



Sustainable Practice Highlight: Using animals to manage pests in California vineyards

'Sniffer Dogs' Have a Real Nose for Vine Mealybugs

Imagine a nose that is thousands of times more powerful than a human's when it comes to detecting subtle odors. Put that nose on a golden retriever, give it some extensive hands-on training, and voila—you've got the latest weapon in winegrape growers' war on the vine mealybug.

Dr. Bonnie Bergin, founder of Assistance Dog Institute in Santa Rosa, and her staff, has trained some very special golden retrievers, affectionately known as "sniffer dogs"

Honig's sustainable winegrowing practices include:

- Installing a solar system for 100 percent of winery energy needs, diminishing dependence on fossil fuels.
- Controlling vineyard weeds with no herbicides.
- Using organic fertilizers to enrich soil.
- Using cover crops to return organic matter and nutrients to the soil and eliminate erosion.
- Planting hedgerows to draw insect pests such as blue green sharpshooter out of the vineyards.
- Erecting bat boxes, bluebird houses, owl houses and hawk perches to help reduce insect and rodent populations.
- Recycling solid waste and conserving water in the vineyard and winery.

by winegrape growers in Napa and Sonoma counties, to detect the female mealybug pheromone. Early detection of the bug allows the grower to treat or remove the hotspot of affected vines, alleviating any broad use of pesticides.

Vine mealybug is an invasive species of insect that first showed up in Southern California about a decade ago. It has been slowly marching northward and isolated outbreaks of the destructive pest have been found throughout the state, including the North Coast.

What adds to the problem is that vine mealybugs are very difficult to detect, being nearly invisible to the naked eye. Mealybugs hide under bark and roots and dozens can fit inside of a one-inch square. They attack vineyards by feeding on the tender vines and leaving a heavy excretion of honeydew that promotes the growth of black, sooty mold.

The vine mealybug has been held in check on the North Coast to date, and area growers are being proactive in their efforts to make sure it doesn't get established. That's where the dogs and their sensitive noses come into play. Winegrowers in Napa and Sonoma counties are so excited about the program that they have donated \$33,000 to pay for the dogs' training.

Michael Honig of Honig Vineyard and Winery in



Led by trainer Rick Yount, Autumn sniffs out any hot spots of vine mealybug before it can spread. For information on supporting dog training, see www.assistedog.org. Assistance Dog Institute photo

Rutherford, is a strong proponent of the program.

"A group of us were wondering how we could 'go outside the box' to find a way to detect mealybugs early. We knew about dogs' great sense of smell, such as the drug-sniffing dogs and bomb-sniffing dogs, so we contacted the Assistance Dog Institute," Honig said. "The dogs in the first litter were able to pick up the scent of the mealybugs, but didn't want to venture out into the vineyard. As descendants of assistance dogs, they thought their first duty was to stay by their owners."

"So what Bonnie did was take the most assertive dog from the program—a decorated search and rescue dog—and breed her. When you see this new litter the differ-

ence is very obvious. The earlier litters were very docile and quiet. These new pups are assertive. The hope is that when they are bred to dogs that are already trained to find the bugs, the next generation will have an interest in going out in the vineyards and also be able to detect the mealybugs."

Honig said if the program proves to be successful, it may be expanded to encompass the entire state.

"I got excited because I love animals, and also because we as winegrape growers are trying to do things right by society and to create something that has a long-term benefit to the environment. Using these dogs does that, using chemicals to control the bugs does not," he said.

Sustainable Practices at Gallo Include:

- Installing owl and kestrel hawk boxes to attract these natural predators for rodent control.
- Maintaining populations of beneficial insects that feed on insect pests, reducing pesticide use.
- Using natural weed control strategies such as sheep and goats to feed on weeds at various ranches.
- Planting cover crops between the vine rows to enrich soil, prevent erosion and provide habitat for beneficial insects.
- Setting aside thousands of acres for conservation easements, providing Aleutian geese critical habitat, now added to the San Luis National Wildlife Refuge.
- Working with other entities to provide habitat for rookeries for Snowy Egret and Blue Heron in Merced County.
- Cooperating with the U.S. Fish and Wildlife Service to reintroduce the riparian brush rabbit, an endangered mammal, to the San Joaquin River area.
- Planting thousands of oak trees on Gallo vineyards throughout the state.

Resource:
B-IRD, 866/712-7127,
or info@B-Ird.com

Gallo Family Vineyards Turns to Falcons to Ward Off Damaging Starlings

At the 400-acre picturesque Two Rock Ranch in Healdsburg, Gallo Family Vineyards has taken to the air to deal with the challenging problem of flocks of starlings devouring ripening winegrapes before they can be harvested.

Gallo was faced with the dilemma of finding an effective way to stop the feasting by the pesky birds while maintaining the tranquil atmosphere of the area.

“The vineyard is located in a very populat-

owner of B-IRD, who was using Saker falcons to protect dairy silage in Utah from bird depredation.

“So we brought Getty out to give the falcons a try,” Collins said. “In the first year of the trial, the birds protected the entire 400 acres. We lost fewer berries than we had using netting and loud noises and we accomplished it at a fraction of the cost.”

What Collins likes best about using the

“The falcons dive at the starlings and the starlings leave the area.”

Pollard has a very close relationship with his falcons. At the Gallo vineyard, he utilizes seven falcons, which patrol the skies one at a time. By rotating the birds frequently, he doesn’t overwork them.

Saker falcons are big, strong birds of prey that originate from southeast Europe and Asia. They dive at their prey at 200 miles per hour.

Collins said the use of these falcons reflects the vision of winery founders Ernest and Julio Gallo, who emphasized that “everyone who managed their property had to be stewards of the land.”

It was Julio Gallo who decades ago introduced an innovative approach to sustainability called the “50/50 Give Back,” which entailed leaving one acre of land in its natural state for every acre of land that was developed for farming. That philosophy still guides the company.

Collins said the idea of using falcons to frighten off starlings is catching on with other vineyard operations, including some on the Central Coast.

“It’s just a great thing to do on so many levels,” he said.



A fleet of falcons will take turns scaring pesky starlings from Gallo Vineyards from veraison of the fruit to harvest for 60 days, 24/7, a method without noise, netting or traps. Gallo Family Vineyards photo

ed setting on the urban fringe, so using loud noises and trapping were not good alternatives. We tried netting the vines, but at \$500 an acre it was a very expensive proposition,” said Jim Collins, Gallo Vineyard’s director of coastal operations.

In their search for alternatives, they saw a story about Getty Pollard,

falcons is that they don’t actually harm the starlings—they just frighten them away.

“Getty actually has this worked out to a science. He feeds the birds before he sends them out to patrol the vineyards. He keeps them hungry enough so that they will hunt, but not so hungry that they will kill,” Collins said.

Chickens Scratch Their Way Through Bonterra Cutworms

When it comes to controlling destructive cutworms at Bonterra Vineyards in Ukiah, vineyard manager David Koball likes to “play chicken.”

Using a hard-working flock of hens that travel from one hot spot to another via a mobile chicken coop, Koball is able to keep cutworms in check without agricultural chemicals.

Use of the chickens is just one element of Bonterra’s organic farming operation that also includes the use of sheep for weed control, as well as practices like cover crops, soil management and composting.

“It’s all part of our biodynamic farming system of incorporating animals,” he said.

Organic wines have been produced at Bonterra since 1993. He explained that the principal guidelines are to use materials and practices that enhance the ecological balance of natural systems.

Thus, the use of chickens was a natural part of the farming process.

“We’ve been doing this for 12 years with the chickens and we can completely control cutworms with them,” he said. “When we know we have an area with cutworm problems, we park the ‘chick mobile’ at that spot and the chickens take care of the problem.”

Koball said cutworms are usually a problem only in the spring. During the rest of the year, the birds



Chickens at Bonterra Vineyards in Mendocino County go to work on weeds, cutworms and other insect pests. *Bonterra Vineyards photo*

keep busy at various locations around the vineyard, particularly along ditch banks where they help out with weed control as well.

“We also incorporate a few Guinea hens into the flock because they are a great alarm for the chickens. They keep their eyes in the sky for hawks and in the bushes for bobcats and other predators. The chickens are, well, chickens, and as such they don’t keep a careful eye out for danger,” he said.

The flock of sheep at Bonterra also helps with weed control. “We have portable fencing to keep them where we want them to be. We let them run free through the vineyard when everything is dormant and then during the growing season we keep them restricted to fence lines.”

Through collaboration with Mendocino County 4-H students, Bonterra has come up with a “win-win” arrangement. “Some 4-H students were looking for a place to keep their animals. We had the place, but we didn’t really want to have to take care of the sheep because we are grape growers. This way everyone benefits,” he said.

Koball said the key to having a successful organic vineyard involves spending a lot of time walking the rows of vines.

“We put a lot of footprints in the vineyard. We check continuously and if there is an insect problem looming, we look for beneficials in the vineyard to see if we have the right proportion of beneficial insects to control the pests. We are doing pretty well with this system.”

How Organic Farming Works at Bonterra

Eight key elements make up Bonterra’s successful organic program. They are:

- Birdhouses placed to attract bluebirds and swallows, which consume unwanted insects.
- Chicken coops with free-range chickens that eat cutworms and other insects.
- Soil management utilizing cultivation to regulate competition for nutrients and relieve soil compaction.
- Biodiversity that requires both plants and animals for success.
- Integrated Pest Management, including nectar rich plants to attract beneficial insects that protect vineyards from pest infestation.
- Habitat divides with a variety of native wildflowers and other plants to attract beneficial insects.
- Cover crops such as yellow mustard that are grown and plowed into the soil.
- Compost to lighten the typically heavy clay soil found in Mendocino County.



California's Sustainable Winegrowing Program

The Sustainable Winegrowing Program (SWP), introduced in 2002 by members of Wine Institute and the California Association of Winegrape Growers (CAWG), has earned the California wine community a reputation as the wine world's leader in the adoption of practices that are environmentally sensitive, socially responsible and economically feasible. The organizations formed the California Sustainable Winegrowing Alliance (CSWA), a 501(c)(3) nonprofit organization a year later to advance the program.

CSWA has held over 150 educational workshops throughout the state, attended by several thousand winery and vineyard enterprises. More than 1,300 workshop participants have evaluated their operations using a 490-page workbook of best management practices, developed by the Joint Committee of 50 members from Wine Institute, CAWG and other key stakeholders.

In October 2004, CSWA issued its inaugural report measuring the level of sustainable practices among vintners and growers statewide. The report was the first time an entire industry sector used a common assessment tool to document the adoption of sustainable practices

among its members and reported the results publicly. The evaluation results collected from the initial round of workshops are contained in the report, and represented 40 percent of California's 260 million case production and 25 percent of its 529,000 wine acres at that time.

The SWP program is now using the lessons learned to offer needed workshops, add more sustainable practices content, build new and existing partnerships, and continue measuring the adoption of the practices.

WORKSHOPS. In addition to ongoing SWP

workshops, action plan workshops are being held to help vintners and growers increase SWP adoption and improve scores in individual chapter areas. Grants for workshops and related activities have been provided by: American Farmland Trust for integrated pest management; Natural Resources Conservation Service (NRCS) to address air and water quality; National Fish and Wildlife to undertake ecosystem management; and PG&E for energy efficiency.

PARTNERSHIPS. Wine Institute, CAWG and CSWA are reaching out to potential partner organiza-

tions to seek funding, share resources and knowledge, and develop incentives for SWP participants. In addition, the 2004 Sustainability Report findings will be reviewed with viticulture and enology research institutions to identify priority research gaps and encourage mission-driven research that

speeds SWP adoption.

WORKBOOK. A new chapter on air quality, funded by the NRCS grant, was developed by the Joint Committee and internal and external reviewers of the SWP workbook. The next workbook edition will be released in December 2006, and include the air quality chapter and updates. An online version of the workbook will also be introduced.

REPORTING. By publicly documenting winegrowing practices through the publication of interim and full sustainability reports, the SWP program can demonstrate progress and challenges, and serve as a model for other sectors.

Governor Arnold Schwarzenegger awarded CSWA the state's top environmental award, the Governor's Environmental and Economic Leadership Award in 2004. California Council for Environment and Economic Balance also named Wine Institute, CAWG and CSWA recipients of the 2005 Edmund G. "Pat" Brown Award for the program's demonstration of ideals of environmental and economic balance.

For information, visit www.sustainablewinegrowing.org, www.wineinstitute.org, www.cawg.org or call Wine Institute, 415/356-7535.



At a recent SWP workshop in Lodi, a falconer explains how falcons can be an option in managing bird pests in the vineyards. The technique is generally more cost effective on larger acreages because of the area that can be patrolled by a falcon.

Photo by Chris Storm

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