

## CONSERVATION INNOVATION GRANTS FINAL Progress Report

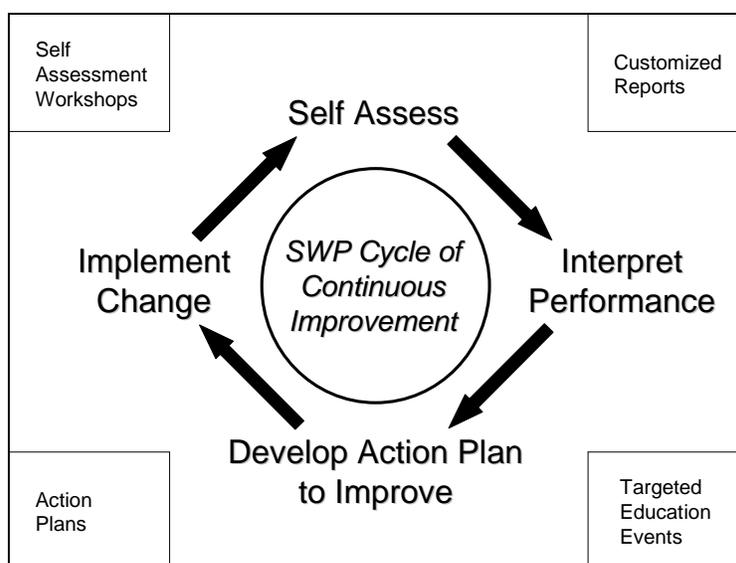
<b>Grantee Name:</b> California Sustainable Winegrowing Alliance	
<b>Project Title:</b> Breaking Through Adoption Barriers: Market-Based Conservation Approaches to Drive the Adoption of Conservation Practices	
<b>Period Covered by Final Report:</b> October 1, 2007 – September 25, 2010	
<b>Project End Date:</b> September 25, 2010	

### Summary of Project Activities:

The California Sustainable Winegrowing Program (SWP) began in 2001 as an initiative to promote and adopt “ground to bottle” sustainable practices for producing grapes and wine. Leadership is provided by the California Sustainable Winegrowing Alliance (CSWA), a non-profit organization represented by the two major statewide associations affiliated with California grapes and wine – Wine Institute and the California Association of Winegrape Growers.

The CSWA advocates winegrowing operations that balance the three E’s or principles of sustainability – Environmentally Sound, Socially Equitable, and Economically Feasible. To affect positive change in grower and vintner behavior, the program relies on its iterative self-improvement model (Figure 1), the “cycle of continuous improvement,” designed to ensure confidentiality, extensive voluntary participation, and collective progress along the continuum of sustainability. The cycle involves self-assessment, the interpretation of performance, action planning, and the implementation of change. An extensive partnership network helps facilitate these interrelated activities.

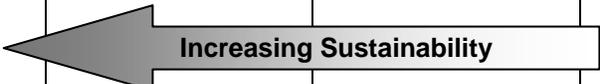
Figure 1. The SWP cycle of continuous improvement



The cycle’s centerpiece is the *Code of Sustainable Winegrowing Practices Self-Assessment Workbook* covering a broad range of farming and winemaking practices over 14 chapters – Viticulture, Soil

Management, Pest Management, Vineyard Water Management, Winery Water Management, Wine Quality, Ecosystem Management, Energy Efficiency, Waste Management, Environmentally Friendly Purchasing, Material Handling, Human Resources, Neighbors and Communities, and Air Quality. Each chapter includes criteria (specific management areas) for evaluating practices using a four-category measurement system (Table 1). Participants submitting assessments receive reports displaying their performance against regional and statewide averages. Individualized reports constitute the framework for evaluation and improvement. Follow-up targeted education complements assessment and action planning by emphasizing areas most needing improvement. Peer-to-peer education and presentations by external experts is used to extend information at field meetings, workshops, and seminars.

Table 1. Criterion 16-6 from the Air Quality chapter exemplifying the four-category measurement system

AIR QUALITY				
Criteria	Category 4	Category 3	Category 2	Category 1
16-6 Pesticide Stewardship	I never use fumigants* <b>And</b> I follow recommended practices for dust (e.g., sulfur) and liquid applications to minimize PM10 and drift** <b>And</b> I am familiar with and avoid use of pesticides associated with higher VOC emissions (see <b>Box 16-13</b> ) <b>And</b> Applicators are trained about pesticide issues relevant to air quality and training includes written material.	I never use fumigants* <b>And</b> I follow recommended practices for dust (e.g., sulfur) and liquid applications to minimize PM10 and drift** <b>And</b> I have some understanding of pesticide products associated with higher VOC emissions (see <b>Box 16-13</b> ).	I only use fumigants to address verified biological problems* <b>And</b> I follow recommended practices for dust (e.g., sulfur) and liquid applications to minimize PM10 and drift**.	I choose and apply pesticides without considering impacts to air quality other than following legal requirements.
				

This National Conservation Innovation Grant (CIG) project (NRCS CIG 69-3A75-7-86) was CSWA’s second CIG. The first, NRCS CIG 68-3A75-4-166, improved elements, use, and effectiveness of SWP’s behavioral change cycle – especially as related to water and air protection. Enhancements included the production of the second edition of the *Code of Sustainable Winegrowing Practices Self-Assessment Workbook* with the ground-breaking Air Quality chapter and the conversion to an online self-assessment and reporting system that includes a reporting option for aligning SWP criteria with NRCS practices to facilitate winegrower discussions with NRCS county staff. Use of the new workbook and online system combined with prioritized education identified by analyses of assessment data (targeted education) increased grower participation and performance for most criteria pertinent to water conservation and quality and allowed an initial benchmarking of performance against the air quality criteria.

This CIG project (NRCS CIG 69-3A75-7-86) was designed to fit into the broader SWP by funding elements to increase growers’ understanding of, access to, and benefits from environmental services accounting tools (Attachment A). By measuring impacts of practices on environmental parameters (e.g.,

natural resources), growers and vintners can sort real from perceived performance and convey accurate information to policy makers; compare their performance to peers; prioritize farm plans and improve operational efficiencies (save money); meet increasing market demand for transparency of product information; and take advantage of market-based incentives, such as greenhouse gas (GHG) and water quality trading programs and energy and water use reduction incentive programs, and alternative regulatory compliance opportunities. Furthermore, CSWA has developed a third-party certification option for sustainable winegrowing which eventually is intended to incorporate environmental performance metrics.

Project objectives were: 1) design, develop, test, refine, and implement a grower education and training program to help growers more efficiently and effectively use air quality (GHGs and criteria pollutants), energy use, water quantity and quality, and soil quality accounting tools; 2) design, develop, test, refine, and release enhancements to existing online software that enables growers to access, use, and manage results from environmental accounting tools; and 3) conduct outreach on the benefits and results of the project to other growers and the public.

The CSWA and its key consultant partner, SureHarvest, executed the objectives by applying respective core strengths in grower education and outreach and in building and managing user-friendly software. Improvements and incentives resulting from the project were expected to increase grower participation in SWP and use of its behavioral change cycle, markedly enhancing natural resource conservation and the transferability of the SWP model to other agricultural sectors.

The following details activities by objective over the course of the project, October 1, 2007 – September 25, 2010 (includes no-cost extension timeframe).

*Objective 1 – Design, develop, test, refine, and implement a grower education and training program to help growers more efficiently and effectively use air quality (greenhouse gases and criteria pollutants), energy use, water quantity and quality, and soil quality accounting tools.*

Because no existing environmental accounting tools fully met project requirements, resource and effort had to be redirected to online tool development (review activities for Objective 2). Accordingly, a no-cost contract extension was needed and granted to complete key elements of tool building before finalizing the design of and implementing the environmental performance metrics grower education and training program.

The development of the training program overlapped with construction of the online Sustainability Portal prototype and its GHG and energy use educational tool and calculator and with customization (and linking to the Portal) of IPM Institute of North America's Pesticide Risk Mitigation Engine (PRiME). Within this interval (November 2009 through April 2010), project concepts and objectives were conveyed to 609 California winegrowers at 15 workshops and other events (Table 2) to enlighten them to environmental performance metrics and generate enthusiasm for the upcoming training.

Seven activities conducted during June, July, and August 2010 and involving 82 growers and vintners (Table 2) constituted the environmental performance metrics training program. Hands-on testing commenced with pilot testing of alpha versions of the Portal and "casual users" pathway for the GHG and energy use tool by six representative growers and vintners. Participants input real farm and/or winery energy use data, calculated and reviewed results, and recorded their experiences and suggestions for improvement. Subsequently, improvements were made and beta versions and PRiME (linked to Portal) were evaluated hands-on by additional growers and vintners at six events, including four widely advertised workshops positioned across the state (Figures 2 & 3; see Attachments B & C for a sample

newsletter article and sample agenda, respectively). A metrics and tools worksheet (Attachment D) was provided to participants before workshops. Materials prepared for and distributed at workshops included a PRiME help sheet (Attachment E), a Portal and metrics tools survey (Attachment F), and USB thumb drives containing extensive resources pertinent to environmental performance metrics and taking actions for improvement (Attachment G).

Table 2. Events for environmental accounting (metrics) tools project and relevance to objectives

Date	Venue	County	Relevance	Participants
11/13/09	Blue Lakes Lodge	Lake	Concepts & objectives	99
12/04/09	Benziger Winery	Sonoma	Concepts & objectives	33
01/07/10	Deer Ridge Vineyards	Alameda	Concepts & objectives	32
01/20/10	CSU-Fresno	Fresno	Concepts & objectives	52
02/25/10	CSWA Board Meeting	Statewide	Concepts & objectives	17
03/09/10	ASV Wines	Kern	Concepts & objectives	47
03/10/10	Mission Bell Winery	Madera	Concepts & objectives	54
03/11/10	McManis Family Vyds	San Joaquin	Concepts & objectives	41
03/31/10	Big Valley Grange	Lake	Concepts & objectives	28
04/01/10	CSWA Board Meeting	statewide	Concepts & objectives	25
04/09/10	Rominger Farms	Yolo	Concepts & objectives	60
04/20/10	Deer Ridge Vineyards	Alameda	Concepts & objectives	30
04/27/10	Equinox Tree & Vine	Tulare	Concepts & objectives	20
04/28/10	Ranch Holdings 5	Madera	Concepts & objectives	46
04/29/10	Jackson-Rodden Ranches	Stanislaus	Concepts & objectives	25
June 2010	Single growers & vintners	statewide	Hands-on evaluations (pilots)	6
07/23/10	Santa Rosa	Sonoma	Hands-on evaluations (wrkshp)	13
07/27/10	Stockton	San Joaquin	Hands-on evaluations (wrkshp)	13
07/28/10	Lakeport	Lake	Hands-on evaluations (wrkshp)	7
07/29/10	Madera	Madera	Hands-on evaluations (wrkshp)	6
08/04/10	CSWA Board Meeting	statewide	Evaluations & survey feedback	20
08/09/10	Webinar	statewide	Evaluations & survey feedback	17

Figure 2. Metrics workshop (Lakeport)



Figure 3. Metrics workshop (Madera)



*Objective 2 – Design, develop, test, refine, and release enhancements to the existing online software that enable growers to access, use, and manage results from environmental accounting tools.*

Much effort, particularly during the first year, was devoted to an inventory and review of environmental accounting tools to determine their usage, including that for market-related and regulatory incentives, and to document their underlying data requirements. The intent was to reveal tools for direct and immediate application for California winegrapes that could be linked to the SWP online system for managing inputs and results and then tested and evaluated by growers. Existing tools were categorized according to area of focus, e.g., air quality (GHGs and criteria pollutants), energy use, water quantity and quality, soil quality, nutrient management, and pesticide risks.

A key finding was that no existing tools produced desired metrics while meeting full requirements for applicability to California winegrape production, user (grower) friendliness, no- or low-cost for use, and ease of integration with the SWP online system. The research also revealed few instances where environmental accounting tools and resultant performance metrics were linked to environmental services markets or regulatory incentives. In addition, research into existing markets proved that this was still a nascent concept and therefore tools to quantify “credits/offsets” were not developed yet.

Consequently, instead of focusing on the immediate application of and SWP software adjustments supporting ready-to-go tools, project resource was redirected to the construction of initial phases of an online performance metrics Sustainability Portal (Figure 4) and to several existing tools meeting some requirements but needing additional design and development. These tools were: 1) the Excel-based International Wine Community Carbon Calculator (Provisor, Australia), 2) UC Davis’ Pesticide Use Risk Evaluation (PURE) model, and 3) IPM Institute of North America’s Pesticide Risk Mitigation Engine (PRiME). Ongoing collaboration with the Stewardship Index for Specialty Crops, a related CIG project to develop a common set of specialty crops performance metrics, is expected to provide additional metrics and calculation procedures for future integration with the Portal and online SWP system.

Substantial project effort and resource subsequently was invested in designing and developing elements of a web-based GHG and energy use educational tool and calculator (Figures 5 & 6), as the first Portal pathway. The International Wine Community Carbon Calculator can be used to estimate GHG emissions (vineyards and wineries) and carbon sequestration (vineyards). Many of its underlying calculations are considered accurate, e.g., GHG emissions associated with electricity and fuel use. In contrast, results for some calculations, especially nitrous oxide emissions, emissions from tillage, and carbon sequestration, are regarded as less accurate because sufficient field research and modeling has not been done.

Therefore, the GHG and energy use tool is being constructed in phases, beginning with steps involving calculations currently supported by scientifically credible conversion factors and algorithms. Project resources were used to complete the “casual users” phase that captures energy inputs from fuel and electricity and calculates energy use intensity and associated Scope 1 and 2 GHG emissions. This stepwise approach allowed for testing and feedback on the energy related elements during this project while CSWA and SureHarvest work with Applied GeoSolutions and UC Davis to develop a denitrification and decomposition (DNDC) model for winegrapes to quantify remaining Scope 1 emissions and carbon sequestration. The ultimate intent is for winegrowers to use the online GHG and energy use tool to quantify problematic air emissions, sequestered carbon, and energy use efficiency, and potentially benefit from market-based incentives such as carbon trading.

Project effort also was devoted to the two online pesticide risk calculators PURE and PRiME. The CSWA and SureHarvest team worked with UC Davis to develop and showcase PURE, which is specific

to California agriculture, expected to have no cost for use, and can import pesticide use records from the California Pesticide Use Reporting System (California Department of Pesticide Regulation). Likewise, CSWA and SureHarvest worked with IPM Institute and its development team to customize PRiME for winegrapes. PRiME eventually was selected to link to the Sustainability Portal (Figure 7) and for grower testing and evaluation because it has acknowledgement by the Stewardship Index for Specialty Crops and was further along in development.

Figure 4. Sustainability Portal

### Access to Metrics Tools & Information



<http://www.sustainablewinegrowing.org/ghg>

Username = ghguser  
Password = winegrapes

Figure 6. Energy and GHG tool

### Online Energy & GHG Intensity Tool

- User-Friendly
- Educational
- Scientifically Credible & Accurate (stepwise development)

Figure 5. Access to Energy & GHG tool

### Online Tool Demo – Energy & GHG



<http://www.sustainablewinegrowing.org/ghg>

Username = ghguser  
Password = winegrapes

- Login & select "carbon + energy"
- Proceed through pages, enter personal (or provided) energy use data, review results & complete evaluation

Figure 7. Access to PRiME tool

### Online Tool Demo - PRiME



- Select "pesticides" – links to PRiME
- Proceed through pages, enter personal (or provided) pesticide use information, review results & complete evaluation

Throughout the course of the project, the usage of environmental accounting tools was modeled from the grower perspective to best manage inputs, results, and reports – especially for GHG, energy use, and pesticide risk tools. As tools were evaluated and developed, the design and specifics for underlying data requirements were mapped for current and future integration with the Sustainability Portal so data inputs can be linked to and used for various metrics tools. Requirements were categorized as infrastructural (i.e., farm, vineyard, and block characteristics) or activity (e.g., diesel fuel consumed, pounds of nitrogen applied, and pesticide use) data.

*Objective 3 – Conduct outreach on the benefits and results of the project.*

The key intent of this objective was to provide outreach to other winegrowers and commodities after completion of the grower education and training program. Before this, however, general outreach about the project and rationale and benefits for environmental accounting were conveyed to 609 winegrowers at

15 events (Table 2). After the training program, project participation and responses collected from workshop surveys (Attachment H) were shared with the CSWA Board of Directors, the CSWA Joint Committee (technical advisory group consisting of 50 growers and vintners), and other California winegrowers via meetings, webinars, and other communication. Survey findings included positive comments about the project and workshops, and the value for applying results from using environmental accounting tools to relate vineyard and winery practices with measurable impacts on natural resources. An important overall project achievement resulting from software development, metrics activities and workshops, evaluations, and outreach was an endorsement by the California wine industry to use energy use intensity and GHG emissions as the first two metrics to integrate with the SWP online system for tracking industry performance.

Although outside the scope of this project but substantiating its impact, additional outreach about the benefits and opportunities associated with environmental performance accounting continues with implementation of a subsequent CSWA CIG project (NRCS 69-3A75-9-146) – Driving Conservation Innovation and Sustainable Winegrowing Adoption through Performance Benchmarking, Tools, and Resources. This latter project constitutes a significant commitment by the California wine industry to expand the Sustainability Portal, adapt or develop and incorporate other environmental performance metrics and calculators, and transfer metrics calculations from the Portal to the SWP online system for storage and reporting in conjunction with practice-based assessments.

### **Significant Project Results:**

- Inventoried environmental accounting tools, determined their usage including that for market-related and regulatory incentives, and documented underlying data requirements
- Found no tools directly applicable to California winegrowing, user-friendly, no- or low-cost for use, and easily integrated with California Sustainable Winegrowing Program (SWP) online software
- Redirected resource to developing an online performance metrics platform (Sustainability Portal) and associated greenhouse gas (GHG) and energy and pesticide risk educational tools and calculators
- Completed GHG and energy tool phase on energy use and associated Scope 1 and 2 GHG emissions
- Advanced DNDC (denitrification and decomposition) model to quantify non-energy-related Scope 1 vineyard GHG emissions and carbon sequestration, for integration with the GHG and energy tool
- Helped develop and showcase UC Davis' online Pesticide Use Risk Evaluation (PURE) tool
- Helped customize IPM Institute's online Pesticide Risk Mitigation Engine (PRiME)
- Conveyed project concepts and objectives to 609 California winegrowers at 15 events
- Designed and implemented an environmental performance metrics grower education and training program including practitioner evaluation of Portal and GHG and energy and PRiME tools
- Conducted 7 activities, including hands-on pilots and workshops and associated surveys, where the Portal, GHG and energy tool, and PRiME were evaluated by 82 grower and vintner participants
- Achieved California wine industry endorsement to use energy use intensity and GHG emissions as the first metrics to integrate with the SWP online system for tracking industry performance

### **Conclusion and the Transferability of Results:**

NRCS made an investment through this project to increase growers' understanding of, access to, and benefits from environmental services accounting tools. Although no tools were found that met project criteria for immediate use by or currently supported market-based or regulatory incentives for California winegrowers, the redirection of resource more significantly into relevant online software resulted in marked achievements. These included the development of initial elements of the Sustainability Portal, an online platform for performance metrics tools, and the GHG and energy educational tool and calculator.

Importantly, growers and vintners advised the development of the Portal, GHG and energy tool, and IPM Institute's Pesticide Risk Mitigation Engine (PRiME) through hands-on evaluation. Practitioner buy-in and contribution is crucial to ensuring software is user-friendly, educational, and (most importantly) provides value. A subsequent CIG secured by CSWA is building on achievements from this and the Stewardship Index for Specialty Crops (another CIG-funded effort) projects to enhance and improve the Portal and GHG and energy tool and to select and incorporate additional metrics and calculators for tracking industry performance in environmental conservation. The commitment and processes used by CSWA to integrate practice-based assessments (inputs) with performance metrics (outputs), collect data, and track performance via online software substantiates the application of SWP and its overarching cycle of continuous improvement for inducing change and as a "transferable" voluntary self-improvement model for other agricultural commodities. As evidenced by this project, the CSWA and the California winegrowing community continues to demonstrate leadership in sustainable agriculture by balancing the economics of producing exceptional grapes and wine with high standards for environmental quality, human health, and social responsibility.

In the space below, provide the following in accordance with the Environmental Quality Incentives Program (EQIP) and CIG grant agreement provisions:

- a. A listing of EQIP-eligible producers involved in the project, identified by name and social security number or taxpayer identification number;
- b. The dollar amount of any direct or indirect payment made to each individual producer or entity for any structural, vegetative, or management practices. Both biennial and cumulative payment amounts must be submitted.
- c. A self-certification statement indicating that each individual or entity receiving a direct or indirect payment for any structural, vegetative, or management practice through this grant is in compliance with the adjusted gross income (AGI) and highly-erodible lands and wetlands conservation (HEL/WC) compliance provisions of the Farm Bill.

As a statewide project, with a target audience of thousands of winegrape growers, it is difficult to list or even estimate the number of EQIP-eligible producers that were involved in this project. Nevertheless, it is likely that a majority of the 82 winegrowers involved in hands-on training with and evaluation of metrics tools and the 609 winegrowers influenced by general outreach were EQIP-eligible producers.

No direct or indirect payment from this grant has been made to individual producers or entities for any structural, vegetative, or management practices.



## **Attachment B – Sample Newsletter Article for Performance Metrics Workshops**

Sonoma County Winegrape Commission Newsletter Brief re: Metrics Workshop

### ***New Educational Workshop!***

The California Sustainable Winegrowing Alliance is working with the Sonoma County Winegrape Commission to offer a new sustainable winegrowing workshop on July 23<sup>rd</sup> titled “Performance Metrics – The Next Step for Sustainable Winegrowing.” This 8:00 am to 2:00 pm *free* workshop including lunch will be held at the Sonoma County Office of Education (5340 Skylane Blvd. in Santa Rosa).

Many Sonoma County winegrowers have self-assessed their practices using the Code of Sustainable Winegrowing. This new workshop complements practiced-based assessment by making connections between practices and measurable outcomes (performance metrics). Grower and vintner participants will learn more about what performance metrics are, why performance benchmarking is important to their business, and what the Alliance is doing in partnership with USDA NRCS and the Stewardship Index for Specialty Crops to identify and enable calculation of performance metrics. Also, hands-on activities will be included so attendees can try and evaluate two online metrics tools in development, a greenhouse gas/energy intensity educational tool and calculator (for vineyards and wineries) and a pesticide risk evaluation tool (for vineyards).

This workshop presents an excellent opportunity for growers and vintners to learn about, experience hands-on, and advise efforts in performance metrics. Contact Karen Thomas at [ipm@sonomawinegrape.org](mailto:ipm@sonomawinegrape.org) or 522-5862 to reserve your seat. Beforehand, participants will receive a simple worksheet to record their vineyard or winery operation’s estimated electricity and fuel usage which will be needed at the workshop, along with a list of some previously used pesticides. Look forward to seeing you on July 23<sup>rd</sup>.



## **Performance Metrics: The Next Step for Sustainable Winegrowing**

**Date:** Friday, July 23, 2010

**Schedule:** 8:00-8:30pm registration  
8:30-12:15pm workshop  
12:15pm complimentary box lunch served

**Location:** Sonoma County Office of Education,  
5340 Skylane Blvd., Santa Rosa 95403

- 8:00 – 8:30 Registration & Coffee**
- 8:30 – 9:00 California Sustainable Winegrowing Program & Performance Metrics**  
Joe Browde, SureHarvest
- 9:00 – 10:00 Online Energy & Greenhouse Gas Tool: Demo, Experience & Evaluate**  
Demonstration by Andrew Arnold, SureHarvest  
Assisted by John Garn, ViewCraft, and Joe Browde, SureHarvest
- 10:00 – 10:15 Break**
- 10:15 – 10:30 Pesticide Risks & the Pesticide Risk Mitigation Engine (PRiME)**  
Cliff Ohmart, SureHarvest
- 10:30 – 11:30 Online PRiME Tool: Demo, Experience & Evaluate**  
Demonstration by Cliff Ohmart, SureHarvest  
Assisted by Joe Browde, SureHarvest
- 11:30 – 11:50 Stewardship Index for Specialty Crops – Description and Pilots**  
Andrew Arnold, SureHarvest
- 11:50 – 12:15 Summary & Group Discussion**  
Led by Joe Browde, SureHarvest and John Garn, ViewCraft
- 12:15 Lunch**

*Funded in part by a grant from the USDA Natural Resource Conservation Service*



## CSWA Metrics & Tools Pre-Workshop Worksheet

### A) Energy & Greenhouse Gas Calculator

You will be asked to select one of your vineyards and/or a winery location to use in the demonstration exercise. ***It would be best to use data from the 2009 season.*** (Note: “season” represents a 12-month timeframe)

Please be prepared to provide the following information during the workshop.

#### For Vineyards:

Total acres of the vineyard \_\_\_\_\_

Total tons harvested from that vineyard \_\_\_\_\_

Fuels (over a 12-month period)	Amount
Diesel	
Gasoline	
Propane	
Other	
Other	
Electricity* (over 12 months)	

\*Amount in total kWh

#### For Wineries:

Total gallons produced at the winery \_\_\_\_\_

Total cases produced at the winery \_\_\_\_\_

Fuels (over a 12-month period)	Amount
Diesel	
Gasoline	
Propane	
Natural Gas	(therms)
Other	
Other	
Electricity* (over 12 months)	

\*Amount in total kWh

### B) Pesticide Risk Calculator

Please bring a pesticide use report for the 2009 season for the vineyard you selected for the above energy and greenhouse gas exercise.

*If questions, contact Andrew Arnold at 209-238-9556 or [aarnold@sureharvest.com](mailto:aarnold@sureharvest.com)*

## Attachment E – Help Sheet for the Pesticide Risk Mitigation Engine (PRiME) Online Tool

The following steps are a guide to using then PRiME website for the first time to create an account; create a site (Ranch or Farm); create and map a vineyard; create a pest management scenario (in which one or more sprays can be entered); enter a pesticide application; run the application through the PRiME model.

1. Go to [www.ipmprime.org/cigipm/](http://www.ipmprime.org/cigipm/)
2. Log in to PRiME: You can login in one of two ways; as a guest or as a user with an account number. If you want to create an account go to #3; if you want to log in as a guest continue:
  - a. Click on ‘log in’ at upper right hand side of screen on the top task bar.
  - b. Look for ‘Prefer to use Guest Resources’ and click on ‘Start Here’
  - c. Enter a name for yourself.
  - d. Click Check Box agreeing to terms and click on ‘Register’
  - e. In drop down box be sure USA is selected for preferred units then click on ‘Continue’
  - f. Should be taken to a workspace of 5 green task bars.
  - g. Go to #4 to continue as a guest user.
3. Create a new account:
  - a. Click on ‘log in’ at upper right hand side of screen on the top task bar.
  - b. Look for ‘First time user?’ and click on ‘Sign up here’
  - c. Fill out the boxes for your new account
  - d. Click on check box at bottom of window agreeing to the terms of use then click on ‘continue’
  - e. Check bubble next to ‘I have promotional code’ and enter ‘sureharvest’ in promotional code box. Click on ‘next’.
  - f. A window will open asking if you want to update your settings. Be sure USA is listed for preferred units of measure. If you update anything then click on ‘Update’, otherwise click on ‘Cancel’
  - g. If you next are taken to the PRiME home page again click on ‘Get Started’ to begin using PRiME. You should be taken to a workspace with 5 green task bars. Got to #4 to continue.
4. Creating a site/ranch: Click on ‘Landscape Features’ task bar.
5. Click on ‘New’ under instructions ‘Please configure your site’
6. Type in a name of your site (not vineyard, think of site as a Ranch or Farm). Don’t worry about the rest of the entry boxes.
7. Click on ‘Insert’, site will appear with a check box to the left of the ‘Edit’ command button; click this check box to indicate to PRiME you will be working with this site.
8. Creating a field/vineyard by mapping it: Click on ‘New(GIS)’ box. This takes you to Google Maps. Next to the ‘Go’ box at the top of the screen, put curser in box and type in a complete street address, including town and state, that is near to the vineyard you want to map. Click ‘Go’. Google maps locates this address and displays the map of the area.
9. Clicking on the arrow boxes in the upper left corner of the screen move the map so that the vineyard you are interested in is visible on the map. Magnify the vineyard by moving the ‘ – ‘ box toward the plus sign until it is magnified enough so you can accurately draw around the borders with the drawing tool.
10. Move your mouse cursor unto the map, it will turn into a ‘+’. Place the + on a corner of the vineyard, click once and move the cursor to the next corner and click again. Continue this until the + is back at the corner you started and click one more time. The block should be bordered by a white line and filled with blue. A balloon will now open for you to designate what kind of land area it is and to name it. Select from the drop down menu what type of site it is. Suggest you select ‘cropping area’. Type the name of the vineyard into the Name box. Then click ‘Close’ to

close the balloon. Then on the task bar at the top of the screen click 'Save'. You should return to the 5 green task bars. However, sometimes the vineyard creation is not saved and you are sent back to the PRiME Home Page. If this happens, click on 'Get Started' and repeat steps 8-10 but be sure to check the box for your newly created site/ranch under the Landscape Features' task bar before doing so.

11. You should be back at the 5 green task bars. If the Landscape Features task bar is not expanded, click on it to view the Site and Vineyard. Click the check box to the right of the vineyard name to tell the PRiME program you want to use this vineyard for recording the pesticide applications.
12. Creating Pesticide Management Scenario: Click on the Pesticide Management Scenarios task bar to create a pest management scenario. A pest management scenario is where you record one or more pesticide applications that you wish to put together under one name. Under the heading 'Scenarios for the selected Site' click on 'New'. Enter name of scenario into the name box, then from the crop pulldown menu pick your crop, which is 'grapes'. You can also leave this box blank. Don't worry about naming a mitigation factor. When done click on 'Insert'.
13. The vineyard name should appear; click check box next to 'Edit' box to tell the PRiME program this is the pest management scenario you will be adding sprays to.
14. Enter pesticide applications: Under the heading 'Applications for selected Scenario' click on 'New'.
15. Scroll down to 'Pesticide Application' task bar and click on it if the 'Select Pesticide' heading is not present with the list of pesticides below it.
16. Be sure the 'Product name' and 'Contains' bubbles are checked. Then in 'Search' box begin to type in the trade name of the pesticide. A list of pesticides will appear as you type. If the one you are interested in appears click on 'select'. The selected pesticide will then appear above, under the heading 'Pesticide Application'.
17. Lower down on the screen below the heading 'Select Application Method' designate the application equipment you will use by clicking through the use pattern tree. When you are at the end of a branch of the tree the triangle to the right will be open and use patten underlined.
18. Scroll up to the 'Pesticide Application' section, enter the rate in the rate box, making sure the Rate bubble is checked, then enter the unit per acre e.g. lbs/ac, and the date of the application. The area of your vineyard should already be in the treated area box. When finished click on 'Insert' to the left of the pesticide information.
19. The treatment as you entered it should appear. Click on check box to tell the program this is the application you want to run through the PRiME model.
20. Run PRiME Risk Calculation: Click 'Calc' and scroll down to the Risk Summary task bar. Click on the bar and the risk summary graph should appear. Here is the meaning of some of the symbols and abbreviations on the graph: LH = Low hazard; LEH = Low hazard and low exposure; star = no data for that risk index. Also, putting mouse on symbol a definition will popup.
21. Adding additional sprays: To add additional sprays repeat steps 15-20. To run a risk summary on more than one spray at a time, check the box next to the applications in which you are interested.

Here are some suggested pesticide applications to enter if you do not have records of your own. They will give you some contrasting pesticide risk calculations:

- Sulfur dust
- Rally
- Provado
- Lorsban
- Agri-mek
- Simazine

- RoundUp
- Kocide

Please Note: If you create an account at the CSWA Workshop using the 'sureharvest' promotional code, you have two weeks to decide if you wish to keep the account. Keeping the account means that any work you do will be saved and accessible any time in the future as well as allowing you to add new information at any time. There is a \$25 annual fee to maintain the account. If you choose to keep the account, please mail a check for \$25, putting your user name in the memo line, and make it out to the 'IPM Institute of North America'. Mail the check to:

IPM Institute of North America  
4510 Regent St.  
Madison, WI 53705

**Attachment F – Evaluation Form for Sustainability Portal and Associated Metrics Tools**



**CALIFORNIA**  
SUSTAINABLE WINEGROWING  
ALLIANCE

**Performance Metric Workshop  
- Sustainability Portal & Tool Evaluation -**

**Name:** \_\_\_\_\_

**Company:** \_\_\_\_\_

	Excellent	Good	Adequate	Mediocre	Poor
<b>Sustainability Portal Website</b> <i>(check one)</i>					
Overall impression of the website	<input type="checkbox"/>				
Portal design and layout	<input type="checkbox"/>				
Portal launch page text is clear, easy to understand	<input type="checkbox"/>				
Resource area text adequately describes tools	<input type="checkbox"/>				
Variety of resource area tools provided	<input type="checkbox"/>				
<b>Greenhouse Gas and Energy Tool</b> <i>(check one)</i>					
Welcome page text is clear, easy to understand	<input type="checkbox"/>				
Usefulness of pop-up educational material	<input type="checkbox"/>				
Text conveys useful information on GHGs and carbon footprint	<input type="checkbox"/>				
Value of signing-up to become a member to track metric data	<input type="checkbox"/>				
Value of combining metric information with SWP assessment	<input type="checkbox"/>				
Calculator instructions are clear, easy to understand	<input type="checkbox"/>				
Data entry is intuitive and easy to use	<input type="checkbox"/>				
Calculator results page is clear, easy to understand	<input type="checkbox"/>				
Calculator results are useful information you can take action on	<input type="checkbox"/>				

**What are the GHG/Energy tool's strengths?** \_\_\_\_\_

\_\_\_\_\_

**What are the GHG/Energy tool's weaknesses?** \_\_\_\_\_

\_\_\_\_\_

**Is there anything we can do to improve the tool?** \_\_\_\_\_

\_\_\_\_\_

	Excellent	Good	Adequate	Mediocre	Poor
--	-----------	------	----------	----------	------

**PRiME Pesticide Tool** *(check one)*

Welcome page text is clear, easy to understand	<input type="checkbox"/>				
Instructions to create sites, fields & scenarios easy to understand	<input type="checkbox"/>				
Instructions to add pesticide sprays easy to understand	<input type="checkbox"/>				
Error messages are clear, easy to understand	<input type="checkbox"/>				
Data entry is intuitive and easy to do	<input type="checkbox"/>				
Pesticide risk summary page is clear, easy to understand	<input type="checkbox"/>				
PRiME results are useful information you can take action on	<input type="checkbox"/>				
Value of signing-up to track pesticide risk data	<input type="checkbox"/>				
Value of combining risk information with SWP assessment	<input type="checkbox"/>				

**What are the PRiME tool's strengths?** \_\_\_\_\_

\_\_\_\_\_

**What are the PRiME tool's weaknesses?** \_\_\_\_\_

\_\_\_\_\_

**Is there anything we can do to improve the tool?** \_\_\_\_\_

\_\_\_\_\_

**OVERALL SUSTAINABILITY PORTAL WEBSITE COMMENTS**

**Please describe your overall impression after using the website:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Is there anything we can do to improve the website?** \_\_\_\_\_

\_\_\_\_\_

Based on your experience, would you likely begin using the Sustainability Portal to access performance metric tools to track your operation's progress?  YES  NO

If so, why? \_\_\_\_\_

\_\_\_\_\_

If not, why not? \_\_\_\_\_

\_\_\_\_\_

What other metric tools would you like us to consider? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Additional comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

***One last question...***

I currently use the online SWP website for my self-assessments.  YES  NO

**Thank you for taking the time to provide us with feedback!**

## Attachment G – Thumb Drive Resources for Performance Metrics Workshops



### 2010 Performance Metrics Workshop

Co-sponsored by California Sustainable Winegrowing Alliance and NRCS

### USB Drive Table of Contents

#### Presentation Folder

- Performance Metrics: The Next Step for Sustainable Winegrowing

#### What Are Performance Metrics? Folder

- “Getting Strategic about Measuring Sustainability,” The Packer, June 2010

#### Energy/Greenhouse “Take Action” Folder

- Agricultural Pumping Efficiency Program Brochure, The Center for Irrigation Technology, APEP-03 1/04
- Energy Efficiency Chapter from the California Wine Community Sustainability Report 2009
- Energy Efficiency Chapter from the Code of Sustainable Winegrowing Practices workbook, Wine Institute and California Association of Winegrape Growers, 2006
- Energy Efficiency & Conservation - “Assessing and Reducing Energy Needs,” Wine Institute Highlight Newsletter, August 2002.
- Energy Audit – “Benefits of Energy Auditing,” Wine Institute Highlight Newsletter, Fall 2007
- “Benefits of Energy Auditing for Your Winery,” Practical Winery & Vineyard Magazine, May/June 2005.
- Energy Efficiency Checklist

#### Greenhouse Gas (GHG) “Take Action” Folder

- “Improving Air Quality,” Practical Winery & Vineyard Magazine, March/April 2007
- Global Climate Change: Risks, Challenges, Opportunities and A Call to Action, PG&E
- Vineyard Management Practices and Carbon Footprints, California Sustainable Winegrowing Alliance, May 2009
- “Looking to the Sun for Renewable Energy,” Practical Winery & Vineyard Magazine, January/February 2004
- Biodiesel Commonly Asked Questions, National Biodiesel Board
- “Protecting Air Quality,” Reducing Risks through Sustainable Winegrowing: A Growers’ Guide, December 2008
- Air Quality Chapter from the California Wine Community Sustainability Report 2009
- Air Quality Chapter from the Code of Sustainable Winegrowing Practices workbook, Wine Institute and California Association of Winegrape Growers, 2006

### **Water Footprinting Folder**

- “Water Footprint of Food,” Arjen Y. Hoekstra, in “Water for Food,” 2008
- “How Big is Your Water Footprint?” Alyson Kenward, DISCOVER Magazine, March 2010
- “A Smaller Ag Water Footprint – Managing our Resources,” California Agricultural Water Management Council

### **Pesticide Risk “Take Action” Folder**

- Pesticide Risk Mitigation Engine (PRiME) Brochure, IPM Institute of North America
- Pesticide Risk Mitigation Engine (PRiME) Privacy Statement
- PRiME Website Help Sheet
- “Pesticide Risk Calculator Debuts,” Wines & Vines, July 2010
- “Minimizing Pest-Related Risks,” Reducing Risks through Sustainable Winegrowing: A Growers’ Guide, December 2008
- Pest Management Chapter from the California Wine Community Sustainability Report 2009
- Pest Management Chapter from the Code of Sustainable Winegrowing Practices workbook, Wine Institute and California Association of Winegrape Growers, 2006

### **Stewardship Index for Specialty Crops (SISC) Folder**

- SISC Overview Brochure, Stewardship Index for Specialty Crops Project
- SISC On-Farm Pilot Binder, Stewardship Index for Specialty Crops Project

## Performance Metric Workshops - Feedback

Workshops in:

- Sonoma
- Lodi
- Lake County
- Madera

### GHG/Energy Tool

#### **What are the GHG/Energy tool’s strengths?**

“Gives a starting point to look to improve and then continue to compare your efforts.”

“The results are very useful and it is relatively easy to use.”

“The site is very user friendly and easy to understand. Good website design.”

“Quantifies impacts of inputs related to grape production.”

“Informative but not clear re: what our energy intensity/CO2 intensity means relatively – i.e. We were green (3<sup>rd</sup> percentile) using own data which ‘looked good’ but what is our incentive to improve if we are doing well according to the tool?”

“To see where we stand – to begin a baseline in meaningful terms and work from there.”

#### **What are the GHG/Energy tool’s weaknesses?**

“Must have reliable data to enter...”

“There are vague estimates of certain energy sources as per vineyard and other uses.”

“PG&E link and to other providers will be helpful...”

“...does not account for renewable energy; Scope needs explanation.”

“Too many variables, if hill side, flat ground, soils (clay, sand) etc...”

“May be too simple.”

“Need a way of seeing what benefit you get from alternative fuels...”, “Does not calculate offsets – i.e. GHG saves via B100 or Solar.”

“Essential to define practices to include – even if contracted out – otherwise you can’t compare between operations. Difficulty with the tool is collecting data, you and contractors.”

“Seems like the strongest ties to farming are cost saving potential & marketing potential. This thought could be made clearer.”

“Not able to model user’s facility.”

### **Is there anything we can do to improve the tool?**

“Help user to allocate energy and fuel usage, make calculator to determine usage by winery.

“A sample spreadsheet as per accounting for the sources on a monthly basis to become a routine part of operations.”

“Results for my data – I am not sure that the numbers meant much to me. How many lbs/ac of CO<sub>2</sub> etc. Those numbers alone don’t mean much.”

“Keep the program free of invalid data.”

“I’d like to see more explanation of what the numbers mean. Maybe a drag over explanation.”

[ *The “so what” of metrics...* ]

### **PRiME Pesticide Tool**

#### **What are the PRiME tool’s strengths?**

“Helps me to see comparison of different pesticides. Has lots of potential.”

“Gives us a chance to evaluate pesticide effects.”

“Environmental Impact.”

“Comparing application strategies”

“Great risk management tool.”

“Summarize pesticide risk to help with pesticide choice.”

“The risk summary page.”

#### **What are the PRiME tool’s weaknesses?**

“Too complicated, too many error messages , not user friendly.”

“It’s not clean...Seems a little hard to use due to ‘very picky’ system and needs better instructions for troubleshooting.”

“Entering application rates”

“Navigating and inputting data. Lack of data for some products.”

“It is totally unintuitive and cumbersome to enter data. It won’t get wide use unless it is made user friendly.”

### **Is there anything we can do to improve the tool?**

“Make it more user friendly, less complex. There should be drop down boxes with selections for the pesticide application amts. For example, acres, ounces, etc.”

“Just the glitches. Should use with pesticide usage reporting software – Agrian, etc.”

### **Overall Sustainability Portal Website Comments:**

#### **Please describe your overall impression after using the website?**

“It has great potential.”

“I will use it at home with hard data to evaluate and make an action plan.”

“Don’t like inconsistency of tools comparing energy use page and PRiME page.”

“These are useful tools to have to work on becoming more sustainable. It is nice that they are accessible to everyone.”

“I like being able to evaluate what I am doing or plan to do. To compare what others are doing is questionable.”

“Difficult to learn. Not sure what “need” it fills for a winery.”

“Get the other components up and running. The portal is nicely put together.”

“My overall impression – interesting, but not sure whether I would find it useful for my operation.”

“Good tool for planning, implementing and evaluation. Near comprehensive metrics. Can you generalize for biodiversity? Provides a formulated way of collecting data. Though not sure if it will help me financially.”

#### **Is there anything we can do to improve the website?**

“I look forward to seeing the portion on water. I would also add some more links that lead to further information.”

“Needs a lot of beta testing by numerous participants...”

“More consistency between portal pages.”

#### **Based on your experience, would you likely begin using the Sustainability Portal to access performance metric tools to track your operation’s progress?**

“Yes, Good stewardship is good for all and I believe is more \$ in the long run.”

“I would if my customers begin to request data from my operation.”

“Yes, I would absolutely use it to track our progress. It is very useful to have concrete data and to be able to use benchmarks.”

“No, I am not ready to go into the expense of more paper work and record keeping, but I’m going to start collecting useful data so it can be used in the future.”

“Yes, try to reduce C footprint, initiate efficiency increases, more sustainable practices.”

“No, needs to be upgraded for ease of use. Once this is better, I will use this site.”

“Yes, future will necessitate need for this approach.”

“No. At this point, I am not sure that I see this tool useful for my operation.”

“Yes. It’s important to the owners of our company.”

### **What other metric tools would you like us to consider?**

“Water is important (quantity and quality)” [ *many people said water use...*  ]

“Fertilizers, Social – including employee housing.”

“Biodiversity? Native Vegetation? Human resources, local jobs/small independent farm ownership?”

“Scope 3 for wineries”

### **Additional Comments**

“Thanks to you all for being ahead of the curve or helping us growers to be prepared for the future when we will have to track this for our customers.”

“It would be wise to take advantage of these tools.”

“I see value for SWP piece and understand the importance of metrics – big picture. But still not sure of value to me as a small grower.”

“There are many annual variables which make any comparisons conditional, among our 3 small vineyards and extrapolated to vaster acreages. Some years no yield because of no sales.”