

Smoke Taint: How Much Smoke is Too Much?

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VINEYARD TEAM
Promoting Sustainable Winegrowing



Image of the Soberanes Fire taken on August 4, 2016 by the Moderate Resolution Imaging Spectroradiometer (MODIS) on board the Aqua satellite (NASA).

What is it?

Smoke taint is one or more off-aromas or flavors in wine or juice that are the result of the grapes being exposed to smoke. The descriptions of these flavors and aromas range from a general smokiness to “ashtray.” These are the result of specific compounds found in the smoke the grapes were exposed to.

When is the window of susceptibility?

Grapes are susceptible to smoke taint from the time the berries are pea-sized until they are picked, with the window of greatest vulnerability being the time from one week after veraison until harvest. The amount of contact time with smoke is also crucial. We do not know how long smoke needs to be in the vineyard for taint to be an issue.

Is there anything I can do?

Keep fruit intact and cold. Experts from California, Washington state, and Australia recommend hand harvesting and keeping fruit at 50°F or less.

Testing. The two main compounds associated with smoke taint are guaiacol and 4-methylguaiacol. These compounds can be tested for and quantified. Knowing the concentrations of these two compounds is a good way of assessing the risk of smoke taint and suggests what methods in the winery can be employed to prevent or reduce it.

The compounds which lead to smoke taint are in the skins of the grapes. Therefore, minimizing skin maceration and skin contact is the recommended strategy for preventing or reducing smoke taint in wines. Keeping grapes, must, and wine cool during fermentation and after is also advisable.

References

Summary of: K.R. Kennison, Wilkinson, K.L., Williams, H.G., Smith, J.H. and M.G. Gibberd. 2007. “Smoke-derived taint in wine: effect of postharvest smoke exposure of grapes on the chemical composition and sensocharacteristics of wine.” *Journal of Agricultural and Food Chemistry* 55:10897-10901

Reprint of: J. Harbertson, Henick-Kling, T., Keller, M. and M. Moyer. 2012. “A Note on Smoke Taint.” *WSU Viticulture and Enology Research and Education*. Fall 2012
Viticulture and Enology Extension Newsletter

Department of Primary Industries, State of Victoria, Australia. 2011. “Impacts of smoke on grapes and wine in Victoria.” *DPI Future Farming Systems Research*
Update: March 2011.

Department of Primary Industries, State of Victoria, Australia. 2012. “Centre for Expertise in Smoke Taint Research.” *DPI Future Farming Systems Research*