

# West Coast wineries grapple with tainted grapes

By **GEORGE PLAVERN**  
Capital Press

Fine white ash fell like snow on Zenith Vineyard in the Willamette Valley as the Beachie Creek fire roared 30 miles away, one of several large blazes shrouding the region in a thick blanket of smoke.

For over a week in September, smoke-laden skies lingered around the Eola-Amity Hills west of Salem, where Zenith Vineyard grows about 87 acres of wine grapes. Tim Ramey, who owns the vineyard and a small winery with his wife, Kari, was just getting ready to begin harvest when the wildfires erupted.

“That week was supposed to be extremely hot,” Ramey said. “We were looking at the forecast, saying harvest will be early and easy.”

Instead, the fires were met by a temperature inversion that trapped the smoke near the ground and created some of the worst air quality in the world at the time. Apart from the public health concerns, the Rameys and vineyards across the valley suddenly faced questions about the quality of their grapes.

Wildfire smoke is a growing concern for wine grape growers and winemakers along the West Coast. Science has already shown that compounds in smoke can be absorbed by grapes and released into finished wine, causing an unpleasant burnt or cigar-like flavor.

More than 5 million acres burned in 2020 across Oregon, Washington state and California, much of it in or near prime wine country.

Zenith Vineyard contracts to sell most of its grapes, including pinot noir, chardonnay and pinot gris, to wineries in Oregon and California. This year, about 45 tons of fruit was rejected over concerns of “smoke taint,” leaving Ramey scrambling to find other buyers.

“The vast majority of my customers, by number, honored their contracts and did the right thing,” Ramey said. “The problem was, there were a few who didn’t.”

Ramey’s story is common enough that the wine industry is investing heavily in research to gain a better understanding of how — and to what extent — smoke may affect grapes based on a variety of factors such as a vineyard’s proximity to fire, duration of smoke exposure and the type of fuels burned.

At stake is a wine grape crop worth \$4.5 billion across the Northwest and California.

## Volatile compounds

While many questions about smoke-tainted wines are still unanswered, researchers have developed a baseline understanding of the problem.

Burning wood contains several organic compounds known as volatile phenols that can be absorbed directly into the skin of wine grapes. The compounds then bind to sugars, creating glycosides, which themselves do not have any smoky aroma.

However, when the skins are broken and fermented during the winemaking process, those glycosides break apart and release the volatile phenols back into the finished product. The resulting wines have been described as tasting like a campfire or ashtray.

John Aguirre, president of the California Association of Winegrape Growers, said high-end wineries such as those in the Napa and Sonoma valleys are understandably reluctant to make wine from grapes exposed to smoke that they might not be able to sell.

Aguirre estimates the 2020 wildfire season resulted in up to \$500 million in crop losses statewide from canceled or reduced grape contracts.

California wine grapes are worth \$4 billion annually at the farm gate. Oregon and Washington state are much smaller by comparison, about \$597 million combined.

“Obviously, we can’t sustain these types of losses going forward and continue doing what we do,” Aguirre said.

In mid-September, a coalition of farming and wine industry groups sent a letter to Speaker of the House Nancy Pelosi, a Democrat, and House Minority Leader Kevin McCarthy, a Republican, asking for immediate disaster relief from the 2020 fires to help in the short term.

“As wildfires continue, increasing numbers of buyers are rejecting grapes due to concerns about smoke exposure,” the groups wrote. “Without a market, these grape growers are forced to abandon their fruit in the vineyard. In other instances, buyers have agreed to purchase grapes at a discount but could later face unanticipated costs to test and treat wine made from smoke-exposed fruit.”

## Testing backlog

Jeff Bitter, president of Allied Grape Growers, a farmers’ co-op based in Fresno, California, said the uncertainty due to smoke is absolutely causing a strain in the relationship between grape growers and wineries.

Co-op members likely lost between \$10 million and \$15 million in sales this year, Bitter said.

Part of the problem was a massive backlog in laboratory testing of grape samples for the presence of volatile phenols.

As harvest approaches, Bitter said growers need to make quick decisions to deliver grapes straight to the winery, or find other buyers and markets.

With smoke so widespread along the West Coast, the few laboratories available to test grapes were quickly overwhelmed, with results not available for perhaps a month or longer. That left wineries in a predicament, Bitter said. They were forced to gamble on the quality of grapes or simply walk away



Noah Berger/AP Photo

**Smoke rises over a vineyard in Calistoga, California, during a wildfire in September. Smoke from wildfires is a concern for grape growers and winemakers in Oregon, Washington state and California.**

from contracts.

“We saw every extreme,” Bitter said. “There were all kinds of arrangements made to acknowledge the reality that testing couldn’t happen fast enough at harvest time.”

Gordon Burns, with ETS Laboratories in St. Helena, California, said their workload during the 2020 fire season was considerable, though the laboratory is now caught up and back to operating with normal turnaround times.

To help pick up the slack, Oregon State University, Washington State University and the University of California, Davis mobilized to add testing capacity at their research laboratories.

Elizabeth Tomasino, an associate professor of entology at Oregon State and member of the Oregon Wine Research Institute, said she and her team have run nearly 700 samples since Sept. 18. It takes specialized equipment to do the analysis, called a gas chromatogram mass spectrometer. The machine essentially uses gas to separate the smoke compounds.

“It was a difficult pivot to make, but at the same time it was sort of an emergency situation,” Tomasino said. “OSU has a very strong extension aspect.”

## Quality standards

The other significant hurdle, according to Bitter, is that just because grapes may have been exposed to smoke doesn’t necessarily mean they are tainted.

“There is just a lack of understanding, and a lack of the ability of the industry to standardize what defines quality and what defines a problem in the context of smoke exposure,” Bitter said. “It becomes a negotiation point. The problem with that is nobody really knows what they’re talking about.”

Take, for example, the situation at Zenith Vineyard, where 45 tons of wine grapes were left stranded. Another nearby winery, Willamette Valley Vineyards, stepped up to buy 20 tons of pinot noir grapes from the vineyard.

Jim Bernau, founder and CEO of Willamette Valley Vineyards, said the company spent more than \$1 million taking in fruit from 22 growers who had their grape contracts canceled or reduced. The winery did 42 micro-fermentations to test the wines for quality. Of those, Bernau said they found only three batches that would be problematic.

The pinot noir from Zenith Vineyard, in particular, was absolutely stunning, Bernau said.

“The people who canceled those contracts made a serious mistake,” he said.

Sam Tannahill, co-founder of A to Z Wineworks and REX HILL winery in Newberg, typically produces about 375,000 cases of wine per year, purchasing grapes from as far southwest as Ashland and as far northeast as Umatilla.

Despite some vineyards being within just 500 yards of wildfires, Tannahill said the winery decided to honor all its contracts this year. In retrospect, he said the wine quality they are seeing has been great.

“The fruit was beautifully ripe. The skins were thick,” Tannahill said. “We have this foundation of really good wine, with huge fruit character, with big rich tannins, with lovely aromatics. That tends to mitigate any kind of smoke effect that we’re seeing.”

## Research underway

With so many variables, researchers are working to come up with predictive models to help winemakers and growers better understand whether they face a high risk of smoke taint.

At Oregon State, Tomasino has started trials exposing wine grapes in the laboratory to smoke from burning a special type of barley straw, and then measuring for smoke compounds in the samples.

Tomasino said growers need to know whether the presence of these smoky aromatic compounds in wine can be correlated to things like grape variety, the type of materials burned, proximity to fire, duration

and intensity of smoke and timing of grape development.

“The nice thing is that everything people are asking for, it is achievable,” Tomasino said. “The science exists. It’s just going to take some time and money.”

To that end, Tomasino is partnering with Tom Collins, a wine chemistry researcher at Washington State University, and Anita Oberholster, at the University of California, Davis, in applying for a \$6 million U.S. Department of Agriculture specialty crop grant, divided between the three institutions, that will allow them to collaborate and ramp up research projects. Collins, long involved in the wine industry in California, began studying smoke exposure in wine grapes at Washington State in 2016. He developed a system of modular hoop houses covering rows at a research vineyard north of Prosser, Washington, where he filters in smoke from test burns and measures the results against several control samples.

This year also gave him the chance to test grape samples, primarily cabernet, from five commercial vineyards exposed to smoke that enveloped much of Washington state in September.

It will take some time before they can draw any firm conclusions, Collins said, though findings do indicate that fire proximity, fuels and duration do, in fact, play a role.

“It’s a complex set of circumstances,” he said. “It will take some time to sort through this, and determine what is the risk associated with any kind of exposure.”

## Mitigation techniques

In addition to the USDA grant and industry support, U.S. Sen. Jeff Merkley, an Oregon Democrat and the top Democrat on the Senate Appropriations subcommittee on

agriculture, gained support for \$3.5 million toward smoke taint research in the latest federal agriculture spending bill.

That would build on the \$2 million awarded during the last appropriations cycle. Meanwhile, winemakers have developed some techniques to mitigate the effects of smoke damage.

Tannahill, with A to Z Wineworks, said white wines are typically easier to manage in winemaking, since they are fermented without the grape skins that hold glycosides. For those, he said, the grapes should be pressed gently, which may reduce yield but leaves more smoke with the wet skins coming off the press.

As for reds, he said adding toasted oak to the fermenters can help absorb more of the compounds, or making the wine as rich and fruity as possible to offset any possible off-taste.

“I think there’s definitely ways to work around it,” Tannahill said. “It would be nice if we never had to deal with it, but that’s not the real world.”

Adam Campbell, a fifth-generation farmer and winemaker, owns Elk Cove Vineyards in Gaston. He said Oregon winemakers were rewarded for smart, careful adjustments to how they make wine in 2020, but should be careful not to oversteer the ship.

“My parents made wines in 1980 after Mount St. Helens erupted and a half-inch of ash fell on our vineyards,” Campbell said. “Those wines were awesome, so I think we got this.”

One thing for certain, said Aguirre of the California Association of Winegrape Growers, is that wildfires will continue, making research a top priority.

“It’s very urgent,” he said. “If this is a new reality, then it is extraordinarily disruptive.”

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