



Highlight of the Month: Cover Crops

Photo courtesy of Cinnabar Vineyards & Winery



The crimson clover at Cinnabar adds nitrogen and protects hillside vineyards prone to erosion

“Organic” Experience Led to “Sustainable” Practices

A decade ago, Trinchero Family Estates Vice President of Vineyard Operations Hal Huffsmith and his team became interested in cover crops and other natural farming methods after talking to agriculture advisor Amigo Bob Cantisano and seeing the successes of table grape growers. Amigo Bob convinced them to make the transition from conventional methods for their nine-million-case winery.

“More and more chemicals were being removed from the market,” says Huffsmith. “With fewer conventional farming options, we needed to learn more about organic and sustainable farming strategies. Farming sustainably costs about the same as conventional methods. What is the benefit? It is just the best system for developing healthy soil and vines and high quality fruit.”

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In the coming year, Wine Institute will provide information on a sustainable winegrowing practice to highlight what some of Wine Institute members are doing. This month’s featured sustainable practice is cover cropping, with a look at the experiences and expertise at Trinchero Family Estates, Cinnabar Vineyards and Winery and Domaine Chandon.

Cover Crops, planted between vine rows, are a common practice in California vineyards providing many benefits, such as weed and erosion control. The cover crops can be no-till perennials or disked annuals that add organic matter and nutrients to the soil.

Benefits (depending upon cover crop choice):

- Build organic matter and improve soil structure
- Stabilize soil to gain better vineyard access in wet areas
- Control erosion
- Reduce dust (and therefore mites, erosion and improve air quality)
- Reduce compaction
- Improve water and air infiltration
- Improve long-term soil and vine health
- Provide mulch for under-row to control weeds
- Suppress weeds in row middles
- Attract beneficial insects that feed on pests
- Increase fertility
- Enhance worker safety with less reliance on pesticides and synthetic fertilizers
- Control vigor of vines
- Produce high quality wine

Potential Trade-offs:

- May increase risk of frost damage because crop cools down vineyard
- May attract gophers and other vertebrate pests because of food source in cover crop
- May compete for water and nutrients
- May require cultivation to prepare a seed bed
- May be expensive to sow and maintain

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Trincherro initially tried organic methods but discovered it became costly in terms of too much tractor time and labor. The multiple passes through the vineyards to repeatedly cultivate and apply sulfur were not cost effective. The use of more diesel fuel also was not good for air quality, and excessive tracting caused soil compaction. Their organic experiment led them to sustainable methods. They still grow cover crops to crowd out weeds in row middles, but they also apply a low-risk weed killer under vine rows.

Building the Soil in Mountain Vineyards

The thin soils and heavy wind and rain of the mountain environment were compelling reasons for Cinnabar’s vineyard and estate manager Ron Mosley to get involved with cover crops for their 14,000-case production. The winery’s 30 hillside acres are located at the end of a steep, two-mile mountain road in Saratoga where 90 inches of rain annually are normal for this scenic spot. In establishing the

Trincherro formulated cover crop mixes to meet the diverse array of conditions of 6,000 acres farmed by the winery in nine counties: strawberry clover to fix nitrogen in one vineyard; oat, vetch, peas and bell beans to improve fertility and air and water penetration; native grasses to control the vigor of Cabernet vines; good “bug blends” to attract lacewings, spiders and other natural enemies of insect pests. Huffsmith says they use alternating rows of different blends to control vigor and erosion.

Photo courtesy of Trincherro Family Estates



Trincherro mows alternate cover crop rows to reduce competition with the vines for water and nutrients.

vineyards in 1983, Mosley observed erosion in surrounding areas and his soil sampling revealed only one or two feet of topsoil on average for his vineyards.

After much research, Mosley installed underground drains and quickly planted grasses and spread straw to prevent erosion. He also knew he had to build the soil, but compost suppliers

Habitat blends are planted every 10 rows depending upon the row spacing.

UC Davis studies on the effectiveness of various cover crops as fertilizers assisted Trincherro in the challenge of selecting crops.

Particularly helpful was testing by Professor Alison Berry at UC’s Environmental Horticulture Department, where isotopes were used to trace vine intake of nitrogen from different cover crops. UC also has an online cover crop database to help growers with crop selection. (See resources.)

wouldn’t send their trucks up to the winery. Even spreading the compost would have to be done by hand because the vineyards

were too steep for equipment. The addition of organic matter by using cover crops was the logical solution. Mosley selects cover crops that grow four feet high to build the most organic matter and biomass. He adds clovers to fix nitrogen and flowers to attract beneficial insects. Seeds for cover crops cost about \$40 per acre. To increase

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nitrogen intake of the vines, he rotates mowing and disking on alternate rows every five years. Because cover crops stabilize wet areas, he also can get into the vineyards shortly after heavy rains to prune or apply sulfur.

“We use as few chemicals as possible—

only a low-risk weed killer under vine rows. What people should know is that most farmers and their families live onsite, so they don’t want to transfer harmful materials from their boots to their living environment,” says Mosley. “Sustainable farming feels right

and looks good. Our adage is feed the soil and the soil will feed the vines. It’s an ongoing process, but it took five years to really pay off and bring certain areas back to life. We’re getting two to four tons per acre, and the high wine quality keeps us farming up here.”

Natural Ecosystem Prevents Crisis Management

Domaine Chandon Director of Vineyard Operations Kelly Maher cited similar reasons for sustainable farming—high wine quality, soil health, minimizing pests and diseases with a natural ecosystem, erosion control, as well as welfare and safety of workers at their 400,000-case winery.

When Chandon was established in the 70s, cover crops were planted to increase soil health and help control erosion for the winery’s 1200 acres. The vineyards use more than 40 different types of plant species. To suppress weeds, much of the acreage employs permanent no-till cover crops, which are mowed into mulch and tossed under the vine row. The rest of the acreage has annual crops that are plowed under in late spring to improve fertility. (See

resources for more descriptive trials.)

“Besides minimizing erosion and increasing soil health, cover crops help create a resilient polyculture system that provides a habitat for the multitude of beneficial organisms that act as natural predators to pests,” says Maher. “Quick fix” solutions such as pesticides are expensive and could present significant risks to workers and the environment.

“With any vineyard practice, it’s important to view the entire vineyard ecosystem as interrelated. A farmer targeting a pest has to look at the ramifications on the

entire ecosystem if he or she wants to avoid some sort of crisis management,” says Maher. “It’s best to anticipate change rather than be forced to change,” says Maher. Many wineries

Photo courtesy of Kelly Maher, Domaine Chandon



A cover crop of Molate Fescue and other native perennials helps Domaine Chandon control erosion and build soil.

have already switched from long-lasting pre-emergent herbicides to control weeds under vines to a softer chemi-

Resources:

- ◆ *University of California at Davis cover crop database and related resources are online at:* www.sarep.ucdavis.edu/ccrop
- ◆ *Amigo Bob Cantisano, Organic Ag Advisors, North San Juan, CA. Phone: 530/292-3619 Fax: 530/292-3688.*
- ◆ *Grapevine Uptake of Cover-Crop Nitrogen: Quantitative Studies. Prof. Alison Berry, UC Davis Department of Environmental Horticulture. E-mail: amberry@ucdavis.edu.*
- ◆ *Cover Cropping in Vineyards: Grower Profiles (Domaine Chandon) at www.sarep.ucdavis.edu/news/tr/v7n2/sa-6.htm*
- ◆ *Cover Cropping in Vineyards: A Growers Handbook. Ordering information: <http://anrcatalog.ucdavis.edu/merchant.ihtml?pid=284&lastcatid=105&step=4>*
- ◆ *For more information on the Wine Institute and CAWG sustainable winegrowing project, contact the Communications department at: 415/356-7520*

cal like Round-Up®, he said. Even small changes can be made, such as spraying a more narrow strip under vine rows and using a different nozzle for a more targeted spray.

“At Chandon, cover crops are just one of the sustainable methods used. We are continually promoting a natural ecosystem to produce optimum quality fruit in an economically viable and environmentally sound manner,” says Maher.



THE CODE OF SUSTAINABLE WINEGROWING PRACTICES



In early 2001, leadership and funding from Wine Institute and the California Association of Winegrape Growers (CAWG) led to the formation of a subcommittee to develop a “Code of Sustainable Winegrowing Practices.” This proposed voluntary program, establishing statewide guidelines for sustainable farming and winemaking, is still under development and is expected to be introduced to the wine community within the coming year.

Purpose: The purpose of the project is to enhance the California wine industry’s leadership role in responding to pressures resulting from population growth, public and legislative attitudes, environmental decisions from regulatory and governmental bodies, and other growth-related issues. The new Code, and its implementation, can greatly augment the industry’s collective and unified ability to accommodate these pressures, while assuring that future generations can produce the finest world-class wines. The goal of the Code is to “promote farming and winemaking practices that are sensitive to the environment, responsive to the needs and interests of society-at-large, and economically feasible in practice.” In a recent address to Wine Institute’s Board of Directors John De Luca characterized the proposed Code as “most likely the greatest legacy we can create for the wine community, our larger society, and generations yet unborn.”

Project Status: Close to 50 Wine Institute and CAWG members, as well as outside stakeholders such as representatives from Cal/EPA and independent farm advisors, sit on the subcommittee spearheading the project. Subcommittee Chair Michael Honig leads work on this first-ever statewide initiative, which will include a system to measure the voluntary industry input from vineyards and wineries. The data collected from the project will be used to benchmark the wine community’s progress on sustainability and target educational campaigns where needed. The winegrowing portion of the guide book will build upon the successful programs of the Lodi-Woodbridge Winegrape Commission and the Central Coast Vineyard Team. Feedback from regional grower and vintner associations and a wide range of academia, environmental and social equity communities has played an important role in the Code development. Dr. Jeff Dlott of RealToolbox, a sustainable agriculture and resource conservation consulting firm, has been contracted to help oversee the project and measurement system.

Next Steps: In March 2002, the Wine Institute Board of Directors will review a draft of the Code of Sustainable Winegrowing Practices. The intent is to receive support from the directors to go forward and produce a complete draft of the Code to be presented at the Annual Meeting in June 2002.

For more information on the project, go online to www.wineinstitute.org/communications/SustainablePractices/vision.htm

Upcoming topics for “Highlight of the Month” publications are as follows.
For information, please call the Communications Department at 415/356-7520.

- February – “Reduce, Reuse, Recycle” ● March - “Deficit Irrigation” * ● April – “Leaf Pulling and Pruning” *
 - May – “Wildlife Corridors and Habitat” * ● June – “Communicating with Neighbors”
 - July – “Increasing Predators and Scouting Pests” * ● August – “Assessing and Reducing Energy Needs” *
 - September – “Composting” * ● October – “Controlling Erosion” *
 - November – “Protecting Air and Water Quality” ● December – “Attracting and Retaining Good People”
- * Topics of a seasonal nature are matched to the time of year when the practice takes place.

The cover cropping practices highlighted in this issue pertain to the Code of Sustainable Winegrowing Practices in the following areas: Viticulture; Soil Management; Pest Management; Water Management; Habitat Management; and Wine Quality.