KQED

Facing Drought, Wildfires, Scorching Heat, Bay Area Wineries Are Changing How They Grow Grapes

By Ezra David Romero

On a foggy September morning farmworkers harvest plump, dark purple grapes at Hamel Family Wines in Sonoma County. But winemaker John Hamel II recognizes these Cabernet Sauvignon grapes are very different from others grown in Sonoma and Napa counties. The green vines are flourishing mostly without direct watering.

“These vines haven’t received a drop of water since 2017,” he said.
Hamel stopped watering 80% of his vines after realizing that’s what some growers do in places like France. The method is called dry farming, and uses little to no water to irrigate vineyards. The result is grapes with thicker skins and tastier wine, says Hamel.

“This season will be slightly lower in yield, but we actually feel like this has potential to be a very good vintage,” he said of this year’s harvest.

California is in a second year of drought and for many North Bay grape growers, the hot, dry conditions mean lost crops. In 2020 some growers lost 20% or more of their crops because of dry conditions, fires, or smoke tainting the flavor of their grapes.
As the climate warms, winemakers and grape growers are changing the direction they grow vines, picking earlier, covering crops with shade cloth, and adapting in other ways. Others

have invested in solar panels, electric vehicles, and climate action plans. Some, like Hamel, have shifted to dry farming and are using a lot less water or none at all. At least one Bay Area winery is using “sunscreen” on grape leaves to protect harvests from excessive heat. Rethinking growing practices is critical, Hamel says, because back-to-back dry years are more frequent.

“Now every year is warm and dry,” he said. “I think it’s good to realize that you’re never fully in control, and being able to adapt to the best of your ability is the job. It’s humbling.”

Eighty percent of the vines at Hamel Family Wines have not received any irrigation this year. That number has grown from 20% in 2017. (Ezra David Romero/KQED)

All growers are feeling pressure from drought, fire and heat, but do warming temperatures pose an existential threat to wine?

A study released this summer by Kaan Kurtural, a UC Davis viticulture specialist, found that California’s wine industry is “not at a tipping point” because of climate change or its effects — although heat waves and fires can have an immediate impact on winemaking.
“I tell the growers, their grapevines are not going to die,” he said. “They might not be economical to grow for one or two years, but they always come back. There are very resilient plants. So we’re able to adapt.”

He also found that the climate has warmed steadily in California since the 1980s. But he

says this has not been bad for the industry — a warmer climate helped establish the state as a premier wine growing region globally.

“As it became warmer we started harvesting sweeter grapes, and with sweeter grapes, the wine ratings have steadily increased,” he said.

Despite the negative impacts of climate change, Kurtural says the state’s $40 billion wine market is strong and growers will adapt to make sure it stays that way.

“We are growing grapes at the lowest costs for the grossest profit,” he said. “As long as growers are making money, they will keep them because it’s a business.”

Dry farming through a drought

Dry farming in California is not a widely used tactic — it’s just one way some growers like Hamel are acclimating to a warming world.

“It’s not just turning off the water and hoping for the best,” Hamel said. “Even in a year where we received less than half of normal rainfall with a hot summer the vines are doing well.”

Hamel began dry farming before the current drought, and he’s glad he did. The roots of his vines had years to acclimate, growing deeper and finding underground sources of water. As a result, they are now well-prepared for dry times.

“This is the first year where we’ve really had a payback,” he said. “The vines have been trained to deal with a drought.”

Hamel says he saved 2 million gallons of water last year and plans to eventually dry farm almost the entirety of his 100 acres in the coming years.

For John Hamel II, dry farming is about preserving a future for Hamel Family Wines as droughts worsen because of climate change. (Ezra David Romero/KQED)

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“[We’re] essentially training the vine to endure more drought each season,” he said. “The drought doesn’t make things easier by any means. We really are on the razor’s edge all season.”

Drought is not new in California. But Hamel says the pendulum swings between wet and dry years have been more radical in recent years. “We have high rainfall years, close to double the amount of average rain, or we have almost half of the normal rainfall and it’s super difficult to get through an entire season,” he said.

Another study by Kurtural, the UC Davis viticulture specialist, found growers can use half of the water they normally use without compromising the taste or color of wine.

But dry farming isn’t a viable option for all wine grape growers, said Connor Bockman with RD Winery, Napa’s first Vietnamese-owned winery. The growers use drip irrigation to limit water use and utilize a practice called deficit irrigation where vines are only given water when they reach a certain level of stress.

He says switching from irrigation to dry farming takes time.

“In comparison to other crops — orchards, annual field crops, and others — high-quality wine grapes use a relatively small amount of water,” he said.

RD Winery had less fruit on the vine this year. Exactly how much of that is caused by drought is “hard to say,” Bockman said, but their harvest is “40% to 50% under expected yield.”

Still, he says, the grapes are of both “great quality and concentration.”

Impacts of wildfire smoke

A lightning-sparked fire burned right up to some of the vines at Green and Red Vineyards in 2020. (Ezra David Romero/KQED)

Some winemakers are already feeling the pain that comes with the short-term effects of climate change. Smoke from wildfires, made worse by drought and heat waves, can sully whole harvests with a fumy aroma.

In 2020, a series of lightning-sparked fire, the LNU Lightning Complex, consumed 363,000 acres and burned just feet from Green and Red Vineyards in the hills of Napa County. Winery owner Tobin Heminway says most of the 31-acre vineyard acted as a fire break, but the wildfire did burn a few of the vines.

“We were evacuated, and it came up and almost burnt our house down, which is up above on the property, and the fire circled two of our vineyards,” she said.

The vines survived, but smoke tainted their grapes and they lost all of their reds. This year they picked a few weeks early, after heat waves ripened their grapes sooner than expected.

“We had these radical growth spurts in the beginning of the season,” she said. “[The grapes] ripened earlier.”

She says the yield is smaller this year, but the grapes are “good quality” and “intense.”

For Green and Red Vineyard operators Tobin Heminway and Raymond Hannigan, the winery is more than grapes and vines. It represents family legacy. Jay Heminway, Tobin’s father, founded the winery and passed away two years ago. (Ezra David Romero/KQED)

Heminway took over the winery in 2019 after her father, Jay Heminway, passed away. Since then, she's experienced one climate impact after another.

"It's an emotionally crazy time to live," she said. "How do we survive and live in this environment, which is becoming less and less friendly?"

Heminway has considered foregoing the Zinfandel vines her father planted in the early 1970s for a different varietal. But every time she walks through the vineyard, she thinks about her dad, and removing the vineyard is too closely tied to the legacy he planted and grew. With drought, fires and heat waves continuing to stress her winemaking, she's aware that climate change is also jeopardizing her family history.

"We're all questioning what we are doing here," she said. "Do we have any control? In farming, we're dependent on Mother Nature and Mother Nature is pissed."

Using grape leaf "sunscreen" for heat waves

Winemakers at Green and Red Vineyard in Napa County use a clay spray on grape leaves to protect grapes from hot temperatures. The liquid clay acts like sunscreen for the leaves, lowering the temperature. (Ezra David Romero/KQED)

Wildfires and drought aren't the only climate effects pressuring vines at Green and Red Vineyards. Scorching heat waves earlier this summer singed the leaves, exposing grapes to the scorching sun. For Aaron Whitlatch, the vineyard's winemaker, losing another crop wasn't an option.

"I liken it to being a chef that doesn't get to complete their meal," he said. "They spent all day chopping things and preparing it, and then you just don't get to put it out on the plate for people to enjoy."

To protect the grapes from turning into raisins on the vine, Whitlatch turned to a human idea: sunscreen.

“It’s actually sunscreen for the leaves, not so much for the grapes themselves,” he said. The solution, borrowed from wineries in Australia, was already being used at a few other Northern California wineries. He tried it on his Petite Sirah vineyard, which is heavily exposed to sun on a hill.

He sprayed the leaves with white organic liquid clay, which after it has dried, coats them in a cooling white powder and prevents shriveling or turning, ensuring the grapes are shielded from high heat.

Still, Whitlatch says heat waves and drought this year will likely cut the total yield in half and he’s aware that future harvests remain in jeopardy as the climate emergency continues to worsen globally.