

Can Dry Farming Help Make U.S. Vineyards More Sustainable?

As winemakers confront a changing climate, some are turning to a millennia-old farming method rather than irrigation.



PHOTO: COURTESY OF CHATEAU MONTELENA VINEYARD

In a typical year, the chardonnay harvest at Chateau Montelena Winery's vineyards in Napa Valley, California, takes about three weeks. But this is not a typical year, and in addition to harvesting early, head winemaker Matt Crafton is hoping to complete it in seven days. "It's very early and it's very fast," he says. A small silver lining to the unseasonably warm August that likely helped to cause—or at least exacerbate—the wildfires now raging in Northern California may be that they led to the early harvest. They certainly underscore the importance of Montelena's focus on sustainability. "We custom tailor our approach to winemaking, changing it based on what we see but with a view of the long term," Crafton says. "What's going to happen in 10 years, 20 years, 50 years, we're trying to do it right now, so the next generation will be able to farm here."

The small, family-owned and operated winery is 100 percent powered by the sun, Napa Green certified, and is mostly dry-farmed. Dry farming is a method used for millennia to grow grapes in much of the world and was widely used in the U.S. until irrigation became popular in the 1970s. Now some U.S. winemakers are renewing their focus on dry farming in the hopes that it can not only help them be more sustainable and continue farming in a changing climate, but also produce expressive wines.

"Dry farming today is very successful in some of the driest, and hottest places on the planet, like Sicily," says Todd White, founder of Dry Farm Wines, a natural wine club that curates dry-farmed wines from around the world. "Irrigation is virtually ubiquitous in the U.S., more than 99 percent of U.S. vineyards are irrigated."

How Does Dry Farming Work?

Dry farming doesn't mean farming without water. Instead, it means there isn't a reliance on irrigation. Think of the soil like a giant sponge: Healthy soil will hold in moisture from seasonal rains for months at a time and healthy vines will grow deep enough to draw from that moisture. At Montelena, young vines are almost always watered for the first three years, but the rest of the vineyard attempts to dry farm. Some years it works, sometimes it doesn't.

"You have to have the right soil, the right rootstock, and the right climate," Crafton says. "It really depends on the site and the growing season. It's not as simple as throwing vine in the ground and saying we're going to dry farm."

Is It More Sustainable?

Hamel Family Wines in Sonoma began to transition their vineyards to dry farming in 2017. By 2019, 80 percent of the vineyards were dry-farmed. "We believe that dry farming leads to high-quality wines," says Managing Director George Hamel III. "When the vines are forced to struggle for what they need, they become more productive, which leads them to produce higher quality fruit. In addition, dry farming decreases a winery's dependence on water, as well as energy to transport and pump irrigation water, making it an inherently environmentally responsible farming practice. Dry farming also results in stronger, more resilient vines that we believe will be better positioned to handle climate change."

According to AG Water, dry farming can save 16,000 gallons of water per acre annually. While much of the discussion around wine and the climate crisis has been about earlier harvests, it's only matter of the time before it also becomes about water usage, especially if water usage for farming becomes even more regulated.

"If you look at climate projections, they might not be growing much in California in 50 years," says Gary Horner, the winemaker for Oregon-based Erath. "If we want to keep enjoying wine, though and good quality wine, we're going to need to be able to control soil moisture."

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Why Doesn't Everyone Do It?

Horner has been making wine for some 30 years, and while Erath's Knight's Gambit Vineyard is dry-farmed, Horner adds that for any new vineyards, he would recommend having irrigation at least as an insurance policy. "It's all balance," Horner explains, adding you while dry farming you can't allow the vines to get too stressed but that if you irrigate, you need to know how to use it properly as sometimes it's a method that's abused.

Likewise, at Montelena, how much they can dry farm often depends on the specific site and the growing season. On the whole dry farming is expensive, more work, and often produces a lower yield, meaning that depending on the goal of a vineyard, it might not make financial sense. "Irrigation is cheaper farming and creates higher yields of fruit that weigh more, which means more money," say White. "The more water the berry holds, the more it weighs."

How Does Dry Farming Affect the Taste of Wine?

According to White, dry farming leads to higher polyphenols in wine, more concentrated flavor, and character of the fruit. Hamel agrees. Dry farming practices at Hamel Family Wines are part of their approach to biodynamic farming to optimize terroir expression in the wines. "Because dry-farmed vines must work harder to find nutrients and water, the process results in grapes with deep, concentrated flavors that are expressive of the unique vineyard or vineyard block from which the grapes originated," he says.