

California Silvopasture Producer Case Study: *Organic vineyard designed for sheep grazing throughout the year*



• PAICINES •

R A N C H

Producer:
Kelly Mulville, Vineyard Director
Paicines Ranch

Location:
Paicines, San Benito County, CA

Located in the rolling hills of San Benito County, Paicines Ranch is a private ranch comprised of 7,000 acres of rangeland, 550 acres of row crop ground, and 25 acres of vineyard, all certified organic. The ranch produces pastured lamb, beef, pork, turkey, chicken, and eggs, all of which are sold direct to the consumer or prepared in house for weddings and other events hosted on the property.

The 25-acre site of the sheep and wine grape silvopasture system was a conventional vineyard from 1962-1992, after which the vines were removed and it was grazed by cattle. Starting in 2014, Kelly Mulville and his team began preparing this area for a vineyard – which was designed from the outset to fully integrate wine grape production with sheep grazing throughout the year.



Vineyard Director Kelly Mulville tends to the vines that were trained on a high-cordon, partial overhead trellis system to accommodate sheep grazing.

Preparation of the site involved leveling and ripping, as well as installation of surface drip irrigation and the custom designed high trellis system that is key to year-round sheep grazing. Soil preparation included a light application of compost, the planting of cover crops, and high stock density grazing by sheep and cattle from late 2014 until the first half of the vineyard was planted in spring of 2017. The second half of the vineyard was planted in summer of 2020. Across the site, vines are spaced at 12 feet between rows and six feet between vines, resulting in a spacing of approximately 76 square feet per vine. The first grape harvest was in Fall 2021.

Wine grape varieties:

Grenache, Syrah, Mencia, Carignane, Cinsault, Cabernet Sauvignon, Counoise, Picpoul Blanc, Verdejo, and Assyrtiko.

Cover crop species:

Varies by year and generally includes oats, lana vetch, crimson clover, phacelia, California poppy, peas, barley, and triticale. The cover crop mix evolves each season after the sheep begin grazing in spring and summer, transitioning from the original seed blends to more native forbs, flowers and grasses.

Sheep breeds: Katahdin and Dorper



A cluster of grapes in mid-Summer.

Role of sheep

- Browsing suckers and tips of grapevines.
- Grazing floor vegetation, eliminating the need for hand weeding or mechanical or chemical management under vines and in alleys.
- Producing meat for sale



Sheep grazing the vineyard in the summer. The high-cordon trellis system keeps the fruit at a safe distance from the grazers.

Management

In order to accommodate the sheep in both the short and long term, Mulville decided to use a high-cordon, partial overhead trellis system ([the Watson system](#)). Raising the cordon height to 66 inches protects the grapes and most of the vine's leaves from unwanted grazing by the sheep. The increased cordon height also allows for the animals (and humans) to pass easily under the rows, which increases flexibility in paddock layout and setup within the vineyard.

While protecting the vines from unwanted browsing is part of the design of the vineyard and grazing strategy, Mulville is also intentionally managing for direct browsing on parts of the vines. By allowing the sheep to browse the suckers and tips of the vines, the sheep's saliva comes in contact with the vines, which Paicines management observes may induce compensatory growth and improve pest and disease resistance.

Grazing strategy

While the sheep graze intermittently throughout the year, Mulville monitors the vineyard to ensure that the grazing period, timing, and recovery are managed to prevent overgrazing and excessive trampling. (Year-round grazing – including when there are grapes on the vines – is possible because the grapes are ultimately fermented into wine and not subject to the food safety regulations that limit grazing in orchards and vineyards producing fresh fruit.) Stock density can be 200+ sheep per acre during the late winter and spring in years with good precipitation and drops down to 20-50 sheep per acre during the late spring and summer. Since establishment, the vineyard has been grazed up to six times in a year.



When not in the vineyard, sheep graze the surrounding rangeland at Paicines Ranch.

Motivation

Kelly's motivation for integrating livestock and wine grape production was not just to replace the need for machinery. The primary goal was to include sheep as a means of mimicking the natural relationship between plants and animals, while managing closely for increased economic and ecosystem benefits.

Economic benefits include the ability to stack two enterprises on one piece of land, while reducing management costs and potentially adding marketing value to the wine as an ecologically raised product.

Ecosystem benefits sought include better nutrient cycling and improved soil health. Cycling plant matter through the ruminants' digestive systems not only benefits the sheep but also makes the nutrients in the cover crop bioavailable to the vines in the form of urine and excrement. Mulville has observed increases in soil organic matter and soil organic carbon in the vineyard that have reduced erosion on the hilly vineyard terrain and increased water retention, an essential benefit in a region that averages 12 inches of rainfall/year and faces high summer temperatures.

Benefits to the wine operation

- Higher quality wine anticipated
- Facilitates organic certification of the vineyard by eliminating need for chemical fertilizers
- Marketing potential

Economic benefits

- Cost savings due to reductions in labor, fuel, machinery, fertilizers
- Profit potential of adding animal products to an existing enterprise

Observed benefits to the ecosystem

- Grazing reduces negative impacts on floor insects as compared to mowing, tillage, and chemicals
- Proper grazing increases soil organic carbon, which in turn improves soil fertility and water holding capacity
- Reduced fossil fuel use
- Improved vine health through browsing
- Improved soil health through effective nutrient cycling
- Increased biodiversity

To learn more about the vineyard at Paicines Ranch visit: <https://paicinesranch.com/our-work/vineyard/>

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