



**The California Wine Community's  
Code of Sustainable Winegrowing Practices –  
From Ground to Bottle**

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# The California Wine Community's Code of Sustainable Winegrowing Practices – From Ground to Bottle

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## I. Introduction

Initiated in January 2001 by members of Wine Institute and the California Association of Winegrape Growers (CAWG)<sup>4</sup>, the Code of Sustainable Winegrowing Practices (SWP) project promotes winegrape growing and winemaking practices that are sensitive to the environment, responsive to the needs and interests of society-at-large, and economically feasible to implement and maintain. The California Sustainable Winegrowing Alliance, a San Francisco-based non-governmental organization (NGO), was subsequently created in 2002 to work with Wine Institute, CAWG and SureHarvest to implement, evaluate, and improve the Code. More than 650 grower and vintner enterprises – representing over 30 percent of California's winegrape acreage and half of the State's wine volume – are working together through this collaborative project to reduce their environmental and social impacts, and to keep the land healthy for future generations.

As the State's population explodes and urban areas encroach on traditionally rural farmland, the California wine community must confront increasing pressure resulting from public and legislative perceptions, environmental decisions from regulatory and governmental bodies, and other growth-related issues. Although Regional Associations and individual growers and vintners had begun to address these pressures as well as the ecological and social impacts of winegrowing, no statewide coordination existed for information-sharing, assessment, and reporting prior to the development of the SWP project in 2001. By adopting and implementing the Code, members of the California wine community can greatly augment their collective and individual ability to respond to these growth-related pressures while demonstrating that they are responsible neighbors and committed stewards of the land. In addition to creating environmental and social benefits for the communities in which winegrape growers and vintners operate, implementation of the Code helps to ensure that Californians will be able to continue to produce world-class wines and to contribute to the State's economy.

The SWP project utilizes a workbook, workshops and outreach, analysis and reporting, and other action steps to facilitate the adoption of the Code by growers and vintners. A California wine community sustainability report will address the scope, scale, outcomes and impacts of these integrated methods. In addition, the project relies on the active participation of the California wine community as well as partnerships with other sectors. This paper provides an overview of the project, details the project elements, and highlights on-the-ground examples of sustainable winegrowing practices implementation – from ground to bottle.

## II. Sustainable Winegrowing Practices Project Overview

Winegrowing members of Wine Institute and CAWG initiated the SWP project in January 2001 to promote their vision of a sustainable wine community. The SWP project is based on principles of excellence and improvements in winegrowing that benefit people including the owners, employees, neighbors and community members, and consumers; increase profits because of factors such as enhanced wine quality and improved efficiency; and protect the planet through sound environmental and ecosystems management. The primary goals of the project are to:

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<sup>4</sup> Wine Institute and CAWG has contracted with SureHarvest (formerly *RealToolbox*) since June 2001 to assist in the design, implementation, software development, evaluation and reporting for the SWP Program.

- Establish voluntary high standards of sustainable practices to be followed and maintained by the entire wine community;
- Enhance winegrower-to-winegrower and vintner-to-vintner education on the importance of sustainable practices and self-governing to enrich the economic viability and future of the wine community; and
- Demonstrate how working closely with neighbors, communities and other stakeholders to maintain an open dialogue can address concerns, enhance mutual respect, and accelerate results.

The SWP project builds on the impressive work in sustainable practices by many regional winegrowing and vintner associations (e.g. Lodi-Woodbridge Winegrape Commission's Sustainable Viticulture Program including the *Lodi Winegrowers Workbook*, Central Coast Vineyard Team's *Positive Point System*, Napa's *Fish Friendly Farming Program*, the *Sonoma Green Business Program*, and other regional projects), as well as private companies, individual viticulturists and winemakers, researchers, government agencies, and innovative regulators involved in the California wine community.

The project also relies on the active participation of the California wine community and partnerships with other sectors. For instance, overall leadership and guidance for the Code of Sustainable Winegrowing and the workbook was provided by the Sustainable Winegrowing Joint Committee. This committee includes more than 50 members of the Wine Institute and CAWG that represent all major winegrowing regions in the state and small, medium and large vineyard and winery enterprises, as well as representatives from the California Environmental Protection Agency (Cal/EPA) and independent consultants. External reviewers providing comment on the workbook draft included individuals from a wide range of government agencies, academic institutions, NGOs, and viticulture and winery owners, managers and consultants. CSWA, the NGO created during the evolution of the SWP project, will continue to work with Wine Institute, CAWG, SureHarvest and internal and external stakeholders to implement, evaluate, and improve the Code.

While drawing on the pioneering work of regional associations and individuals, the CSWA is pursuing a comprehensive statewide approach linking product development, implementation, outreach, university education, public policy, and research. Through this integrated plan of action, the Alliance believes that sustainable winegrowing practices are more likely to be recognized, adopted, and sustained by California winegrape growers and vintners, and to serve as a model for other agricultural sectors.

### **III. Project Elements**

A sustainable winegrowing practices workbook, workshops and outreach, and analysis and reporting are key elements of the project that are currently being utilized to facilitate the adoption of the Code by growers and vintners. A California wine community sustainability report will address the scope, scale, outcomes and impacts of these integrated methods. Future project elements include education, research, and public policy (See Figure One for an overview of SWP activities.)



Table One. Example of the 4-category self-assessment continuum of increasing sustainability.

<b>SOIL MANAGEMENT – TILTH</b>				
<b>Criteria</b>	<b>Category 4</b>	<b>Category 3</b>	<b>Category 2</b>	<b>Category 1</b>
<b>3.8 Organic Matter</b>  <b>(skip if organic matter sufficient for your soil type)<sup>1</sup></b>	A combination of organic matter is added to the soil <b>annually</b> (e.g. permanent or annual cover crop, compost <sup>2</sup> , and/or manure <sup>2</sup> )  <i>And</i>  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 <sup>2</sup> , manure <sup>2</sup> , 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  <i>And</i>  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 microorganisms</i>				



**Workshops.** Since project implementation began in November 2002, over 65 workshops have been held in twenty-two counties throughout California where more than 650 enterprises have assessed their vineyard and/or winery operations. These enterprises represent 200,000 acres of winegrapes (over 30% of statewide acres) and 136 million cases of wine (more than 54% of annual case production.) More than 430 of the participants have voluntarily submitted their self-assessment sheets (a response rate of greater than 65%) that will allow the project to establish regional and statewide baselines, described in greater detail below. Although the percentage of statewide acres and annual case production that has been self-assessed by participating growers and vintners has surpassed the project’s target percentages for the first year, the next challenge will be soliciting the involvement of those enterprises that have not yet participated. To this end, the project is partnering with the regional winegrowing associations to actively assist in the workshop invitation process.

At each workshop, participants are given an overview of the SWP project and then utilize the workbook to self-evaluate the sustainability of current operations of their vineyard and/or winery facilities. All participants are requested to voluntarily submit their confidential assessments. The self-assessment data is then entered into a database by the SWP team to be used for the following purposes:

- Provide feedback to individual wineries and growers, vineyard management companies, and regional associations on areas of excellence and areas that need improvement to target educational programs and other resource investments;
- Improve the workbook self-assessment questions to accurately capture useful information on sustainable practices;
- Establish statewide baseline information on the adoption of sustainable practices by winegrape growers and vintners to be used for individual and statewide reports;

- Document beneficial sustainable practices and innovation that can be rapidly adopted by other vineyards and wineries.

**Reports and Analysis.** The SWP project has started to generate and distribute confidential, custom reports that present vineyard results for each criteria compared to regional and statewide benchmarks to each of the enterprises that have submitted assessment sheets. Figures Two and Three illustrate the type of information that each participant receives. The first graph, Figure Two, provides an aggregate snapshot of the enterprise's average score for each chapter relative to the regional and statewide averages. The second graph, Figure Three, provides more detailed information regarding the criteria within each chapter, again enabling each participant to compare their average with the regional and statewide benchmarks.

Figure Two.

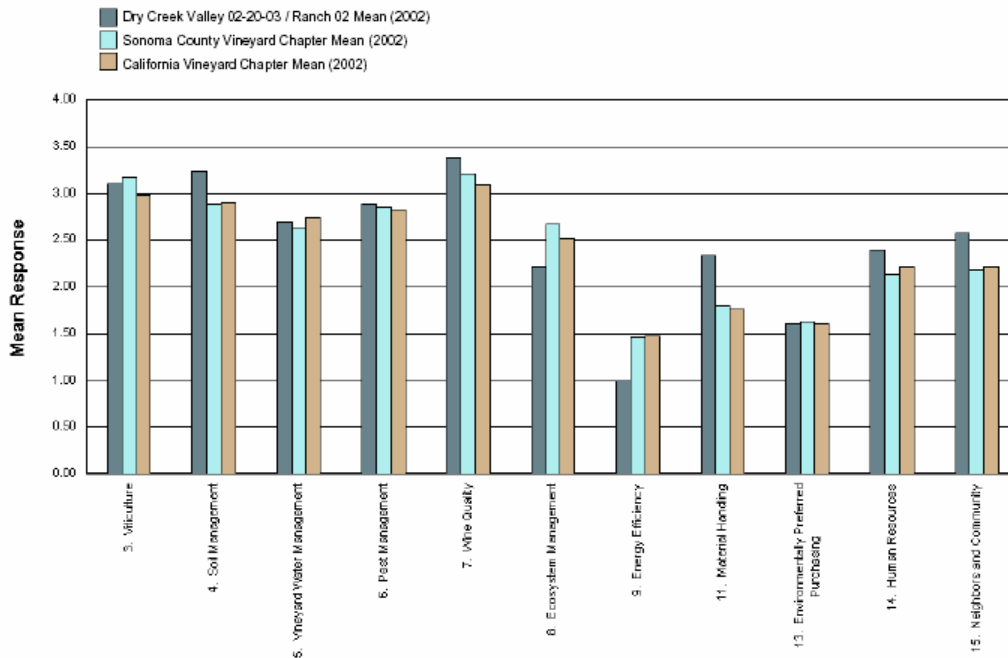
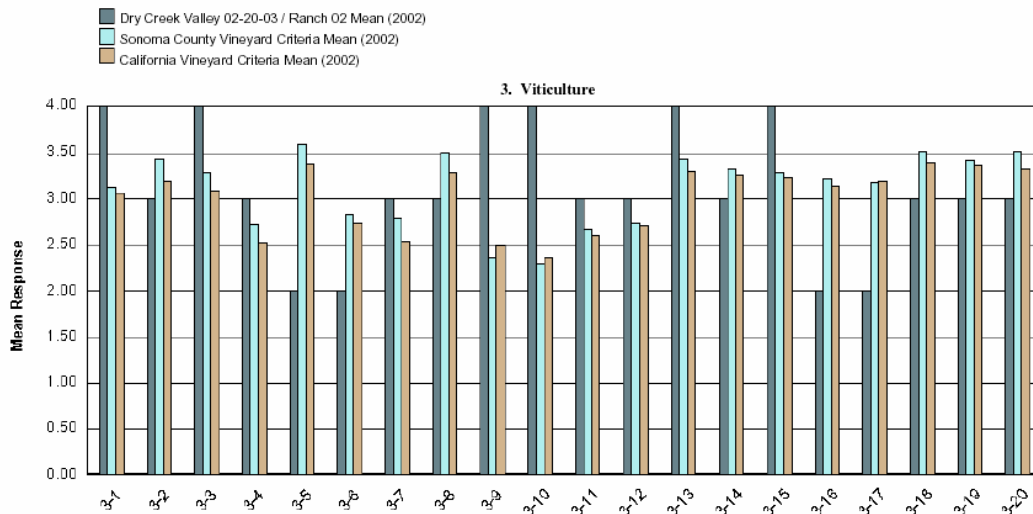


Figure Three.



The statewide benchmarks will also be reported in the first California wine community's sustainability report. The production and broad distribution of this statewide report will perhaps play the most important role in disseminating the results of the project. Target audiences for the report include members of Wine Institute and CAWG, regional winegrowing associations, the larger community of stakeholders including neighbors, environmental and social justice communities, the media (trade, environmental, business, and general media), and current and potential funders.

In addition to communicating the current statewide status of sustainable winegrowing through benchmark information, the first report is intended to create a future vision of California sustainable winegrowing, including targets and timelines for each chapter. The report will also document the approach and model used to develop and implement the SWP project, and can serve as a resource for other groups interested in pursuing sector-wide sustainability.

**Outreach.** The SWP project has a number of other effective outreach tools in addition to the workbook, workshops and various reports. For instance, the SWP project produced an informational video in cd-rom format that provides viewers with an overview and rationale for the project and features interviews with California winegrape growers, vintners and other industry professionals. Wine Institute also has published a series of newsletters on sustainable winegrowing to highlight specific practices that some of the Institute members are doing in their vineyards and wineries. Although the CSWA website ([www.sustainablewinegrowing.org](http://www.sustainablewinegrowing.org)) is currently under construction, project information is being hosted on the web sites of Wine Institute ([www.wineinstitute.org/](http://www.wineinstitute.org/)) and CAWG ([www.cawg.org](http://www.cawg.org)). SWP project team members have spoken at numerous state, national and international conferences as well. Finally, the SWP project has received significant media attention, with citations in more than 50 publications, since its launch in the fall of 2002.

**Next steps: Education, Public Policy, and Research.** In addition to its on-going commitment to project implementation and results dissemination in 2004 and 2005, CSWA plans to focus on education, public policy, and research to ensure the long-term success of the SWP project.

The project is now developing "action plan" workshops for participants that have already attended an initial workshop and completed their vineyard and/or winery assessment. In these workshops, participants will learn how to design and execute action plans to move up the workbook's sustainability continuum. The outcomes and impacts of the action plan workshops and follow-up assessments will be featured in the second and subsequent sustainability reports. The project will also work with partners to develop targeted education materials to supplement the current assessment criteria.

Also with respect to advancing sustainable winegrowing practices education, several requests have been received to provide the workbook to viticulture and enology classes as part of undergraduate education. CSWA plans to actively seek partnerships with the University of California (UC), California State University System (CSU) and Community Colleges to integrate the SWP workbook into viticulture and possibly environmental science undergraduate and graduate programs. Other agriculture sectors have expressed interest in using the SWP project as a model as well.

In addition, the SWP workbook provides public policy opportunities to work with local, state, and federal government agencies and non-profit organizations on incentives to increase the adoption of sustainable practices. Such incentives could include:

- Working with the regulatory community to develop a streamlined permitting process where vintners and growers who have demonstrated superior performance could be awarded a single-permit;
- Working with U.S. Department of Agriculture, National Resources Conservation Service's Environmental Quality Incentive Program (EQIP) and other cost-share programs for ecosystem management practices, soil conservation practices, etc.;
- Forming deeper partnerships with environmental and social equity organizations to work together on specific projects of mutual interest.

In terms of research, CSWA and its partners could partner with UC, CSU, and other research institutions and researchers to target critical research areas important for advancing the science and adoption of sustainable practices. Possible research topics include:

- 1) Water quality in both vineyard and winery settings;
- 2) Economic contributions of the wine community and sustainable practices on local and regional economies;
- 3) Understanding and enhancing the positive contributions of vineyards to ecosystem processes and functions; and
- 4) Sustainable soil, water and nutrient management practices, particularly as they relate to improving wine quality.

**Continual Improvement.** The Sustainable Winegrowing Practices project is committed to continual improvement and, as previously mentioned, includes mechanisms for winegrower self-assessment, benchmarking of the wine community as a whole, and project evaluation. Through the reporting process, the SWP intends to demonstrate to a broader audience the continual improvement of the California wine community as a whole. Evaluation mechanisms, such as surveys given at the end of each workshop, have also been incorporated in various stages of the SWP project. As another example, new chapters such as air quality and economic benchmarking/streaming/supply chain management are currently being explored for the next iteration of the SWP workbook.

#### **IV. SWP Partnerships**

The project intends to strengthen existing, and build new, partnerships with regional and state organizations and government agencies to speed the adoption and measurement of sustainable practices. Input in the SWP project has already been solicited from representatives of a number of state and federal government agencies; faculty, specialists, and farm advisors from the UC and CSU; and representatives from environment and social equity NGOs. These groups will also be enlisted to advance the SWP project by, for instance, assisting in the development of targeted educational materials and in the creation of the first and subsequent sustainability reports to ensure process transparency and accountability.

As another example, Cal/EPA has recognized the whole-systems approach employed by the project and has entered into a formal partnership with the Wine Institute and CAWG – Performance for Sustainability – to work collaboratively on the advancement of sustainable practices in the wine industry. According to Cal/EPA officials, the SWP project could also be used as a new model for cooperation with other agricultural sectors. In addition, the American Farmland Trust, which distributes funds from the U.S. EPA, recently awarded CSWA a grant to implement metrics that demonstrate the impacts of widespread Integrated Pest Management (IPM) adoption and other sustainable practices, and targeted education and outreach services to reduce use/risks of pesticides, measure impacts and report on outcomes. The innovation in IPM demonstrated by the SWP project has already been recognized by the California Department of Pesticide Regulation, which gave the project two of the Department's eight Integrated Pest Management Innovator Awards in October 2003. As previously mentioned, regional associations have already played a critical role in project development and implementation, and the project will strive to engage their continued support and involvement.

#### **V. Examples of Sustainable Winegrowing Practices**

To gain a better understanding of the breadth and depth of sustainable winegrowing practices, three chapter areas – ecosystem management, vineyard water management, and energy efficiency – are described below, with examples of on-the-ground best practices.

**Ecosystem Management.** The long-term stability of ecological processes is closely linked to the long-term viability of California's wine community. An ecosystem management approach acknowledges that people are a part of and have a significant impact on ecosystem structures and processes, and that

people depend on and must assume responsibility for the ecological, economic, and social systems where they live. The primary goals of an ecosystem management approach are to: maintain ecosystem integrity; sustain biodiversity at a regional scale; sustain vibrant, livable, and economically diverse communities' incorporate distinct community stakeholder values in the design and implementation of ecosystem management initiatives. For instance, as part of one California winery's plan for ecosystem management, old fences have been replaced with a series of fences and solar powered gates which allow free movement of wildlife native to the winery's Central Coast community. These wildlife corridors are teaming with hundreds of species of amphibians, reptiles, birds and mammals. More than 800 owl houses have been installed throughout the winery's Central Coast vineyards to encourage opportunistic barn owls to prey on vineyard pests and eliminate the need to control gophers with toxic baits.

**Vineyard Water Management.** While dry farming of winegrapes is the ultimate in water conservation and possible in some California vineyards, most growers use some form of irrigation. With drip irrigation technology, vineyards are more uniform, healthier, and make better wine. Regulated deficit irrigation – applying less than the full potential water requirement on vines with a drip irrigation system to achieve properly timed mild water stress – not only conserves water and eliminates irrigation runoff, but is perhaps the most effective way to enhance grape and wine quality. To ensure drip irrigation systems are managed to their full potential, they must be constantly monitored and maintained and irrigations scheduled efficiently. Working with Resource Conservation District, California wineries can use both direct and remote soil moisture sensors and plant stress monitors as a guide in attaining significantly reduced water use.

**Energy Efficiency.** In today's energy environment, it is essential to have a comprehensive plan that includes conservation, energy efficiency, investigating and utilizing alternative energy sources, and having contingency options in place to be able to meet energy needs at critical times, such as on-site generation capabilities during crush. Using energy efficiently in buildings and facilities, production processes and transportation can reduce costs, conserve resources, enhance image, and improve the environment. To illustrate, one California winery uses 100% renewable or "green" power for all its electrical needs and promotes self generation with a 40kW solar display and a 75 kW cogeneration unit. A manmade reedbed was established to treat process wastewater, saving energy by reducing the amount of aeration used. Through energy reduction goals, this winery has saved over one million kWh since 1999. In a concerted effort to reduce their greenhouse gas emissions, they are using biodiesel made from vegetable oil to power their vineyard tractors, and their on road big rigs.

## VI. Conclusion

Although much progress has already been made, this has been a benchmark period and the project team is just beginning to get a picture of sustainable winegrowing practices in California. Because the project grew from a strong foundation and was developed by vintners and growers with input from internal and external reviewers, the SWP project has been readily adopted by the wine community and favorably accepted by other stakeholders. One of the early benefits of the project, and an important first step in terms of moving forward, has been to increase the awareness and dialogue regarding sustainable practices by using commonly defined concepts and terminology. The conversation between divergent stakeholders can now begin to change from confrontation to collaboration because the project contains collective goals and objectives of the stakeholders. The first sustainability report will provide a snapshot of current practices and will be used to set targets and establish the course for future activities – including education, public policy, and research – to improve sustainable winegrowing practices across the State.

Over the course of the first year of implementation, the California wine community's Code of Sustainable Winegrowing Practices has become a centerpiece of the sector's commitment to a quality product as well as to stewardship of the land and dedication to the people that are impacted by winegrowing practices. As John De Luca, Wine Institute Executive Vice Chairman, stated in an address to the Institute's Board of Directors, the Code can be characterized as "most likely the greatest legacy we can create for the wine community, our larger society, and future generations."

## Appendix

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### **About California Association of Winegrape Growers (CAWG)**

CAWG ([www.cawg.org](http://www.cawg.org)) was founded in 1974 with the mission to provide industry leadership to advocate public policies, research programs and trade positions that enhance the business of growing California winegrapes. CAWG's membership represents the growers of approximately 60 percent of the total annual grape crush.

### **About California Sustainable Winegrowing Alliance (CSWA)**

CSWA ([www.sustainablewinegrowing.org](http://www.sustainablewinegrowing.org), *under construction*) – a San Francisco-based 501(c)(3) nonprofit organization incorporated in 2003 – was created to contribute to public outreach on the benefits of widespread adoption of the Code of Sustainable Winegrowing Practices, as well as to enlist industry commitment and assist in effective implementation. CSWA will strive to ensure that the California wine community is recognized as a change leader in the global marketplace. The result of this work will be a healthier environment, stronger communities and vibrant businesses.

### **About SureHarvest (formerly *RealToolbox*)**

SureHarvest ([www.sureharvest.com](http://www.sureharvest.com)) offers sustainability solutions through best practices software and services to optimize performance, efficiency and product quality. SureHarvest is currently working with trade associations, universities, and individual grower and food products customers in the vineyard, potato and vegetables, and baby food markets to provide integrated data collection, analysis and reporting systems for pesticide use reporting, inventory management, sustainable practices benchmarking, eco-label development and verification, and raw product traceability.

### **About Wine Institute**

The mission of Wine Institute ([www.wineinstitute.org](http://www.wineinstitute.org)) is to initiate and advocate state, federal and international public policy to enhance the environment for the responsible consumption and enjoyment of wine. Established in 1934, Wine Institute is the voluntary association of more than 600 California wineries and affiliated businesses that represent 92 percent of California wine shipments and 80 percent of all U.S. wine shipments.