

# New toys for wineries and vineyards

## Some highlights of WineTech 2013

By Gary Baldwin

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*Gary Baldwin has attended every Australian Wine Industry Technical Conference and associated trade show since their inception, with the exception of the first one held in Mildura in 1970. We asked Gary to provide his picks of the many innovations on show at WineTech 2013, held in Sydney in July.*

The trade exhibition at the 15th AWITC, which has adopted the WineTech name, was a major display of all sorts of wondrous equipment for the winemaker and viticulturist.

There was clearly a more positive mood in the air than at the last conference three years ago; one of the first winemakers I met at the event was enthusing that he had come to buy some new "toys" for the winery.

The enthusiasm rubbed off, so I have tried to pick out a few of the new toys that might be of interest to those who did not attend the event, or perhaps couldn't get around to all the exhibits.

WineTech is an invaluable showcase for the industry and I hope my insights encourage you to think carefully before declining the opportunity to visit WineTech in 2016, which looks set to be held in Adelaide at the re-vamped exhibition and conference centre.

There were many interesting items on display and the ones selected here are simply those that seemed to offer something special or innovative.

### WOODSHIELD POST

Like many great innovations, the Woodshield is beautifully simple.

Incorporating the latest in recycled plastic technology, the Woodshield takes the ubiquitous treated pine post and, with a few tweaks, creates a better product.

Essentially an untreated pine post coated in plastic, the Woodshield offers several advantages over standard treated pine posts that have been used in vineyards for decades.



**Ashley Davidson, developer of Woodshield, with a plastic-coated vineyard post. Incorporating the latest in recycled plastic technology, the Woodshield takes treated pine posts and, with a few tweaks, creates a better product.**

First, untreated pine is less brittle than treated pine and the natural, undried timber of the Woodshield post is less likely to split, crack or break during harvesting or in high winds.

The plastic sleeve, which comes in black or white, protects and reinforces the post, making it stronger, more durable and less prone to rot and weather damage. The manufacturer says it is resistant to termites and claims a UV rating of more than 50 years.

The plastic covering also does away with splinters and the ends of each post

have caps, so they can be whacked into the ground without damaging the protective coating.

For all other purposes the Woodshield is like any other wooden post – you can drive nails into it, fasten things to it and subject it to all the usual rigours of the vineyard.

There is no chemical leaching from the untreated posts, making them suitable for organics operations, and the plastic coating of the Woodshield is partially made from recycled materials.

# An Australian First

An innovative renewable energy plant at Australian Tartaric Products' (ATP) Victorian plant will slash energy costs, improve international competitiveness, significantly reduce the company's carbon footprint and close the loop on the annual disposal of 90,000 tonnes of grape waste from the wine industry.

ATP collects waste grape marc, sludge and lees from the Murray Darling, Riverina and Swan Hill wine regions and supplies tartaric acid back to the industry for use in the winemaking process.

ATP is the nation's largest manufacturer of natural tartaric acid, which plays a key role in the chemical stability, taste and pH of wine. ATP processes waste from the winemaking process, including grape marc, grape lees and sludge, to make a completely natural product from material typically bound for landfill. The company also extracts and converts residual alcohol into potable and low-grade ethanol. ATP is located in rural Colignan, around 50 kilometres south of Mildura in Victoria. With no access to natural gas, the company has to date relied on trucked-in LPG to ensure its boilers run 24/7.

Thanks to the support of both the Federal and State governments via their respective Clean Energy Technology and Victorian Regional Infrastructure Development funds, ATP has invested in a renewable energy plant supplied and installed by Bono Sistemi.

Major benefits from this investment will include;

- Significant reduction in energy costs
- Improve competitiveness
- Reduce greenhouse gas emissions by 72% (9813 tonnes of CO<sub>2</sub>e)
- Reduce the burden on the environment by preventing the spent marc from ending up in landfill
- Close the loop on 90,000 tonnes of waste from wineries
- Reduce electricity from the grid by 43% (1656 MWh)
- Create additional employment

In addition it provides a major benefit to the wider wine industry by providing a sustainable solution to the industry's waste, ensuring it is utilised in a renewable fashion rather than polluting the nation's landfills.

Commencing operation in September 2013, the 8MW moving grate biomass boiler will use spent grape marc to produce steam required for the production of tartaric acid and substantially reduce the company's reliance on fossil fuels. The renewable energy plant will boost confidence in ongoing investment in the region's wine industry by ensuring a sustainable, reliable and commercial option for the disposal of waste grape marc.

ATP is also installing Organic Rankine Cycle (ORC) technology to sit alongside the new boiler. This will take surplus steam produced by the boiler and co-generate around 63 per cent of the electricity required for its operations. The ORC plant is being supplied by Australian company gT Energy Technologies.



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**Jurg Muggli with the new Fischer undervine weeder, showing the nylon flails that remove the weeds. The unit looks to be the best solution yet for the mechanical removal of under-vine weeds without damaging vines.**

### FISCHER TWISTER TRAILING UNDER-VINE SLASHER-WEEDER

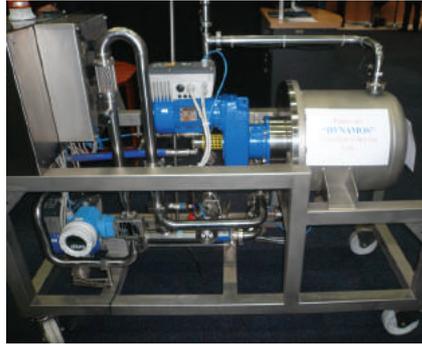
For the past 30 years the industry has sought to develop a mechanised under-vine weeding system that eliminates competitive weeds without damaging vines, especially young vines.

The Fischer Australis weeder and mower unit looks to be the best solution yet, claiming to eliminate competitive weeds while bypassing vines, leaving them uninjured, or at least minimising any damage.

The Twister machine has two weed brushes with delicate 'fingers' that rotate to chew up weeds while dodging around obstacles, including vines.

The main mower cuts the inter-row grass and two trailing mulchers chew up the weeds, giving growers a weed-free under-vine area.

One imagines you need to use this machine regularly to maintain the weed-



**A pilot-scale Padovan Dynamos lees filtration system – possibly the best breakthrough in the filtration of juice bottoms and lees in many years.**

free zone, but according to Jurg Muggli, from Fischer Australis, you can travel at quite high slashing speeds and still remove most of the weeds successfully. He says the mower can handle vine prunings left in the mid-row as well.

It is available in different configurations to suit various vineyard terrain and layouts.

### PELLENC EXTRACTIV' CRUSHER

Pellenc, which developed one of the first computer-aided photographic fruit sorting machines, has now re-invented the basic crusher.

Compact and uncomplicated, the Extractiv' crusher has a spinning wheel that throws berries against the sides of the crusher, breaking the berries without damaging seeds or crushing stems.

The rotation speed of the wheel can be adjusted to change the crushing intensity and Pellenc believes the result



**Paul McNicholas, from 3M, with the 3M High Flow Sanitary Filter Housing. The machine is open to show the single large filter cartridge.**

is better extraction of juices and phenolic compounds, with less bitterness and less stem or stalky flavours.

It can be fed with destemmed fruit or whole bunches and can be adapted to fit different destemming systems.

The technical specifications claim a crushing rate of up to 25 tonnes per hour.

### SCHARFENBERGER EUROSELECT DESTEMMER

While there was a revolutionary new crusher from Pellenc, there was also a new destemmer from the German company Scharfenberger. This machine offers a new solution for the destemming process.

The basic principle is that whole fruit is moved along an inclined perforated belt with gentle impact from destemming fingers that are mounted above the belt. As the fruit is impacted by the fingers, the berries fall off the bunch and through the belt into a catching tray.

Stalks, leaves and material other than grapes (MOG) simply travel along the belt and are dumped into a collection bin. Speed and impact can be varied to suit the fruit conditions. The machine is called a Euroselect Destemmer and there are various models available with capacities of up to five tonnes per hour.

### 3M HIGH FLOW FILTER

The name 3M, which conjures up images of sticky tape in all its forms, appears to be the new name for Cuno Pacific, which was once AMF, if I am not mistaken. This is the very same AMF that brought American bowling alleys to Australia many years ago, but that is a story for another day.

3M has introduced a high flow-rate coarse filtration system that it claims is ideal for loading export tankers and bulk containers.

The machine looks like something you



**Peter Gambetta (left), from Yalumba Wines, with Frank O'Riley and Louise Fraser, from Pellenc Australia, admiring the new Pellenc Extractiv' crusher, which features a spinning wheel that throws berries against the sides of the crusher, breaking the berries without damaging seeds or crushing stems.**



**Pieter de Bruijn, representing Oenologic, shows a wine bottle with the new Glasstop closure.**

might ignite and watch as it launches into the night sky. The sleek, space-age exterior hides some neat, state-of-the-art technology that makes the 3M High Flow filter very compact – up to 50 per cent smaller than equivalent competitors, says 3M.

The specifications state it will filter up to 30,000 litres of wine per hour at up to 1000kpa pressure with porosity of 1 micron. The capital cost is less than \$10,000 and it is recommended for pre-filtration on bottling lines and as an alternative to crossflow filtration.

While it looks impressive and sounds as if it might be a good solution, it would be prudent to test this machine thoroughly and do a cost-benefit analysis on a crossflow filter, which has been the popular option for this type of filtration over recent years.

#### **PADOVAN DYNAMOS ROTARY CROSSFLOW FILTER**

I wrote about this technology in the Journal's sister magazine, *Australian & New Zealand Grapegrower & Winemaker*, after the 2010 SIMEI event in Italy and it seems to have been some time coming to Australia. The machine in the photo is only a small trial version but its big brother, at 80m<sup>2</sup>, can filter up to 85 per cent solids lees at 2400L/hr.

The genius of this machine is that the filter medium is built in the form of hollow round discs, which rotate at high speed through the liquid/solid medium and the rate of rotation provides the fluid speed that we would usually observe in a normal crossflow filter.

Because the discs can cut through the semi-solid medium so easily and it is under pressure, the filtrate moves easily through the discs which are cleaned as they spin – sheer genius, even though somewhat expensive.

To my mind, this is the way of the future



**The Juclas Mastermind automated cartridge filtration system incorporates an automatic back flush and can be used for filtration of still and sparkling wines.**

and potentially the best breakthrough in the filtration of juice bottoms and lees in many years.

#### **JUCLAS MASTERMIND FILTRATION SYSTEM**

This automated cartridge filtration system incorporates an automatic back flush and can be used for filtration of still and sparkling wines.

The fully automated system has a built-in back flush and a control system that allows winemakers to set the flow rate and volume and walk away. I'm not sure I'd be comfortable with this approach, but it does sound great and I would be interested to see it in action.

There are five different sized units and all use 30-inch cartridges; the smallest has eight cartridges for a maximum flow rate of 2000L/hr, while the largest has 36 cartridges and is capable of flow rates up to 9000L/hr. The mid-range MMF 12, with 12 cartridges, can handle up to 3000L/hr and costs around \$30,000.

Advertised as ideal for premium wines "where only a polishing filtration is required", the Mastermind filtration system uses only a small part of actual capacity and with wine under 100ntu, winemakers can go straight to 0.45 micron final filtration.

#### **OENOLOGIC GLASSTOP**

This new glass stopper makes grand claims to be "the stopper of the future" and is certainly a rethink of at least some aspects of the wine closure.

Still in development, Oenologic aims to launch the Glasstop in mid-2014. It will be the culmination of years of research and development by at least eight companies and institutes around the world, including the Australian Wine Research Institute,



**The Taransaud Cooperage oak egg, which the company has named Ovum II and has a capacity of around 2000 litres.**

which is listed as a 'technical partner' in the project.

The Glasstop will come in three versions – the basic, niche and crux. All feature a glass top and core, the latter surrounded by a polymer seal that forms a secure closure in the bottle neck. A decorative 'coin' inserted in the top can be customised with branding.

The niche closure has a recess under the removable coin which can hold a folded pamphlet with information about the wine and producer or other marketing material.

The crux incorporates all the above plus a device that the manufacturer claims allows a controlled rate of oxygen transmission for premium wines designed with ageing potential.

Oenologic says the device will fit most standard bottles and claims its machinery can be incorporated into, and keep pace with, existing bottling lines.

The Glasstop does look classy and it offers new marketing opportunities, but whether the substance of this product is equal to its style can only be determined after its release, when we can assess the wines on which it has been used and its ease of use. Its price point will also be a significant factor in its potential appeal to the wine industry.

#### **TARANSAUD OVUM II**

On a closing note, I have to mention the latest in wine fermentation vessels – the magnificently crafted Taransaud Ovum II, a 2000-litre winemaking indulgence toy!

WineTech 2013 provided the usual impressive array of equipment for the vineyard and the winery and while I may have missed some exciting things, this small sample is certainly worth investigating as you consider making your vineyard or winery more efficient and easier to operate in the future.

See you in Adelaide in 2016!

WVJ