

New GWRDC website promises simple, user-friendly format

In late 2008 the GWRDC initiated a plan to update its website and began a competitive tender process to appoint a design and content-management firm to head the project. Adelaide-based web company Eclipse, a subsidiary of Deloittes, was engaged for the job.

"It's fair to say that the GWRDC has been pretty embarrassed by its current website, and we identified that we wanted to build a website we could be proud of, and that the industry would find useful," said Dr Mark Krstic Program/Innovation Manager for the GWRDC.

"We wanted the GWRDC site to become another of the key industry portals. We see the web as a great vehicle to promote our investments and the outcomes of R&D back to the industry. It's a key tool in our efforts to ensure we get R&D information and outcomes out of our front door and out to the industry, and that's why we've prioritised this exercise," he said.

In the early stages of the project, the GWRDC identified key areas that it wanted to achieve for the new website. These included:

- user-friendly site - users can find what they need quickly
- archived R&D information/ archive final reports
- easily searchable/ strong search function
- many links to other portal sites, such as AWRI, AWBC
- simple design that recognises not everyone has broadband connection.

"We're looking for a website that helps to archive all the information and resources we have at the GWRDC and put it at the fingertips of industry members," said Krstic.

"The information in many of our final reports can be gold for users so it was paramount that we have a good search engine function that allows members to search easily and find what they're looking for from a research report perspective.

"The website will also begin to present and store information in a style we want to move towards - for example - away from chunky final reports and into fact sheets and video clippings and other easy-to-use tools that will help members."

Krstic said the GWRDC hoped to unveil the new site towards the end of June/July after completing a rigorous testing process.

"We have been through some preliminary user acceptance testing but we have more to do here, and once we've refined things we want to get it back out to a wider user group as prototype testing and to be sure we're on the right track and have ironed out all the bugs," he said.

The GWRDC has been particularly mindful that many members live in regional areas and do not necessarily have access to broadband internet connections.

"We acknowledge that many of our constituents sit on the end of a copper line and so we're investing in different content provision solutions to be sure that all our users, no matter whether they're in the city or in a regional area, can find information in a form that is easily downloadable. For example, users could choose a highly graphical download if they have a fast connection, but there will also be basic text versions for those without broadband.

"We're making sure the home page doesn't take forever to load. We think keeping it simple is the key. We're not about trying to produce a video game, we're about trying to service the industry," Krstic said.

The GWRDC corporate rebranding, completed late in 2008, will also carry through to the new website.

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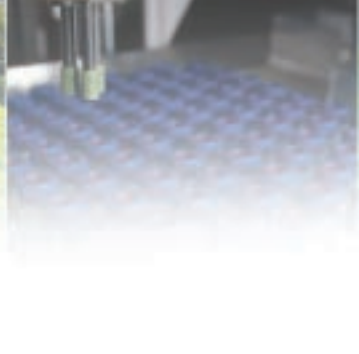
Coonawarra board meeting resolves final project applications

The GWRDC board held its 78th board meeting at Coonawarra on March 24-25. There was a great turnout of people to the industry forum and the GWRDC staff and management present said the meeting was a great example of regional engagement. Amongst a number of resolutions at the meeting, the board made decisions on final research project applications following the Open Call in 2008. Successful and unsuccessful project leaders will be notified before the end of April.

WHAT'S ON

May 13: GWRDC Board Meeting Number 79. Adelaide, SA





Viticulture value-add

Tolerating the salt of the earth

To call someone the 'salt of the earth' is high praise indeed, but some Australian grapegrowers have good reason to fear the salt of the earth. Thanks to the combined impact of long-term climate change and ongoing drought conditions, grapegrowers are reporting an increase in salt damage to grapevines.

Regions most at risk are those with not enough water to leach accumulated salt away from the rootzone and those using saline groundwater for irrigation, such as Limestone Coast, McLaren Vale, Barossa Valley and Clare Valley. Others under threat include Langhorne Creek and the lower Murray and Darling river irrigation regions.

In addition to its harmful impact on vine health, salt can accumulate in grape juice, and may potentially lead to an undesirably salty taste in wine. Australia and other countries have upper limits for salt (sodium chloride) levels in wine. The Australian limit is equivalent to 607 milligrams of chloride per litre.

Dr Rob Walker and his team from CSIRO Plant Industry in Merbein are investigating rootstocks that can help grapevines tolerate higher salt levels in soils and irrigation water.

Salt-tolerant rootstocks help maintain yields and lower the risk of wineries rejecting grapes because of excessive salt. With only 20% of South Australian vineyards currently using rootstocks, and between 25 and 65% in other states, there is plenty of scope for grapegrowers to benefit from incorporating improved rootstocks into future planting strategies.

Rob and his colleagues have developed new tolerance rankings for rootstocks to enable comparison with rankings for own-rooted vines. They have also undertaken saline irrigation water trials in Padthaway, the Barossa Valley and Sunraysia for Chardonnay and Shiraz on own roots and standard rootstocks. The trials showed large differences between rootstocks in terms of yield, and sodium and chloride levels in grape juice and wine.

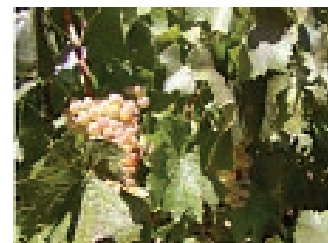
"We are now working to identify the best rootstocks in terms of vine performance, grape composition and wine quality - and to find out if they provide long-term salt tolerance," Rob says. "We also want to know more about how some rootstocks actually exclude salt so we can devise vineyard management practices that enhance salt tolerance."

Grapevines take up salt through their roots and transport it to various parts of the plant through the vine's water transport system. The roots act as filters that greatly restrict the amount of salt entering the xylem (the vine's water-conducting tissues). Some rootstocks are better at keeping salt out of their roots or can limit the amount of salt that moves into the vine's transport systems. Others may be 'leaky', i.e. salt gets into the vine's transport channels by bypassing the usual ion transport mechanisms.

In Rob's Padthaway Chardonnay and Shiraz trials, the highest wine chloride concentrations were from vines on K 51-40 rootstock. Own-rooted vines accumulated more chloride than most grafted vines, with Shiraz gener-



Chardonnay on own root



Chardonnay on 140 Ruggeri

ally accumulating higher levels than Chardonnay regardless of rootstock. Large season-to-season differences in crop load did not significantly alter rootstock rankings for grape juice chloride concentrations.

"Our latest sensory panel results show that Shiraz wines with relatively high concentrations of chloride (800 milligrams per litre) were not easily distinguishable from wines with lower concentrations (300 milligrams per litre) in terms of salty taste," Rob says. "We plan to follow up with more detailed sensory analysis so we can assess the impact of rootstock on wine salt concentration, and other parameters such as aroma type and intensity, acidity, fruit intensity and flavour, overall mouthfeel and finish." For more information: rob.walker@csiro.au

vitiSnips

Mechanical thinning for consistent yield and quality

Mechanical and chemical thinning methods that increase canopy-to-fruit ratios may promote early ripening and produce better-quality wines. They also help reduce large seasonal variations in grape yield that can adversely affect grower returns and long-term industry planning.

Peter Clingeffer from CSIRO Plant Industry at Merbein has spent years investigating the impact of mechanical thinning in minimally-pruned Cabernet Sauvignon and Shiraz vines.

"Our results show that using mechanical thinning for crop adjustment after fruit set consistently leads to wine with enhanced colour and higher sensory scores," Peter says. Peter can be contacted at peter.dingleffer@csiro.au

Overheads offer frost-effective water savings

Overhead irrigation is a proven, cost-effective method of protecting against devastating frosts. Recent trials show that vineyards can save water by reducing sprinkler precipitation rates and delaying irrigation start-up until critical temperatures are reached according to standard tables of temperature and relative humidity. The trials were conducted by Hans Loder at Wingara Wine Group's Katnook Estate vineyards. He found that improved management practices can deliver water-use efficiency gains, even where irrigation infrastructure cannot be modified. Hans has written a user guide about frost-protection for irrigators in south-eastern South Australia. He can be contacted at hloder@wingara.com.au





Wine Excellence

Tannins add the 'feel good' factor

Grape tannins play an essential part in determining wine colour stability, mouthfeel and texture (astringency), particularly in red wines intended for long-term cellaring. They are extracted from grape skins, stems and seeds during the winemaking process.

"Our studies have consistently found that high-quality red wines contain high levels of tannins," says Paul Smith from the Australian Wine Research Institute (AWRI) in Adelaide. "The right tannin level can lift a good wine into the premium class."

Tannin levels in wine vary widely between different wine styles, regions and vintages, but are reasonably consistent within a particular style, region and vintage. Tannins contribute to the unique character of a particular region's wine heroes, such as the internationally acclaimed high-tannin red wines of the Limestone Coast. If winemakers could quickly and reliably measure tannin levels during winemaking, they could modify their practices to bring out the best regional characteristics or create premium wines with tannin profiles preferred by their target markets.

If grapegrowers knew how tannins in their grapes varied during the growing season and under different management practices, they could manage their vines to optimise tannin levels for particular wine styles.

Unlike other important quality characteristics such as pH, acidity, colour and sugar, however, tannins are not easy for winemakers and grape growers to measure. This is partly because tannins are a complex group of chemical compounds rather than a single compound.

A further problem with using tannins as a measure of grape quality, according to Mark Downey from the Victorian Department of Primary Industries, is that: "we don't yet have a comprehensive picture of the types and levels of tannins in different grape varieties - or how these might be affected by vineyard location, season or management practices".

Mark Downey and Paul Smith are independently working to fill in some of the gaps in our knowledge of tannin levels in Australian wines and wine grapes.



Mark Downey in the lab.

Mark and his colleagues recently compared three analytical techniques for measuring tannin levels in the skins of 38 Australian wine and table grapes: methyl cellulose precipitation, protein precipitation, and high-performance liquid chromatography phloroglucinolysis. The three techniques gave different answers, possibly because they measure different tannin components, but the results collectively showed that tannin levels vary significantly between cultivars. These investigations are ongoing.

So far Paul and his AWRI colleagues have surveyed more than 3500 red wines and 600 grape extracts from around Australia, using a simple, robust, high-throughput method they have developed for measuring tannin levels. Their methyl cellulose precipitate (MCP) tannin assay uses readily-available reagents and an ultraviolet-visible light spectrophotometer, which many wineries already have.

"We have also demonstrated that some consumers prefer quite defined tannin levels," Paul says. "The next step will be to determine which types of consumers prefer which tannin levels."

For more information, contact paul.smith@awri.com.au or mark.downey@dpi.vic.gov.au

Further reading: Smith, P.A., Mercurio, M., Damberg, R.G., Francis, I.L. and Herderich, M.J. (2007) Red grape and wine quality; the roles and relevance of tannin. Australian and New Zealand Wine Industry Journal, vol. 22, issue 3, 47-52.

Seddon, T.J. and Downey, M.O. (2008) Comparison of tannin analytical methods, Australian Journal of Grape and Wine Research, 14, 54-61.

Regional radar

Hot topics in a cool climate

The unusually dry ongoing conditions are behind many of the issues affecting Limestone Coast grapegrowers, according to Dan Newson from the region's wine industry technical committee.

Drought conditions increase the risk of damaging frosts in spring. The need to use irrigation water more efficiently and effectively is a common concern prompted by the potential risks associated with falling water tables and future rises in salinity.

Operating in a cool climate region that produces big tannins, grapegrowers would like to better understand how to measure and manipulate tannins.

Drier-than-normal conditions have increased the incidence of Eutypa and bunch stem necrosis in vines. Many growers are keen to benefit from new technologies such as precision viticulture. Limited availability of labour is encouraging adoption of practices such as mechanical bunch thinning and de-suckering.

Dan Newson can be contacted at [Yalumba Wines: dnewson@yalumba.com](mailto:dnewson@yalumba.com)



People in research – Kerry DeGaris:

Born and bred on the Limestone Coast



Kerry DeGaris is a viticulturist and grower liaison officer at Stonehaven on the Limestone Coast in south-eastern South Australia. Part of the world's largest wine company, Constellation Brands, Stonehaven retains its individual identity with its own wine styles and labels, and some "very focussed people".

Kerry appreciates the benefits of working in a corporate environment, such as the level of training support and the range of research projects. She also enjoys being able to experience a diversity of viticultural areas and management styles in her liaison work with growers.

"I was born and bred on the Limestone Coast, so I already knew many of the growers socially. Now I'm getting to know them professionally as well.

"Many growers in this area began growing winegrapes in the last wine industry boom 10 years ago. Limestone Coast growers are attuned to the farming cycle and hungry for information about a whole range of topics such as grapevine diseases, irrigation scheduling and how to improve productivity."

Kerry grew up on a cattle and sheep farm, but her broad agricultural science background reflects her interest in crop protection and horticulture. She says she got into the wine industry by being in the right place at the right time.

She joined Stonehaven in 2004, returning to the Limestone Coast to be near her family, and immediately took on the role of chair of the

technical subcommittee of the Limestone Coast Wine Industry Council. She also found time to finish her Masters degree, which was awarded in 2006. She says completing the degree was her "proudest moment".

"What motivates me? I want to continually update my knowledge and keep up with all the information provided. It's important to work out which information is most relevant - I do this for myself and I do it for our growers.

"My goal is to continue helping the wine industry in some research way, passing knowledge on to other viticulturists, especially encouraging women in this career path. There are a lot more women now in the wine industry, making a valuable contribution."

Kerry's love of research is obvious to everyone she meets. Her PhD project focuses on salinity in Shiraz grapes at Padthaway, and the potential to use partial rootzone drying to reduce salt uptake. The primary motivation is water usage, but salinity is an important secondary motivation arising from falling bore water levels and impending changes in water allocation plans.

"I'm looking at how ions such as sodium and chloride (from salt), and magnesium, and hormones such as abscisic acid actually move through grapevines, and how vine leaves and roots send messages to each other."

Abscisic acid is a plant hormone (chemical messenger) that plays a role in reducing water loss through leaves when water is in short supply - and limiting salt uptake. Partial rootzone drying raises abscisic acid levels.

Kerry will combine vineyard trials with laboratory measurements to find out how partial rootzone drying actually stimulates hormones - and whether there is a carry-over effect from one season to the next.

Her work could potentially help hundreds of growers across Australia and around the world.

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These final reports are now available on the GWRDC website, www.gwrdc.com.au

Project No	Project Title
CRV 98/2AWRNS	At-vineyard grape quality measurement: rapid, non-destructive measures of grape quality for potential "at vineyard" applications (formerly rapid instrumental techniques/formerly rapid instrumental methods) (CRV 1.4.1)
DPI 06/06	Enhancing the uptake of wine industry innovations through the development of targeted extension programs
GWR 08/01	Development of a Greenhouse Calculator Industry Training Package
GWT 07/05	Travel to the 6th International Workshop for Grapevine Trunk Diseases and 9th International Congress of Plant Pathology, Italy - Mark Sosnowski
RD 04/01-1	Increasing irrigation water and controlling vigour by collecting runoff from the mid row of vineyards
RT 05/01-4	Mothballing the vineyard
RT 07/02-3	CropWatch in The Adelaide Hills Wine Region
UA 05/03	Consequences of extended maceration protocols in red winemaking

