KUMEU RIVER

Lees Contact for Tank-Fermented Wines: A Unique Approach

"Great dry white wines can only be produced if they are kept for a prolonged period on their lees."

This quote is taken from a paper by Valérie Lavigne-Cruège and Denis Dubourdieu presented to a seminar entitled "Use of Oak Barrels in Winemaking" given in Adelaide in 1999. I happen to agree with the sentiment wholeheartedly. Allowing a white wine, such as Chardonnay, to age on its yeast lees after fermentation is one of the most important phases of the winemaking process.

When such wines are fermented in barrel, as is the case with most of our Kumeu River Chardonnay, the wine typically remains in contact with the yeast cells in the barrel after fermentation for a further period of nine to 10 months. This has many influences on the wine. Firstly, the yeast keeps the wine in a reductive state and thus prevents the wine from oxidizing. Secondly, the alcohol in the wine slowly breaks down the cell walls allowing release of nutrients and other compounds back into the wine. In this way the wine "feeds" on the yeast and regains some of the compounds that were removed from the new juice by the growing yeast cells. During this stage the process is aided by stirring the barrels once or twice each week to re-suspend the yeast cells, a process referred to as batonnage.

In barrels, oxygen can enter the system via slow diffusion through the oak staves, but more particularly through the bunghole. This presence of oxygen is generally sufficient to prevent the excessively reducing conditions which would lead to the formation of hydrogen sulphide and mercaptans such as methanethiol and ethanethiol, all of which are detrimental to wine quality. This is not the case when the wine is being stored in large-capacity stainless-steel tanks, where the access to oxygen is negligible. In this scenario, the reductive conditions will result in the accumulation of foul-smelling compounds such as hydrogen sulphide and mercaptans.

Valérie and Denis have shown us a technique by which this problem may be alleviated: After the primary fermentation is complete, the finished wine is racked from the yeast lees, and the lees are then stored separately in barrels and stirred regularly. After a week or so, the lees no longer contain any reductive off-aromas, and can then be added back to the racked wine. We have modified this technique to adapt it to our own needs. Instead of putting the lees in barrel, we place them in a small stainless-steel tank. Then, while gently circulating the lees through a pump, we slowly introduce bottled pure oxygen to simulate the effect of storing the wine for a week or so in barrel with regular stirring. After 10 to 15 minutes of such treatment, any sulphide-like aromas have disappeared, and the lees are ready to be added back to the racked wine. The wine thus treated is then free of any sulphidic odors, and will remain free of them for the remainder of the maturation time on lees.

This has enabled us to develop in our tank-fermented wines the same sort of lees complexity and texture that was only previously possible with barrel-fermented wines.

Michael Brajkovich, MW
Winemaker

WILSON DANIELS SINCE 1978