



Highlight of the Month: Sustainable Pest Management

Managing pests in a sustainable manner combines biological, cultural and chemical tools in a way that minimizes economic, health and environmental risks.

Managing Pests in Mountain Vineyards at Cooper-Garrod Estate



Cooper-Garrod Estate leaves trees around the perimeter of vineyards to encourage birds-of-prey to roost and hunt rodents.



An owl box near the vineyards.



A bobcat searches for rodents. Photo courtesy Cooper-Garrod Estate Vineyards

fences and gates because of the continual ground shifts, falling trees or animals busting fence wires. As an extra precaution to protect his crop at harvest time, Garrod throws an alfalfa bale outside the fences for the deer.

The gophers and squirrels that kill vines with root gnawing and tunneling are kept in check mostly with natural predators. Coyotes and bobcats are encouraged to stay around and hunt these pests because Garrod allows a small rodent population to coexist on the property. He also attracts predatory owls to his ranch through the placement of owl boxes and raptor perches. High trees have been left around the perimeter of the vineyards so the owls can

roost. Finally, workers are offered a tail bounty to manually trap rodents. If the pest population balloons, Garrod will bait or gas the tunnels as a last resort to reduce the pest numbers.

Sustainability means using last-resort measures sometimes to get the crop in when all else fails, explains Garrod.

Other pest issues include preventing powdery mildew.

Cooper-Garrod Estate Vineyards rest atop the Santa Cruz Mountains above Saratoga where the thick, forested slopes are home to an assortment of wild creatures that are attracted to the food source in the winery vineyards. Herds of spotted deer and colonies of ground squirrels, gophers and rabbits try to feed on the premium Rhone, Cabernet

and Chardonnay fruit and vines growing on the winery's 30 hillside acres. "We can never eliminate all of the vertebrate pests, but we can keep them out of the vineyards and their populations down to manageable levels," says Jan Garrod, vineyard manager at Cooper-Garrod. "Our goal is to create a vineyard where we can live together." Garrod says the deer

population has grown uncontrollably because hunting is prohibited near the suburbs that border the winery. The deer not only want to eat the vines, but the alfalfa bales kept for the 130 horses of the equestrian academy at the winery. To keep the deer at bay, Garrod has installed tall game fences around all the vineyard plots. He is vigilant in maintaining the

roost. Finally, workers are offered a tail bounty to manually trap rodents. If the pest population balloons, Garrod will bait or gas the tunnels as a last resort to reduce the pest numbers. Sustainability means using last-resort measures sometimes to get the crop in when all else fails, explains Garrod. Other pest issues include preventing powdery mildew.

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Potential benefits:

- ⌘ Reduces use of insecticides, herbicides and fungicides
- ⌘ Helps decrease pest populations with natural practices
- ⌘ Fewer, more selective chemical treatments minimize the risk on the environment and people's safety
- ⌘ Using a broad-based strategy with several techniques will help ensure success, even if one method does not work
- ⌘ Builds a balanced and stable ecosystem with long-term viability

Potential Trade-Offs:

- ⌘ Managing pests in a sustainable manner involves continual staff education and training and the methods can change from year to year
- ⌘ Requires time investment to establish economic threshold to see if costs to control the pest exceed the pest damage
- ⌘ May require increase in cost to transition from standard to more sustainable methods

Garrod pulls leaves, and thins and spreads the canes to open up the canopy for better air flow and spray penetration. Weeds are also high on Garrod's pest list. Hillside erosion keeps him from cultivating, so he

applies Round-up to control weeds under the vines and mows the row middles so the weeds won't compete with the dry-farmed vines for water.

Despite the loss of crop to pests, Garrod is pleased

with the production of four tons per acre. The superior quality of the wines has turned what started as the family's hobby into a successful commercial venture.

Pest Management in Valley Vineyards at Paul Masson Cellars



From the scatology left under owl boxes, Paul Masson staff knows the owls have helped eradicate gophers, voles and other rodents from the vineyards.

Photo at left courtesy of Paul Masson Cellars.

If you talk to Paul Masson's agronomist, Jon Holmquist, he'll tell you that the Madera area is "one of God's greatest places to grow grapes." Wine-growing there requires few inputs and the problems are minor and fixed without difficulty, he says. To be able to say this, however, has taken effort in building an ecologically diverse vineyard that uses natural checks and balances as much as possible to control pests in Paul Masson's 425 acres.

Cover crops are part of the strategy in making the winery's vineyard ecosystem more complex. Holmquist uses a common blend of bell

beans, vetch, Austrian peas and barley to crowd out weeds, improve soil tilth and fix atmospheric nitrogen. The crop also attracts beneficial predatory mites and spiders, and parasitic wasps. Holmquist uses 40 pounds of seed per vineyard acre, planting the row middles in early fall and mowing the crop in May or June to conserve water. He applies a soft chemical herbicide such as Round-Up under vine rows to kill and stunt weeds.

"I'm not interested in totally clean berms," says Holmquist. "What matters is eradicating the undesirable perennial weeds and

reducing the size of weeds. Disking weeds with a tractor causes soil compaction and increases all costs and air pollution."

To combat insect pests that are attracted to vigorous canopy sprawl, Holmquist controls vine growth with regulated deficit irrigation early in the season and spreads the canopy out with 36-inch Geneva Double Curtain trellises. The balanced canopy allows sprays to penetrate more effectively to knock out pests such as omnivorous leaf rollers and powdery mildew. Another reduced-risk method he uses is the setting of pheromone traps to provide

information to time sprayings on an as-needed basis for omnivorous leaf rollers. Nematodes, a common pest in San Joaquin Valley vineyards, are a non-issue for the winery because the vineyard rootstock was selected for its resistance to

these parasitic worms. Like many wineries, Paul Masson has owl boxes to attract these predatory birds to hunt gophers and ground squirrel pests. Bats are also desirable because one bat can eat more than a thousand insects in one hour.

Special housing for these mammals is strategically placed. "Using less pesticide and more predators builds healthier vines. It creates a more stable ag ecosystem," says Holmquist.

Preventing Pests in Riparian Areas at Dry Creek Vineyard

To prevent sharpshooters from spreading Pierce's disease in its properties, Dry Creek Vineyard embarked on a project to remove host plants from riparian corridors that harbor these vine-killing pests. The areas have been replanted with nonhost native vegetation. For the last two years, the winery has restored habitat along two creek zones totaling a half-mile along the Dry Creek and Russian River.

"In the past, farmers may have clear-cut river banks of vegetation to prevent sharpshooter infestation.

The more natural approach is to rebuild the original ecosystem with nonhost plants," says Dry Creek General Manager Don Wallace. "Establishing plants also preserves the shade and coolness of the water on which salmon rely as they traverse the creeks seeking clean gravel that they need for spawning. The restored corridors are promoting nature's balance with biodiversity."

In working on the program, Dry Creek Vineyard partnered with a nonprofit ecological

restoration group named Circuit Riders, along with the Department of Fish and Game and Army Corps of Engineers. Circuit Riders provided technical expertise and arranged for high school students to gain field experience by working on the restoration as part of an ecology class.

Wallace still monitors for sharpshooters with the use of yellow sticky tape traps near the vineyards. He has also planted fruitless plum trees around the perimeters to attract the Anagrous wasps that parasitize sharpshooter eggs. His cover crop blend

in vineyard rows also flowers at different times to harbor the beneficial insects that help control pest populations.

For a decade, Dry Creek has been moving towards many other sustainable strategies to deal with pests and grow grapes. Wallace has used existing barn owls and other birds of prey on the property to control gopher and rodent problems. The numbers for these birds of prey have grown because of

Resources:
☞ *Grape Pest Management*. Univ. of Calif. Div. of Agriculture and Natural Resources. Pub. 3343. www.ipm.ucdavis.edu/IPMPROJECT/ADS/manual_grapes.html

☞ *Natural Enemies Handbook: The Illustrated Guide to Biological Pest Management*. Univ. of Calif. Div. of Agriculture and Natural Resources. Pub. 3386-H. www.ipm.ucdavis.edu/IPMPROJECT/ADS/manual_naturalenemies.html

☞ *Ecologically-Based Pest Management: New Solutions for a New Century*. www.nap.edu/readingroom/books/pest

☞ *Barn Owl Headquarters*. Information on attracting barn owls for rodent control. <http://members.tripod.com/Tommy51>

Photo courtesy Dry Creek Vineyard



Dry Creek Vineyard worked with Circuit Riders ecology experts and high school students to plant nonhost vegetation along river banks to discourage sharpshooters carrying Pierce's disease from inhabiting areas near vineyards.

the special housing and shady platform perches that the winery has installed.

A communal weather tracking grid is used to monitor weather conditions for mildew growth at Dry Creek. A central processing unit provides high-tech data allowing the winery to rely less on calendar spraying and make more informed decisions on an as needed basis about potential mildew growth in the vineyards.

"We farm with the long-term health of our vineyards in mind because we want our two children to have the choice of following in our footsteps here," says Wallace. "Growing grapes in a sustainable manner ups the odds of preserving the environment for future generations."



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 committee to develop a “Code of Sustainable Winegrowing Practices.” This proposed voluntary program, establishing statewide guidelines for sustainable farming and winemaking, is nearly complete and is expected to be introduced to the wine community this fall.

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 Summary: More than 50 Wine Institute and CAWG members, as well as outside stakeholders such as representatives from Cal/EPA and independent farm advisors, sit on the committee spearheading the project. Committee 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: At Wine Institute’s June 2002 Annual Meeting of Members, the Institute Board of Directors provided comment and approved a complete 490-page draft of guidelines for the Code of Sustainable Winegrowing Practices. The committee and Institute staff are now going forward to obtain outside comment of the approved draft by environmental and social equity groups, university educators, regulators and other industry experts.

To attract additional implementation funds for this project, the Wine Institute Board has established a 501(c)3 nonprofit, non-lobbying foundation in conjunction with the California Association of Winegrape Growers. This was necessary as many philanthropic organizations donate solely to 501(c)3 groups. Named the California Sustainable Winegrowing Alliance, this entity will help advance the adoption of sustainable viticulture and winemaking practices through research and education. Bylaws have been approved and a board of trustees has been appointed by both Wine Institute and CAWG. For more information on the project, go online to www.wineinstitute.org/communications/SustainablePractices/vision.htm or call the Communications Department at 415/356-7520.

Upcoming topics for “Highlight of the Month” publications are as follows:

- ✂ 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 practices of “Sustainable Pest Management,” highlighted in this issue, pertain to the Code of Sustainable Winegrowing Practices in the following areas: Viticulture; Soil Management; Vineyard Water Management; Ecosystem Management; Human Resources; Neighbors and Community.

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