



Benefits of Performance Metrics

By tying measurable performance outcomes to practices, Performance Metrics help growers and vintners to:

- Prioritize vineyard or winery plans for greatest operational efficiency
- Sort real from perceived outcomes and manage resources more efficiently
- Meet increasing market demand for information about how products are made and their impacts
- Take advantage of future financial incentives such as cap and trade and alternative pricing associated with energy/water efficiency

Performance Metrics also help the overall California wine community:

- Convey accurate information about sustainability efforts in public policy and market realms
- Strengthen the credibility of the Sustainable Winegrowing Program model with regulators, policymakers, retailers and consumers
- Enhance its global leadership position in sustainable agriculture and production by remaining on the leading edge of sustainability

CSWA to Introduce Performance Metrics for Sustainable Winegrowing:

Data to Determine Industry Averages for Water, Energy and Nitrogen Use

“YOU CAN’T MANAGE what you don’t measure” is the principle behind the California Sustainable Winegrowing Alliance’s (CSWA) new initiative to integrate Performance Metrics into the Sustainable Winegrowing Program (SWP). Performance Metrics, the measurable outcomes of business

vineyards and wineries, greenhouse gas emissions in vineyards and wineries, and nitrogen use in vineyards. CSWA is developing an online Performance Metrics Sustainability Portal to help growers and vintners confidentially calculate, track and store their metrics data and access associated



PHOTO BY RICK BOLEN

Performance metrics will help set industry averages for water, energy and nitrogen use.

practices, are already used by growers and vintners to measure economic success such as farming costs per acre/ton of grapes, and production cost per bottle/case of wine. With CSWA’s metrics project, growers and vintners will be provided with tools to measure, manage and track their use of natural resources. It will also help quantify performance, optimize operations and cut costs to increase sustainable practices.

CSWA’s initial set of metrics includes use of water and energy in

educational information. Participants will be able to compare their natural resource use from year to year and relate measurable outcomes to changed practices. The new portal will be part of CSWA’s existing free online system.

Ultimately, CSWA will use compiled data to determine industry averages for water, energy and nitrogen use, with additional metrics to come.

Pilot workshops for calculating metrics online will be available in Spring of 2012. For more information, go to www.sustainablewinegrowing.org.

"Sustainable winegrowing is an imbedded philosophy that we live by each and every day to ensure the continued growth of the California wine industry long into the future."

CHRIS SAVAGE, E. & J. GALLO WINERY AND CSWA CHAIRMAN



HIGHLIGHTS WINTER 2011

Energy Efficiency at Vineyard 29:

Gravity Flow and Natural Gas Use Are Among Innovations

WHEN VINEYARD 29 proprietors Chuck and Anne McMinn designed their Napa Valley winery, they had two goals in mind: to minimize the environmental impact of wine production, and install systems that would ensure the highest quality of wine. No detail was too small, and today Vineyard 29 operates with maximum energy efficiency.

Partially tucked into a carved out hillside, the winery's caves, cellars, offices and hospitality spaces take advantage of natural lighting, ventilation and cooling, thus minimizing the use of energy-intensive heating, ventilation and air conditioning (HVAC) equipment.

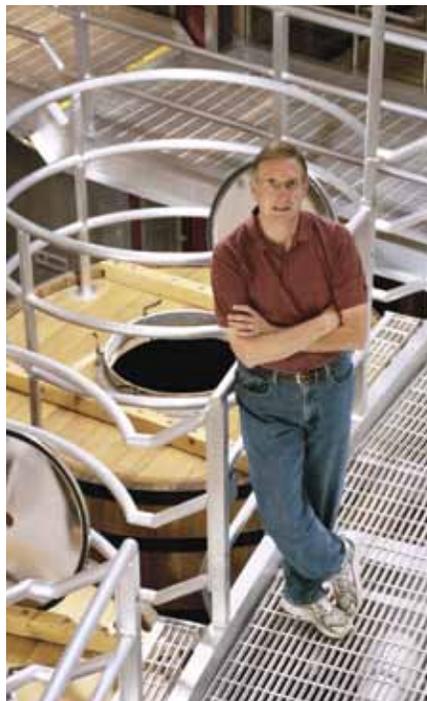
When required, HVAC and lighting systems are controlled by motion sensors that detect and respond to occupancy levels.

The barrel storage area is finished with tan-colored stucco which helps reflect artificial light and reduces by half the amount of lighting fixtures needed.

A gravity-feed system reduces the use of pumps and motors for conveying wine between tanks and barrels. Avoiding pumps also improves quality, as Chuck McMinn explains, "We can start the fermentation process with whole berries...which forces the yeast

to work through the skins...extracting more colors and flavors."

An innovative cogeneration system creates electricity from natural gas and uses the by-product heat for heating and cooling purposes. This efficient use of fuel (80% vs. 30% efficiency of utility or "grid" power) considerably reduces greenhouse gas emissions and results in total energy cost savings of \$24,000-\$39,000 a year.



Chuck McMinn stands above the winery's gravity flow tank system.

PHOTO BY SCOTT SUMMERS

Reduce your Energy Use

Lighting:

- Install T-5 or T-8 fluorescent fixtures with lighting controls such as time clocks or motion detectors
- Clean lighting fixtures once a year

Buildings and Tanks:

- Insulate jacketed and cold stabilization wine tanks
- Install strip curtains on conditioned buildings with high traffic
- Reduce heat gain on tanks with solar screens or building insulation
- Insulate refrigerant lines
- Use night air cooling

Refrigeration:

- Replace air cooled condensers with evaporative condensers
- Install premium efficiency motors
- Variable speed drives on pumps and centrifugal fans
- Insulate glycol lines
- Shift electric use into less expensive off-peak times

Ponds

- Install premium efficiency motors
- 2 speed motors
- Time-of-use rate

Boilers

- High efficiency boilers
- Insulate hot water and steam lines
- Automatic pump shutoff on low/no demand

For more energy efficient tips, contact info@sustainablewinegrowing.org.

THE CALIFORNIA SUSTAINABLE WINEGROWING ALLIANCE (CSWA) program has broad industry participation with 1,700 wineries and vineyards, representing 70% of California's wine acreage and 65% of the state's wine shipments, which have evaluated their operations with CSWA's Code workbook.

In 2010, CSWA added voluntary Certified California Sustainable Winegrowing, which requires an annual assessment, meeting 58 prerequisites and doing a third-party audit. Forty wineries and more than 116 vineyards are certified with more applications in process. See: www.sustainablewinegrowing.org.

Water Conservation Tips

Simi's water conservation efforts include staff education with water use bulletins posted weekly (written with layman's terms, such as 20,000 gallons is the equivalent of 667 bathtubs of water). Below are some other water conservation tips from CSWA's Sustainable Winegrowing workbook:

- Install meters on wells; monitor and record water use regularly
- Use pond process water for vineyard and/or landscaping irrigation
- Cover (or move inside) crush and press operations to eliminate "baking" of waste material on equipment
- Consider installing an ozone system for winery equipment cleaning and sanitation
- Monitor water used to wash and soak barrels; set goals to reduce water use
- Monitor water use in cellar; consider alternative cleaning technologies
- Practice deficit irrigation in the vineyard
- Use drought tolerant plants in landscaping



Simi's water treatment plant will have paid for itself in nearly four years.

Conserving Water at Simi Winery:

Water Use Drops 42% Since 2007

USE OF A PERFORMANCE metrics system at Simi Winery in Healdsburg has resulted in dramatic savings in conserving water as well as environmental and economic benefits. "We've been tracking key performance indicators for water since 2007," says John Pritchard, Simi's Director of Operations. "Since then, our liters-of-water-used per liter-of-wine-produced has dropped from 5.2 to 3.0."

notes that the year Simi became a Sonoma County Green Business, the winery reduced its water use by 16.4% though it crushed 13.2% more tonnage. "We've attained our goal to cut our water use by 5% every year since 2008."

In addition to installing water-saving barrel washing systems, flow meters, spray nozzles at water stations and switching to chlorine dioxide



With a corporate social responsibility program since its 1945 founding, Constellation Brands – Simi's parent – has always looked for ways to improve the environment and minimize the impact of its winery sites.

"We take weekly water readings and compare them to a norm, investigating abnormal readings or discrepancies," says Pritchard, who

as an alternative cleaning technology, Simi built a water treatment plant with an anaerobic digester that reduces its wastewater costs and the load on Healdsburg's water treatment system. "We've been able to save nearly \$600,000 by treating our own wastewater. By the end of this fiscal year, the bio-digester, installed in 2008, will have paid for itself."

"We're growing greater populations of smaller vines with less, but higher quality fruit per vine."

JOHN CROSSLAND



HIGHLIGHTS WINTER 2011

Less is More for Nitrogen Use in Vineyards

John Crossland Finds Economic, Environmental and Quality Benefits

"IF YOU DON'T NEED TO APPLY IT, you don't have to buy it," says John Crossland, President of Vineyard Professional Services, discussing the use of applied nitrogen and other macronutrients in vineyards. Cross-

land, former Board Chairman and Director of the California Association of Winegrape Growers, has seen a marked decrease in nitrogen use in his forty years of grapegrowing and a corresponding increase in fruit quality. His company farms over 2,000 acres in Paso Robles.

land, former Board Chairman and Director of the California Association of Winegrape Growers, has seen a marked decrease in nitrogen use in his forty years of grapegrowing and a corresponding increase in fruit quality. His company farms over 2,000 acres in Paso Robles.



Using less nitrogen can be accomplished without sacrificing yield and quality by improving soil health with cover crops and compost and by tailoring rates and timing of applications.

land, former Board Chairman and Director of the California Association of Winegrape Growers, has seen a marked decrease in nitrogen use in his forty years of grapegrowing and a corresponding increase in fruit quality. His company farms over 2,000 acres in Paso Robles.

"What we used to think was necessary actually generated excess vegetative growth and negatively affected

fruit quality," says Crossland. "Today we're growing greater populations of smaller vines with less, but higher quality fruit per vine." In addition to compost and legume-based cover crops to naturally add nitrogen to the soil and prevent erosion and runoff, Crossland estimates that he applies twenty pounds of organic and traditional commercial nitrogen per acre per year to his Paso Robles vineyards. "We do an annual plant tissue analysis and a thorough soil analysis before planting to establish a baseline

for nitrogen and other nutrients, and continue to analyze every few years and make amendments as necessary," he says.

Curbing nitrogen use benefits the environment and the bottom line, which both carry equal weight with Crossland. "Our nutrient program averages about \$100 per acre per year – maybe double that when we use compost," he says. "I can live with that."

16 Reasons to Avoid Excess Nitrogen

1. Higher fertilizer cost
2. Potential groundwater contamination
3. Increased powdery mildew
4. Increased bunch rot
5. Increased Phomopsis (fungi)
6. More required canopy management/leaf removal
7. Growth interference with harvesting
8. Delayed maturation
9. Potential ethyl carbamate problems in wine
10. Lower phenolics in juice
11. Lower anthocyanins (pigments) in juice
12. Higher malate in juice
13. Higher pH in juice
14. Higher pruning costs
15. More grape leafhopper problems
16. Inadequate wood dormancy in late fall

Reprinted from CSWA's Code Workbook sourcing info from Pete Christensen, UC Viticulture Extension, Kearny Ag Center, Parlier.

CSWA is a 501(c)3 nonprofit organization established in 2003 by Wine Institute and the California Association of Winegrape Growers. For information, contact 415/356-7525 or communications@wineinstitute.org. Copyright © 2011 CSWA. Printed on recycled paper.

