



SILVER MOUNTAIN VINEYARDS

Stewardship Profiles in California Agriculture
Environmental Leadership with Water Efficiency and Energy

Located in the Santa Cruz Mountains appellation, Silver Mountain Vineyards prides itself on being a leader in organic and sustainable practices. Jerold O'Brien established the vineyard in 1979. The winery produces award-winning estate bottled wines and has two different tasting rooms. Each year the winery bottles 3,000-6,000 cases of wine under the Silver Mountain Vineyards label. Silver Mountain vineyards grows Chardonnay, Merlot, and Pinot Noir varieties. Around fifty percent of the grapes used in their wine come from other nearby vineyards.

PROBLEM

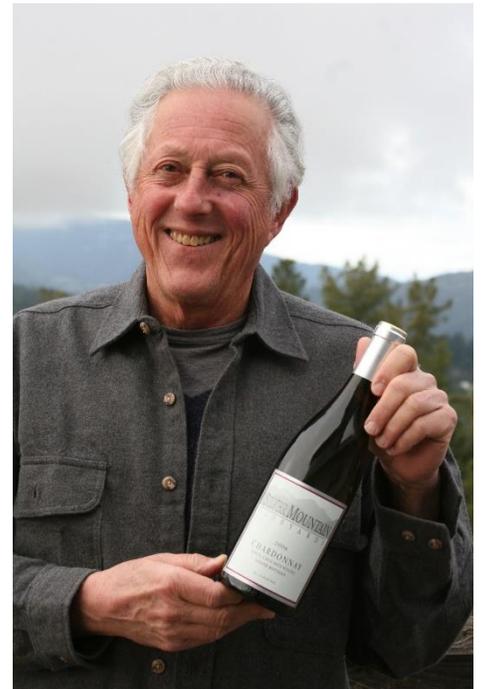
Farming in the Santa Cruz Mountains presents several challenges. First, the vineyard is situated along the San Andreas Fault line and has two different soil types: half the vineyard contains lush volcanic soil and the other half is made up of sandy soil derived from seabed. As a result, Jerold has had to adopt separate irrigation and soil management plans for each side of the property. Secondly, the 1989 earthquake damaged the old well and left the operation without electricity. Silver Mountains Vineyard is faced with limited groundwater reserves and the region has been in a state of drought emergency for the past three years. Therefore, energy self-reliance, water supply reliability and water conservation were major concerns that needed to be addressed.

SOLUTION IMPLEMENTATION AND MANAGEMENT

Jerold is proud of his "triple green" conservation practices: water harvesting, use of solar and wind energy, and certified organic production.

ACHIEVEMENTS

- Decreased soil erosion
- Increased water infiltration
- Improved fruit quality



"These practices don't just hold environmental benefits; over time this way of farming makes economic sense"

-Jerold O'Brien

Part of Jerold's stewardship philosophy is to "know your land." He says one needs to know where the potential for erosion is and prevent it from happening, and to factor in soil type across multiple fields and think about their different water needs. Cover cropping, mulching, and row alignment are all important for cutting back on water use.

To address erosion, Jerold plants grasses with deep root systems to the protect soil. Before this year's rains, he planted a 15 inch cover crop to minimize erosion and increase water infiltration. Jerold has found that nitrogen-fixing legumes and clover are ideal cover crops for a vineyard setting, because these selections stay low enough to allow access to the vines.

To conserve water, Jerold decided to switch from flood irrigation to drip. At Silver Mountain Vineyards there are four irrigation blocks and each of them gets a different amount of water. Jerold waters one block at a time with 10-12 hours of deep watering between 7:00 AM and 7:00 AM. The Natural Resources Conservation Service (NRCS) assisted Jerold with the design of a micro irrigation system that reduced water loss and increased irrigation efficiency: a flow meter and speed pumps were placed in the well, and down drains, gutters, and other runoff structures were installed to capture rainwater for later use on crops.

CHALLENGES/OBSTACLES OVERCOME

In the early years Jerold was able to dry farm his grapes, but the drought has forced him to irrigate. The loss of electricity as a result of the 1989 earthquake inspired Jerold to install a gravity-fed irrigation system, and it was at that time that Jerold started to explore ways to save water. Today, the vineyard benefits from a 6,000 square foot water rainwater harvesting system that captures water from the winery's roof and stores in tanks with 30,000 gallons of capacity. "Food safety regulations make it difficult to use rainwater...however this water can be used for on-farm washing of equipment, irrigating cover crops, spraying down roads, water for wildlife and fire protection while reserving the best water for growing crops," says Jerold.

The 2013 and 2014 harvests at Silver Mountain Vineyards were quite fruitful, but 2015 was a bad year for powdery mildew. In response, Jerold developed a method wherein he plants the grapevines on a trellis system with a foot between vines and rows with three sets of catch wire to aid foliar development. Shaded fruit needs sun and air to prevent powdery mildew.

STEWARDSHIP PRACTICES



Water Efficiency



Energy



PROJECT PARTNERS

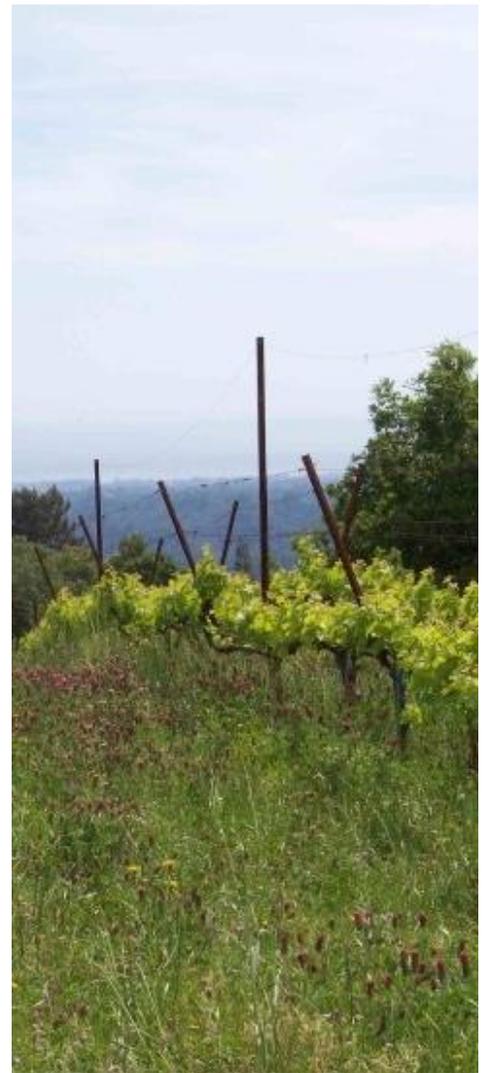
- Capitola Natural Resources Conservation Service (NRCS)
- Coastal Watershed Council

When the canes come up, Jerold removes leaves to keep the fruit exposed. He has noticed a mold, mildew, and antifungal benefit from not overwatering, which has resulted in improved fruit quality and a decrease in crop loss.

MEASURING SUCCESS

After the earthquake, Jerold dug a new well. He hit water at 80 feet, which represented a huge improvement from the original 280 foot well. Solar panels on the roof provide electricity for the three horsepower pump, as well 46 kilowatts for a pumps that takes the water uphill to the highest point on the property where it is held in a 15,000 gallon tank, which supplies a gravity-fed distribution system. The solar power installation also provides the majority of the vineyard's electricity.

For more information about the stewardship practices discussed in this profile, please contact the farmer directly. You can reach Jerold O'Brien by phone at (408) 353-2278.



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