

Eureka moments in winemaking

A unique combination of decanters and enzymes allows large-scale winemakers to reduce their energy and water use, and the amount of waste they produce, while producing clearer wines. *Here* headed to Verona, Italy, to get the story behind this latest innovation in winemaking.

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PHOTOGRAPHS BY MAURIZIO CAMAGNA

GIANCARLO VASON'S eureka moment came in 1980. At that point he had been working at his family's company near Verona, Italy, for two decades. The Vason Group, founded in the 1950s, develops specialized products such as stabilizers and preservatives for the wine and beverage industry.

Vason's customers lamented to him the problems they faced trying to clarify (i.e. filter) their wines.

They had been using decanters and centrifuge systems to separate the juice from the grape must for white and sparkling wines, and the results were unsatisfactory. The chemical composition of must is so complex that a centrifugal system couldn't handle it effectively in continuous processing.

"Back then, winemakers were using old model decanters from the 1950s, and they wanted a better way," explains Vason. He thought of applying the principle of flotation – a separation process based on chemistry rather than the mechanical/centrifugal principles being used. At that point, the process had been used in mining and then water



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purification systems, but it eventually proved effective when adapted for musts. The market response was enthusiastic, and in 1989 Vason created a subsidiary, JU.CLA.S. (Juice Clarification System), to grow this business.

A SECOND EUREKA moment came in 2011 when Alessandro Angilella, general manager of JU.CLA.S, visited an Alfa Laval facility in South Africa*, where he was casually shown some experimental decanters. “It was purely by chance,” recalls Angilella. “They asked: ‘Would you like to see our decanter project? It isn’t perfected yet but we are working on it.’”

Angilella realized that Alfa Laval’s prototypes, combined with his company’s know-how regarding flocculants, could be a winning combination for the wine industry. “Our innovation was to transfer our wine technique of breaking down the must with enzymes into an integrated system with Alfa Laval’s new decanters,” he explains.

He put Alfa Laval in touch with a professor he knew at the University of Verona, Roberto Ferrarini, and wine experts from both companies. One of the latter, Giacomo Costagli, process industry manager for olive oil and wine at Alfa Laval, piloted the project for the next three years.

THE RESULT WAS Alfa Laval’s Foodec, designed specifically for use in situations where hygiene must be impeccable and gentle treatment is essential. Prof. Ferrarini, who died in 2014, was recognized for his research by the Italian Oenological Association. Alfa Laval received a patent for its

extraction and simultaneous must clarification process by decanter technology in 2015.

The decanter separates grape liquid from the must in one powerful continuous process. The sediment formed by the must is continuously removed by the screw conveyor, rotating at a different speed from the bowl. The result is not only cleaner must but greater control over the degree of cleaning desired. This is all quite different from the traditional press method (which is discontinuous by definition: press grapes, clean, reload).

In 2017, JU.CLA.S. and Alfa Laval formalized a commercial agreement to commercialize Foodec decanters and Vason flocculants. The system was installed in three highly-regarded wineries in different Italian regions: Duca di Salaparuta S.p.A. in Sicily, Broni in Lombardy, and Mezzacorona in Trento. “These have all worked very well, so we can say that the system is recognized in the wine world,” notes Vason.

While Alfa Laval and JU.CLA.S. can sell their respective products separately outside of Italy, they believe that the integrated system will be attractive because it puts more control into the hands of the winemaker.

And control is something the wine industry covets. Vason maintains that the current trend is from corrective to expressive winemaking... and “eureka” is the epitome of expressiveness. ■

*For the full story of the first attempts to use the technique in South Africa, see [Here 32](#).



Giancarlo Vason saw demand among winemakers for better clarification of their product, and recognized the potential of flotation as a solution.



The winery of Valentina Cubi, found in the hills of Valpolicella, near the northern Italian city of Verona, combines tradition with technology. Valentina Cubi is the wife of Giancarlo Vason, whose company, the Vason Group, provides the wine industry with specialized products.



The diamond of drinks

Just as diamonds are classified by the “four Cs” (colour, cut, clarity, carats), wine may likewise be classified by its colour, clarity, consistency, and alcoholic content.

- **Colour** depends in part on the grapes – the process determines consistency and content (the two are related).
- **Clarity** (the removal of pectins, yeast, tannins) is achieved by filtration and stabilization processes chosen by the winemaker.
- **Alcoholic content** varies from about 5-20%, and can depend on the style of wine, quality and the climate in which the grapes grew.
- The industry uses a colour and haze spectrophotometer to measure wine **clarity**; the result is a designated Nephelometric Turbidity Unit (NTU). While a lower NTU is desirable in most cases, sometimes an oenologist prefers unfiltered or lightly filtered wines. In the case of high-end reds, some sediment at the bottom of the bottle is expected. White wines display better colour and consistency with low NTUs.



Giancarlo Vason, left, and Alessandro Angilella, general manager of Vason subsidiary JU.CL.A.S, inspect the vineyards of Valentina Cubi in winter. The organic-certified vineyard covers some 13 hectares.

A solution with many benefits

The wine industry has embraced the combination of Foodec decanters and Vason enzymes not only because of performance and cost savings, but also because of their notable sustainability benefits, observes Alfa Laval’s Giacomo Costagli. He was process industry manager for wine and olive oil during the development of this technology. Among the benefits are:

1 Higher yield. The system produces greater yield of the most desirable must, called flower must (mosto fiore in Italian). “Our system yields 65% flower must,” reports Giancarlo Vason, president of the Vason Group. “Other systems yield only 50%.”

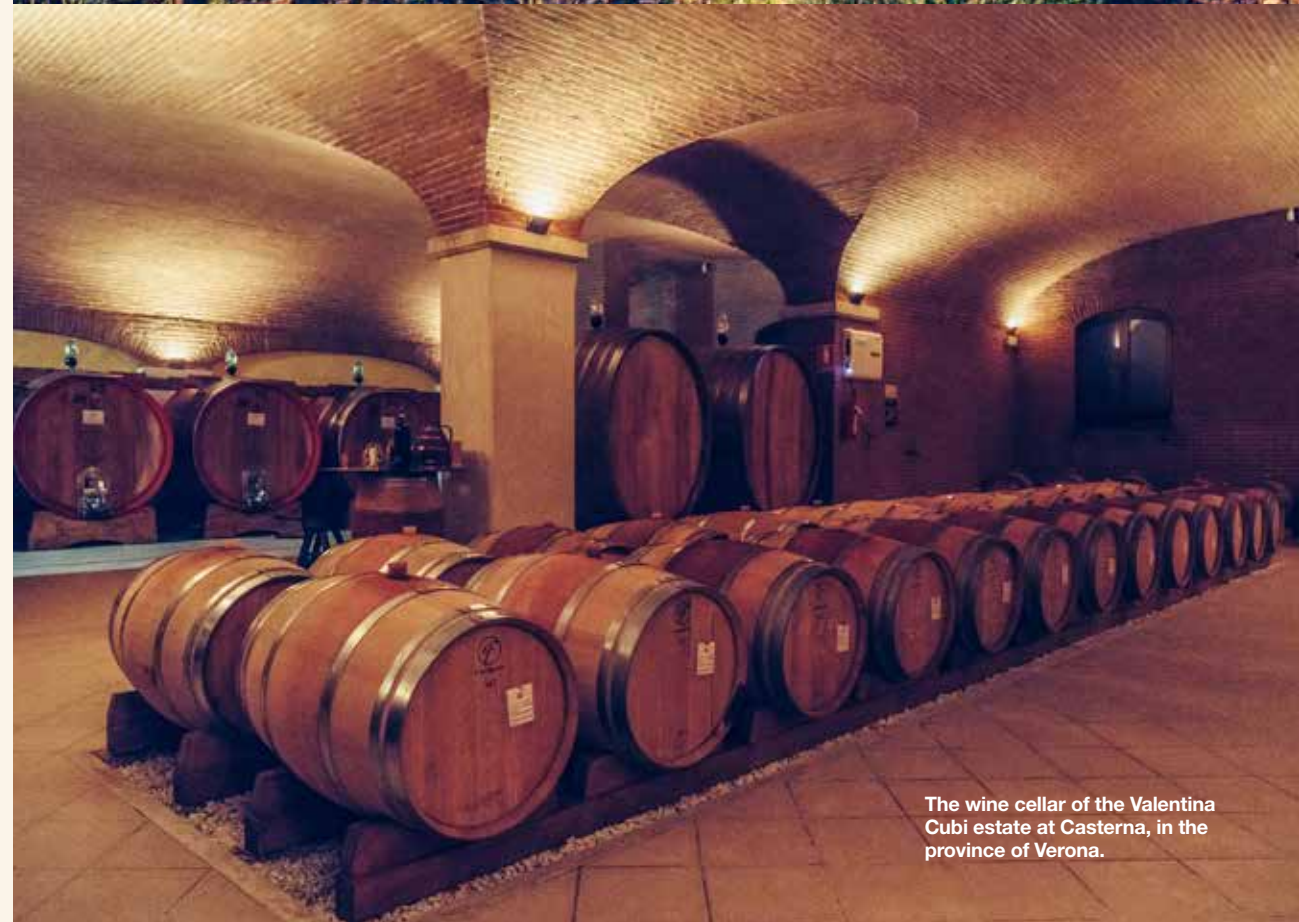
2 Less waste. The system drastically reduces the tank bottom quantity from clarification settings, with reduction of residual waste for their filtration.

3 Lower energy for refrigeration. This is because less cooling is required than in traditional press systems. The grapes don’t have to be cooled ahead of time with Foodec as they do with presses.

4 Minimal water consumption. Because the system is designed to save on both supply and disposal costs, water savings can total 90% or more.

5 Flexibility. The continuous process means more control for the winemaker, better quality grape must, and more limpid juices.

6 Lower maintenance costs. Foodec units are robust. The bowl, conveyor, inlet tube, outlets, cover, etc., in direct contact with the juice are made of AISI 316L and/or duplex stainless steel. The discharge ports, conveyor flights, and feed zone are protected with special abrasion-resistant materials. Savings in maintenance costs can reach up to 56%.



The wine cellar of the Valentina Cubi estate at Casterna, in the province of Verona.