

Latest Research on Wine Smoke Taint

The Innovation + Quality (IQ) conference held May 23 and 24 at the Silverado Resort and Spa in Napa, Calif., hosted a panel of experts discussing questions surrounding smoke taint in relation to their recent research.

Dr. Kerry Wilkinson, associate professor in oenology at the University of Adelaide in Australia, relayed her research regarding the difference in smoke taint effects across grape varieties. Wilkinson exposed seven different varieties to smoke at seven days post-veraison, when the berries are most susceptible to the permeation of the volatile phenols produced by smoke. Wilkinson's team harvested each row of vines at maturity, immediately looked at the fruits' composition and observed a big difference between the smoke tainted grapes versus the grapes from protected control groups: glycoside compounds (responsible for volatile phenols) were much more prevalent in the grapes exposed to smoke than those that were not. When they produced wine with the grapes, Wilkinson noticed the same pattern, but noted the levels of glycoside compounds in the grapes don't necessarily predict the levels in the resulting wines.



Smoke from a 2017 wildfire in Sonoma County.

Red varieties had much higher instances of volatile phenols than whites. "But then... it looks like some varieties are more susceptible than others," Wilkinson said. Of the whites, Pinot Gris had much higher levels of taint; Cabernet was the most tainted of the reds. According to Wilkinson, the reasoning behind this is inconclusive, and she's currently looking for another project to study this in detail.

Dr. Tom Collins, assistant professor of grape and wine chemistry at Washington State University in Pullman, Wash., presented his research on how the source of smoke influences the smoke taint composition in wine grapes by measuring the chemical composition of smoke

from 15 different rangeland plant varieties known to grow along Washington vineyard sites and comparing that to smoke composition of common tree mulch from Washington forests. Chemical compositions varied across the burnt plant life, but it was the rangeland plants that provided the highest amount and most variety of volatile phenols.

To conduct the smoke taint trial, Collins used Merlot and Cabernet grapevines just past veraison, treating the Merlot with rangeland smoke and the Cabernet to forest mulch smoke. He presented both his Merlot and Cabernet for comparison. While both samples presented obvious smoke taint, it was the Merlot that emitted the most sensory phenolic affects.

During the technical tasting, winemakers presented trials on minimizing smoke taint sensory perception in wines. These included decreased fermentation temperatures and oak regimen (conducted at the University of California, Davis, research and teaching Winery), flash détente (conducted by the Carneros Vintners) and varied maceration time (conducted by A to Z Wineworks). While all trials displayed minimizing effects, experts across the board agreed that none of them are a cure for the latent phenolic compounds residing inside smoke tainted wine.

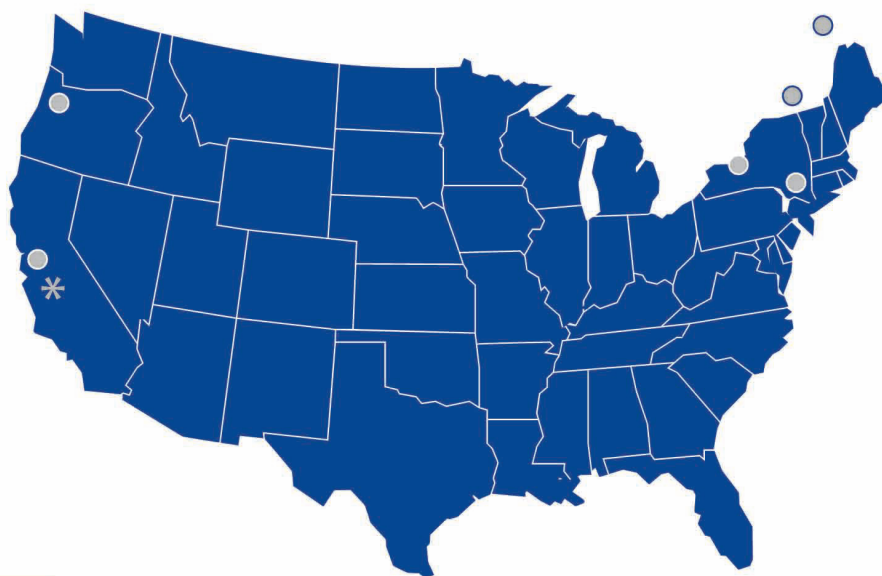
—Stacy Briscoe

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