (private, academia, regulatory, nonprofit, etc) that rewards the adoption of sustainable practices.

### **Statewide Approach can Help Regional Programs**

Regional reports from the statewide database have been provided to regional groups. Many regional coordinators are using the regional results to engage their members in further defining what they can do to be sustainable in their winegrowing regions. In addition to the regional programs that inspired the statewide SWP program, a number of regional associations have built their own sustainable programs using the statewide workbook and workshops as a catalyst.

**Assessment Results Establish Baselines** The assessment results are most useful for establishing baselines for each criteria. These baselines can then be used to document changes in practices over time. A criteria-by-criteria and chapter-by-chapter comparison of the overall assessment results reveals there is a large variation in terms of what constitutes category “4”, “3”, “2” and “1” practices both within a chapter and between chapters. The breadth (13 chapters) and depth (221 criteria) of the workbook made the task of setting all category “4s”, “3s”, “2s” and “1” and chapters equal in terms of the level of sustainability near impossible.

The following “next steps” have been identified as critical steps toward increasing the adoption of sustainable winegrowing practices.

**Seek Additional Funding and New Partners** This is a priority for the program’s survival. Since the inception of the Code of Sustainable Winegrowing Practices program, the members of the wine community have contributed more than \$700,000. The program is seeking additional funding and new partners to maintain the program’s initial momentum and accomplish the following:

- **Increase Participation of Vineyards and Wineries** While the initial program goals were exceeded, there are still a large number of vineyards and wineries that have not assessed their operations for sustainable practices. The SWP workshops need to be continued across the state.
- **Offer Action Plan Workshops** After the workshop participants submit assessments and receive customized assessment result reports, there is a need to bring these growers and vintners back together to learn how to use these results to increase the adoption of sustainable practices. Currently, regional associations have begun to host Action Plan workshops but assistance is needed from the statewide program. The ultimate goal is to offer Action Plan workshops for every chapter of the workbook.
- **Expand Partnership Network** Many organizations, governmental agencies and educational institutions focus on sustainable business practices. CSWA will continue outreach efforts to these groups to determine the most viable areas for partnering and collaboration. Preliminary discussions with Audubon California, Sustainable Conservation and Environmental Defense as well as several regulatory agencies could develop into formal partnerships to provide potential funding, knowledge sharing and consistent and reliable permitting processes.
- **Work with Research Institutions to Target Knowledge Gaps** The SWP program is interested in strengthening the ties with viticulture and enology research institutions including UC Davis, California State University at Fresno, Cal Poly San Luis Obispo, Sonoma State University and others. There is a need to review in detail the assessment results with the research community to identify priority research gaps and encourage mission driven research that speeds the adoption of sustainable practices.

- **Develop New Chapters** During the workshops, many participants indicated the need for specific chapters that had not been included in the original workbook. A chapter on air quality is the current priority, with potential funding already being evaluated. Other chapters under consideration include economic benchmarking and vineyard development.
- **Release Updated Edition of the Workbook** The first publishing printed 3100 workbooks. Because of the early success of the program, CSWA currently has 200 workbooks left to distribute. The workbooks have been very well received and many of the participants at the assessment workshops have helped identify areas of the workbook to edit and update. In addition to the edits, the next edition of the workbook could include at least one of the new chapters identified above.
- **Translate the Workbook into Spanish** For a large percentage of the wine industry work force, Spanish is their primary language. Making the workbook available to all vineyard and winery employees will help to incorporate sustainable practices into everyday work. CSWA is seeking partners to assist in the translation.
- **Publish Progress Reports and 2009 Sustainability Report** To allow for thorough implementation, comprehensive and accurate data and comparative analysis, the next full “Sustainability Report” is not expected to be published until 2009, at the earliest. It is important to provide updates on the progress made in the interim. Providing that funding is secured, CSWA will make this report, program updates and progress reports available online at [www.sustainablewinegrowing.org](http://www.sustainablewinegrowing.org).

CSWA hopes that by publicly documenting winegrowing practices and making the report available to everyone, it can serve as a model for other sectors to collect information, report it and begin the dialogue within their industries and with other stakeholders. CSWA values your feedback, questions or concerns.