



HIGHLIGHTS

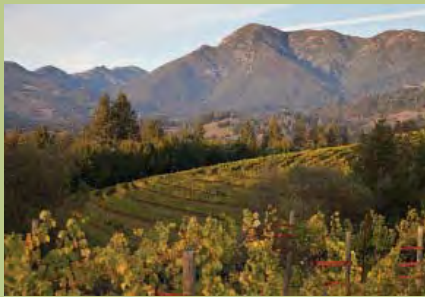
SUMMER 2012

CALIFORNIA SUSTAINABLE WINEGROWING ALLIANCE NEWS

In this Newsletter:

How California Wineries & Vineyards Conserve Water

Though winegrapes use less water than most crops, water is regarded as a most precious and limited natural resource in the California wine community. The high demand for water for urban, agricultural and environmental uses requires the industry to be at the forefront in water conservation and quality. CSWA's Code of Sustainable Winegrowing Practices addresses water management efficiencies throughout its 500-page workbook, and this newsletter presents just a few of the many initiatives that vintners and growers have implemented to conserve water.



Timothy Carl of Knights Bridge Winery credits his research background and four years as a Sonoma County Grape Commissioner with giving him a greater appreciation for land stewardship and data tracking and analysis. "It helps you build a relationship with your farm. You understand the nuances."

Irrigation Water Use Reduced 50 Percent at Knights Bridge Winery

"Big Drink" Equals Big Savings in Water Use

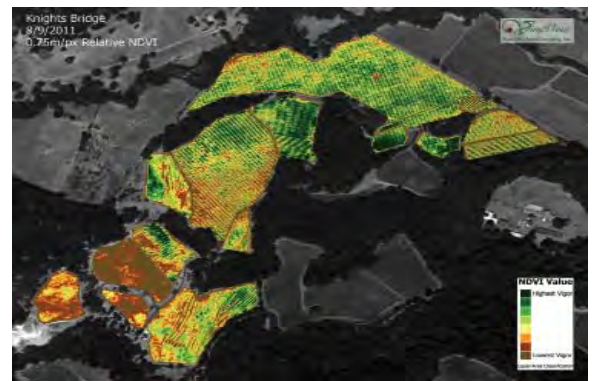
WATER CONSERVATION and wine quality go "hand in hand" at Knights Bridge Winery. Timothy F. Carl, PhD, a managing partner of the St. Helena winery, employs many tools when it comes to conserving water, including a season-long approach to irrigation management at their Certified California Sustainable Winegrowing (CCSW) vineyard in Knights Valley.

"We use what's known as the 'big drink' method," says Carl, a sixth-generation grape grower who spent years in medical genetics research before pursuing winegrowing. He worked with Premiere Viticultural Services to implement the method. "We've shifted from multiple applications of small volumes of water to less frequent but deeper applications, a strategy that has resulted in a reduction of water use by nearly 50 percent."

Carl notes that watering less frequently forces the vine roots deeper, creating stronger vines. "When you water more often, the roots can come up to the surface where they're exposed to heat and pathogens. We're trying to build independent vines."

The "big drink" method requires being comfortable with higher levels of vine stress. Knights Bridge uses drought-resistant rootstock, applies compost to increase the soil's water-

holding capacity, and plants plow-down crops that improve water penetration and avoid sediment runoffs. It also tracks its 55-acre vineyard closely, using NDVI (Normalized Difference Vegetation Index) aerial maps, neutron probes, and leaf water potential and evapotranspiration measurements to monitor vine stress and determine watering schedules and targets.



To help measure vine vigor, Knights Bridge uses an aerial map produced with NDVI remote satellite imaging to customize irrigation for each plot.



Knights Bridge uses natural cover crop mixes of clovers, legumes, cereals and other low-growing grasses for water penetration and runoff prevention in their vineyards on the Mayacamas mountain slopes.

KNIGHTS BRIDGE PHOTOS

"Sustainability is about more than the environment. It's about treating your employees well, contributing to the community, and making sound financial decisions so that there's a viable business to pass on to the next generation."

KIM LEDBETTER BRONSON, VINO FARMS AND CSWA CHAIRMAN



HIGHLIGHTS SUMMER 2012

Water Audit Is One of Hundreds of Measures Initiated

Sustainability Takes Center Stage in Ponte Family Estate's Growth Plans

RAPID EXPANSION of Temecula's Ponte Family Estate in the last decade led to water conservation as a key aspect of controlling costs. Having added a restaurant, gardens, special event sites and an inn to the winery, Ponte has made sustainability, including conserving water and energy, a central component of its business model. It earned CCSW certification in 2011.

Ponte's "Green Team," led by sustainability consultant Nick Webster, initiated hundreds of practices to reduce its environmental footprint, from recycling to composting to using alternative forms of energy, etc. "We've addressed all water-related prerequisites for earning our CCSW certification," says Marketing Manager Amy Landolt. This included installing "green" dishwashers

in the tasting room and restaurant that trap, heat and re-use water; using "gray water" from barrel and tank sanitation for landscape irrigation; and cleaning fermentation tanks (with non-toxic cleaning solutions) in sets so that water is recycled through several tanks instead of just one.

Webster notes that local government agencies are good resources for wineries working on green initiatives. Ponte participated in a free water audit with the Rancho California Water District, which helped them pinpoint sediment build-up in their drip irrigation lines that was backing up the system.

In addition to the new Ponte Vineyard Inn, the winery offers another new attraction: a Sustainability Tour created to celebrate Earth Day.



PONTE WINERY PHOTO

Samples from the tank and barrel are available on a wine tour, highlighting Ponte Winery's sustainable practices. (Center) Sustainability consultant Nick Webster.

Resources: Conservation

For water audits, contact your local water supplier to inquire about its services, which may include free water audits or referral to consultants that perform audits.

Alliance for Water Efficiency

Saving Water - Tips for Commercial, Industrial and Institutional Water Use.

<http://www.home-water-works.org/saving-tips/work>

American Water Works Association

Links to water-saving tips, including how to get started and a 139-page water efficiency manual.

<http://www.awwa.org/awwa/community/links.cfm?FuseAction=Links&LinkCategoryID=11>

Water Saving Tips for the Beverage Industry

Tips for facility and exterior areas. Maryland Dept. of the Environment.

<https://my.sfwmd.gov/portal/page/portal/common/pdf/beverage.pdf>



A windmill provides power to pumps that circulate water in Ponte's pond.

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 117 vineyards are certified with more applications in process. See: www.sustainablewinegrowing.org.

Resources: Water Management

Irrigation Management of Winegrapes with a Limited Water Supply

University of California Cooperative Extension. Information on regulated deficit irrigation and more.

<http://ucmanagedrought.ucdavis.edu/Winegrapes.cfm>

Water Right Irrigation Scheduling

Center for Irrigation Technology at California State University Fresno. Provides tutorial for creating seasonal irrigation schedules. Click on "agriculture."

<http://www.waterright.org>

Comprehensive Guide to Sustainable Management of Winery Water and Associated Energy

<http://www.wineinstitute.org/winerywaterguide>

CSWA California Code of Sustainable Winegrowing Practices Workbook

See chapters on Vineyard Water Management and Winery Water Conservation and Quality.

<http://www.sustainablewinegrowing.org/swpworkbook.php>

Water Management at E. & J. Gallo Winery

Research, Irrigation Strategy and Winery Water Efficiencies Add Up to Major Conservation Efforts

WATER MANAGEMENT has been a top priority for E. & J. Gallo Winery for decades, as water is viewed as a key tool for growing the best grapes for great wine.

"Our viticulturalists are constantly researching irrigation patterns on grape yields, the specific water needs of vines in different soils and climates, and the effectiveness of drought-tolerant rootstocks," said Jim Collins, Sr. Direc-

The monitoring system can be accessed from the office or from a laptop in the vineyard, as the winery has established wireless connectivity in all its vineyards.

In the winery, water conservation efforts have reduced water consumption by 25 percent from the previous three-year average. Bottle washing efficiencies have eliminated 90 percent of water used to clean bottles. Changes to the sanitation process for the white press



tor of Viticulture. "The current focus is to provide the vine with water when it needs it, instead of before it needs it to make the best use of water and keep the vine from over-vegetating." To pinpoint the best time to irrigate and monitor water use, the winery installed sensors throughout its North Coast vineyards to evaluate water needs, direct irrigation to vineyards and track savings in real time.

have resulted in a savings of 12,000 gallons of water during each cleaning process. Other efforts include adding nozzles to hoses, and an employee education campaign to implement the efficiencies.

"Everyone takes pride in doing sustainable practices knowing it benefits current and future generations," said Collins.

"I believe as growers we can grow quality crops and grow environmental quality as well."

DAVID LUCAS, OWNER/WINEMAKER



HIGHLIGHTS SUMMER 2012

Irrigating with a Subsurface Drip System

The Lucas Winery Goes Underground in Quest for Quality

IRRIGATING HEAD-TRAINED, old vine Zinfandel presents its own set of issues, but when vintner David Lucas of The Lucas Winery in Lodi got tired of repairing drip lines damaged by "teething" coyotes, he decided to try something radical.

18 inches deep between each vine row. The system both addresses the coyote issue and conserves water because there's no evaporation. "I measure water savings through my PG&E bill," says Lucas. "In spite of increases in energy costs, my bill has remained

roughly the same."

But for Lucas, the main advantage of underground drip has to do with quality. "Wine quality is directly related to uniformity in the vineyard in terms of ripeness and maturity," he says, noting that older vineyards present challenges in gaining uniformity from vine to vine.

"By laying out the emitter pattern according to vine vigor, we can

precisely dial in the irrigation needs of each block and vine row, taking into account the crop size and rainfall of the growing year."

"I believe as growers we can grow quality crops and grow environmental quality as well."



Lucas explains his sustainable practices on a tour of his CCOF-certified vineyards. He says underground drip is not without challenges, including gopher damage, which he addresses with owl boxes. He wouldn't switch though, he says.

"I'd seen vegetable growers lay down drip hoses then shape the soil beds over them," he says. "I wondered if we could do the same for grapevines."

In 1997, Lucas became one of the first Lodi growers to install an underground drip system, with hoses placed

Resources:

Evaluation of Trellis System and Subsurface Drip Irrigation for Wine Grape Production. California State University, Fresno. www.wateright.org/980401.asp

Additional Resources

EPA: WaterSense: Efficiency Made Easy www.epa.gov/watersense

Using Water Efficiently: Ideas for Commercial Businesses www.epa.gov/watersense/commercial/index.html



Owners/winemakers David Lucas and Heather Pyle Lucas use 100% solar energy to power the winery and irrigation pumps in their certified organic vineyards.

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 © 2012 CSWA. Printed on recycled paper.

