

Sterile Filtration -- Science vs. Myth

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The question of whether sterile filtration harms wine flavor evokes much debate and emotion. Although there is little scientific research on the question, filtration proponents rightly emphasize the financial risks incurred by producers who choose not to filter. These risks are real.

Filtration proponents point out that wine flavor components are smaller than the pore size of the sterile filter membrane, and that insoluble filtrate doesn't possess significant flavor, anyway. Thus, proponents argue that there is no reason why filtration, properly performed, should affect wine flavor.

In the other camp are filtration opponents who believe they do taste a difference. They claim filtration strips wine of significant properties and flavors. However, one is hard pressed to obtain from opponents just what these properties and flavors are supposed to be. Nevertheless, they observe filtrate being removed from a wine and associate filtration with the taste difference they perceive. Thus, they conclude filtration is detrimental to wine flavor.

Encouraged by our professors to decide for ourselves who is right, we recently conducted an experiment which asked the question, "does sterile filtration create changes in wine that consumers can taste?" From a supermarket shelf we selected five well-known, unfiltered Zinfandel, Pinot Noir, and Cabernet Sauvignon - vintage 1990 to 1992; and from the UC Davis cellar, one unfiltered Pinot Noir - vintage 1984. Four bottles of each wine were combined under nitrogen to eliminate bottle variation; half of the wine was sterile filtered, the other half was not filtered but was similarly processed.

Over five evenings our trained taste panel, consisting of 12 volunteer judges (none of whom were connected with the department of enology and viticulture at UC Davis) evaluated the wines by duo-trio testing. Two repetitions of each flight of each wine resulted in a mean correct response of 54%. The best correct response of any one panelist was 66.6%. There was no variance by wine, flight or panelist.

In other words, despite skilled and thoughtful consideration of the wines before them, the panelists could do no better than random guessing. We thus conclude that the panelists could not detect a difference between filtered and unfiltered red wines, and from this can infer that there was no detectable difference in wine flavor as a result of the filtration.

Why then the growing belief that sterile filtration is harmful? The power of suggestion and bias are strong. We offer the opinion that many filtration opponents have drawn conclusions by generalizing wines of different producers and vintages, tasted on different occasions or side-by-side, not blind. Simple repetition of filtration critic's assertions over time have led many to accept them as true.

We also suspect that some producers don't filter to please opponents who are influential wine writers. We regularly receive for analysis samples of spoiled unfiltered wine, initially touted

by these very wine writers, containing bacterial sludge, as well as fining related polysaccharide and protein clouding, and so forth.

We note the great difficulty encountered in filtering the experimental wines. We suggest that it may be convenient for some producers with difficult or poorly-made wines to suddenly adopt the belief that unfiltered wines are "better".

We also suggest there may be temporary disruption to wine flavor equilibrium as a result of processing. Tasting a wine immediately after filtration, or a few days later, may produce different results. We note our own differing perception of the experimental wines between the time of filtration and four days later.

We note also the many award winning wines of the world which are sterile filtered; the popularity of mobile sterile filter services to Bordeaux chateaux which tout their lack of filtration equipment; and we again remind producers of the financial risks incurred in not filtering.

In conclusion, we see no evidence to support the assertion that sterile filtration harms the flavor of wine. There remains no definitive study on filtration effects, and questions remain about the changes in aging potential, the role of possible oxygen uptake and oxidation, and the effect of prefilter aides on wine. Industry should support additional research, to obtain hard answers to difficult questions, and to protect itself. The trend toward unfiltered wines could easily backlash with a few publicized spoilage incidents by anti-alcohol forces.