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Filtration change is good for the health

Grapegrower & Winemaker asked two winemakers, Alan Kennett from Casella Wines and Jeff Sinnott from Amisfield Wine Company in New Zealand for their perspectives on filtration within their winery. Both have recognised the health risks with use of diatomaceous earth. One has just changed to crossflow and believes it has simplified the filtration equation. However, the other says crossflow "is not as easy or quick" as it seems.

Alan Kennett of Casella Wines says a change to ceramic membrane crossflow filtration in Casella's plant at Yenda (New South Wales) has brought with it substantial changes.

Casella Estate installed a 200sqm and a 500sqm crossflow unit toward the end of last year and, according to Kennett, operations were simplified.

Casella opted for the ceramic units in a bid to eliminate diatomaceous earth from the cellar for safety reasons and for ease of operation. It took about a month for the installation to be completed.

Now, it's almost a chalk and cheese comparison between the old and the new.

"The old system required wine filtration in the cellar through diatomaceous earth and filter pads," said Kennett.

"This has been eliminated so that we do not do any filtration of finished wines in the cellar.

"We have also eliminated two filtration steps at bottling," he said.

"The crossflow has simplified the operation by eliminating four filtration stages and one wine movement."

Coupled with the simplification of process comes a cost and time-saving factor.

"We see savings in wages and consumables to justify the extra capital cost. The real test will be the life of the membranes, which we believe could exceed 10 years," Kennett said.

He said the change of system was expected to save about 8000 man/hours annually.

On the question of handling greater volumes with ease, Kennett left no doubt as to what he thought ... "Definitely. We can have wines ready more quickly for bottling lines if they are ahead of schedule, and don't have four cellar operators running earth filters."

Amisfield Wine Company is a specialist producer of Pinot Noir and aromatic white wines in Central Otago, New Zealand.

Winemaker, Jeff Sinnott, said filtration options vary depending on end-use of the wine.

"Aromatic whites generally get settled as juice with enzyme use and/or settling varying depending on the wine style intended. Juice lees are filtered through a 40 x 40 plate and frame lees filter using perlite as a medium," he said.

"We are acutely aware of the environmental effects of DE in terms of health and safety of cellar workers and the effects on our vineyard ecosystem. We are looking to use cellulose as a medium from now on.

"Depth filtration using DE/Cellulose or pad/cartridge is used post-ferment to polish the wines. We have been experimenting with crossflow filtration as a means of clarifying to bottle-ready state in a single pass, however, this is often not as easy or as quick as it seems as throughput depends on the initial clarity.

"We use turbidity measures to ensure efficient media selection and methods used. "All whites containing fermentable substrates are membrane filtered at 0.45µm prior to bottling.

"With Pinot we are trying to avoid filtration entirely and have successfully bottled certain wines without it at all, particularly those that remain in barrel for two winters (i.e. 15-18 months).

"Our general tendency is to rack carefully and allow the wine to settle in tank for several weeks to allow most of the lees to drop. We only fine if absolutely necessary but again we are using this technique less as we learn what not to do to wine.

"We then rack again and filter the bottoms if required, with either a pressure leaf filter or sometimes a plate and frame lees filter if the turbidity warrants it. These components are sometimes downgraded into a lower price point product if necessary.

"The racked wines are then tested for microbial and tartrate stability and then either cleared for bottling if they are stable or put through a depth filter, either cartridge or pad, depending on wine, batch size and degree of clarity required.

"Final filtration depends on how well we have used traditional means to remove impurities. The aim is not to filter at all but we are pragmatic in that every batch of every wine does not behave ideally and we act appropriately depending on risk," Sinnott said.