



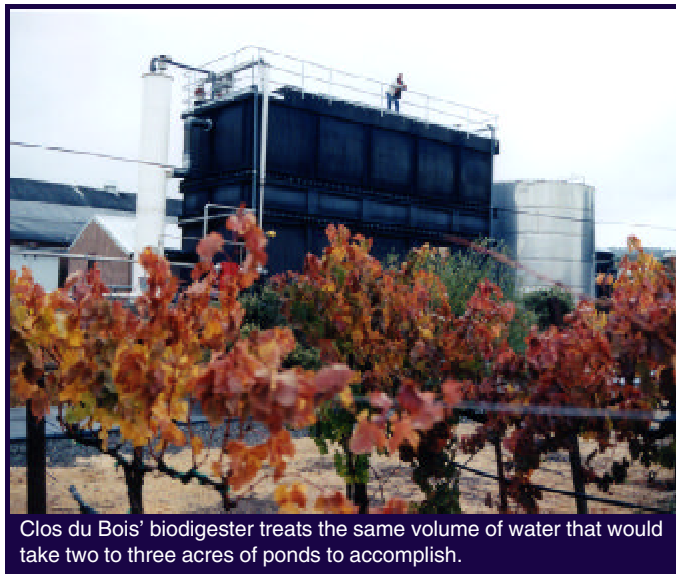
## Highlight of the Month: Protecting Air and Water Quality

*Wineries are discovering new ways to preserve the quality of our water and air—treating winery process water more efficiently with a biodigester and its waste-eating bacteria; reducing air emissions with vegetable-based biofuel to power farm equipment; and establishing a wetland with habitat value to handle winery process water. Each in their way helps preserve the environment and enhances community relations.*

### New Biodigester Treats Process Water at Clos du Bois

As the vibrant fall colors paint the vines at Clos du Bois in Geyserville, a two-story black box near the vineyards treats the process water from the winery at a rate of 90 gallons a minute. Inside this “biodigester,” as it is named, a four-foot layer of bacterial mass resembling black Beluga caviar breaks down organic waste in the water, producing a methane gas byproduct. The gas is captured and burned off into heat and water vapor. The winery staff is currently working on a way to use the methane for powering their electrical system. The biodigester was installed this year at Clos du Bois and is perhaps the first of its kind at a winery in the state.

“Because Clos du Bois quadrupled its production in the last decade to 1.5 million cases, we were faced with establishing several acres of new



Clos du Bois' biodigester treats the same volume of water that would take two to three acres of ponds to accomplish.

settling ponds and treatment facilities,” says Chuck Stewart, facilities manager at the winery. “We instead chose the biodigester because its footprint of 10,000 square feet simply uses less space and is faster at purifying the water. It has helped the winery grow and will aid us in continuing to grow.” Before the biodigester, Clos du Bois relied on its ponds to clean the water,

using aeration, bacterial treatments and standard dwell times to drop out solids. There is no local treatment facility to purify or supply water because the winery is outside the county service area. The biodigester, which holds 130,000 gallons at any one time, treats the same volume of process water that would otherwise take two to three acres of ponds to accomplish.

Stewart explained that the biodigester does not require a lot of maintenance. The flows are programmed. One staff person takes tests and samples and monitors the system. Because the biodigester is like a human digestive system, the bacterial balance can be thrown off if the equipment receives the wrong pH, such as a wine spill. So the entire staff is educated in diluting such substances in an equalization tank where it can slowly feed into the system. The bacteria are also kept at body temperature and fed multivitamins and pH additives to keep them healthy.

“It’s to our benefit to ensure that our process water from cleaning tanks, barrels and crushers will be clear and clean. The treated water is recycled back through the drip irrigation systems on our property and eventually returns to us from our wells, the source of all of our winery water. We’re just taking care of ourselves and our neighbors.”

Please share this newsletter with your entire staff. It is also available online in pdf format on Wine Institute’s web site at: [www.wineinstitute.org/communications/highlight/Air&WaterQuality2002.pdf](http://www.wineinstitute.org/communications/highlight/Air&WaterQuality2002.pdf)

### Benefits of Preserving Air and Water Quality:

- ◆ Assuring quality of discharged process water not only meets regulations, but protects ground water that may flow to wells, wildlife areas and urban communities
- ◆ Builds neighbor and community relations
- ◆ Use of biodiesel reduces toxicity of diesel exhaust by 90 percent, providing a cleaner environment for the people working on the farm. It also reduces impacts on global warming.
- ◆ Biodiesel decreases dependence on foreign suppliers of fossil fuels, giving the winegrower an alternative renewable fuel that harnesses the power of plants

### Potential Trade-Offs:

- May require more time than usual to acquire a permit for a process water wetlands if the regulatory agency is unfamiliar with the method
- May require added training to use new fuels or equipment
- Biodiesel currently may not be available in vast quantities because it is new and somewhat of a fledgling industry

## Switching to Biodiesel at Yorkville Cellars

As a diesel tractor moves through the 30 acres of vineyards at Yorkville Cellars, the aroma of French fries fills the air from the equipment exhaust. The scent is from the vegetable-based biodiesel, which owners Edward and Debbie Wallo have been using in all their farm equipment to tend their estate vines of Bordeaux varietals.

Biodiesel is an alternative fuel that burns cleaner by 90 percent less toxicity than fossil fuels. The fuel purchased by Yorkville Cellars is made from virgin soybean oil and recycled deep-fry oils from restaurants. It can be used in their generators, pumps, heaters, trucks, tractors, cultivators and other heavy equipment.

“We’re always looking for solutions and products that are friendly to the environment in our farming operations,” says Edward Wallo. “When we bought our property in 1988, Debbie and I were starting a family. The existing small organic vineyard appealed to us because it was a sustainable situation that we could hopefully pass on to our children. We also believed organic fruit should produce a high quality wine.”

Wallo switched to biodiesel three months ago on the advice of their vineyard manager Steve Williams, to whom they have trusted their vineyards for 15 years. “For the 300 gallons that the winery purchases, the cost of biodiesel is the same as off-road diesel,” says Williams. “It’s been an excellent fuel. I’ve experienced no loss of power in the equipment. Miles per gallon are the same. There is no soot and almost zero noxious emissions.”

Williams says it’s possible to blend biodiesel with petroleum diesel, but he uses 100 percent biodiesel at Yorkville. This caused a slight start-up problem. The pure biodiesel cleaned out the diesel system and left a glycerin substance in the filter.

However, after 10-15 hours of operation and changing filters, the equipment worked fine, he explains.

“In 100 years, we’ll eventually run out of fossil fuels. Petroleum is a finite fuel, so we’ve been switching slowly to organic products and other renewable resources as part of the winery’s philosophy,” says Williams.

Besides Yorkville Cellars, other California wineries, such as Benziger and Honig, are trying biodiesel. Is this an indication of future trends? Biodiesel producers report that six million gallons of biodiesel are currently used in the U.S., and say analysts predict a 40-fold increase in the U.S. by 2006.

Photo courtesy Yorkville Cellars



Owner Edward Wallo drives a tractor powered by vegetable-based biodiesel at Yorkville Cellars.

## *Establishing Treatment Wetlands for Process Water at Maurice Car'rie Winery*

In 1999, owners Budd and Maurice Van Roekel of Maurice Car'rie Winery in the Temecula Valley were looking for ways to upgrade their system for treating the process water discharged from the winery after being used for cleaning and sterilizing their facilities and equipment. They met with the state Natural Resources Conservation Service (NRCS) which suggested the establishment of treatment wetlands with wildlife habitat and an evaporation pond to handle the process water released from the winery.

"We found the proposal attractive because it was environmentally friendly and aesthetically appealing," says Michael Tingley, winemaker for Maurice Car'rie. "Although the winery gave up about an acre of existing vineyard for the

treatment wetlands, the NRCS provided cost share funds to help design and build the system."

The Maurice Car'rie project is one of a handful of treatment wetlands in the state. Their system is nine months old and currently a work in progress. Process water drains from the winery by gravity into a concrete lined pit with a sump pump raised up two feet from the bottom. Solids accumulate at the bottom and are periodically removed to a winery compost pile. The clear effluent is then pumped into the first of three ponds that are each lined with rubber material and a bed of gravel. As the water moves from pond to pond, it increasingly becomes clean as it filters through the gravel. From the third pond, the water flows to a spreading basin where the water percolates into the aquifer,

evaporates or will be possibly pumped back to the ponds to help ensure plant growth.

Tingley says, however, that the ponds at present are low in dissolved oxygen and will not yet support plant life, such as reeds and water hyacinths that help purify the process water. The winery plans to solve this issue by installing a fountain in ponds two and three to help aerate the water. Though the plant life is yet to come, the wetlands are already attracting geese and ducks. When the system is fully operational, the wetlands could become part of the winery tour.

Tingley says they are pleased with the progress so far. The wetlands are a positive solution that could appeal to the many visitors who come to taste some of the winery's 17 wines.

*Photo courtesy Maurice Car'rie Winery*



Shown under construction are Maurice Car'rie Winery's three settling ponds and a spreading basin for process water with wetlands habitat. The system is now nine months old.

### **Resources:**

- **Natural Resource Conservation Service.**  
*Call local district conservationist about WHIP program for cost share funds.*  
[www.nrcs.usda.gov/programs/whip](http://www.nrcs.usda.gov/programs/whip) or  
[www.attra.org/guide/whip.htm](http://www.attra.org/guide/whip.htm)
- **Winery Process Water Systems—The North Coast Regional Water Quality Board has adopted general waste discharge requirements for winery process water systems.**  
[www.swrcb.ca.gov/rwqchl/Public\\_Notices/genwinerywdr/wine.html](http://www.swrcb.ca.gov/rwqchl/Public_Notices/genwinerywdr/wine.html)
- **Septic Systems—Check with your local Department of Environmental Health for specific regulations regarding septic systems**
- **Storm Water—Check with your Regional Water Quality Control Board for regulations on storm water runoff. Check state regulations in terms of existing compliance requirements**
- **Retail fueling sites for biodiesel.**  
[www.biodiesel.org/buyingbiodiesel](http://www.biodiesel.org/buyingbiodiesel)



# 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 now complete and was introduced to the wine community this fall beginning with an October 29, 2002 conference.

**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 future generations.”

**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, were on the committee spearheading the project. Committee Chair Michael Honig led work on this first-ever statewide initiative, which includes 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 builds upon the successful programs of the Lodi-Woodbridge Winegrape Commission and the Central Coast Vineyard Team. Outside comment from regional grower and vintner associations and a wide range of university educators, environmental and social equity groups, and wine industry experts played an important role in the Code development. Dr. Jeff Dlott of RealToolbox, a sustainable agriculture and resource conservation consulting firm, was 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. CAWG’s Board of Directors also approved the draft Code guidelines.

To attract implementation funds for this project, the Wine Institute Board established a 501(c)3 nonprofit, non-lobbying foundation in conjunction with CAWG. 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.

Since the establishment of the California Sustainable Winegrowing Alliance, the California Department of Food and Agriculture has awarded a \$280,000 grant to the foundation in October, 2002. The funds are being used for educational workshops to implement the Code in the coming year. For a schedule of the workshop dates or for more information on the project, go online to [www.wineinstitute.org/communications/SustainablePractices/vision.htm](http://www.wineinstitute.org/communications/SustainablePractices/vision.htm) or call the Communications Department at 415/356-7520.

Topics for “Highlight of the Month” publications are as follows and can be viewed in their entirety online at [www.wineinstitute.org/communications/highlight/cover.htm](http://www.wineinstitute.org/communications/highlight/cover.htm)

- Cover Crops
- Reduce, Reuse, Recycle
- Deficit Irrigation
- Canopy Management
- Wildlife Corridors and Habitat
- Communicating with Neighbors
- Pest Management
- Assessing and Reducing Energy Needs
- Composting
- Controlling Erosion
- Preserving Air and Water Quality

Next Month: Attracting and Retaining Good People

The practices for preserving air and water quality in this issue pertain to the Code of Sustainable Winegrowing Practices in the following areas: Wine Quality; Ecosystem Management; Energy Efficiency; Winery Water Conservation and Quality; Material Handling; Solid Waste Reduction and Management; Neighbors and Community.

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