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COOPERATIVE
RESEARCH CENTRE
for
VITICULTURE

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Cooperative Research Centre for Viticulture

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The National Wine and Grape Industry Centre
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The Australian Wine Research Institute
CSIRO
Department of Primary Industries, Victoria
Primary Industries & Resources, SA
The Australian Dried Fruits Association Inc.
Winemakers' Federation of Australia Inc.
Grape and Wine Research and Development Corporation
Horticulture Australia Limited
Wine Grape Growers' Australia

Newsletter

CRCV supports environmental management at Langhorne Creek

Langhorne Creek is one of the most environmentally progressive viticulture regions in Australia, with more than 60% of its vineyards involved in environmental risk management.

Through its regional extension program, the CRCV is helping Langhorne Creek maintain and grow its environmental management system (EMS) program.

The aim of the EMS program is to develop a system to introduce environmental stewardship into irrigated viticulture with links to catchment goals.

EMS Viticare Regional Officer from Langhorne Creek, Rick Trezona, said the CRCV funding had allowed the region to build on its established program by introducing environmental standards for viticulture in the region.

"The CRCV partnership has enabled us to develop Environmental Best Management Practices (BMPs) in consultation with local natural resource management groups," Mr Trezona said.

"Local growers and producers have been able to continue their work under the EMS program and the region has been able to keep in touch with environmental developments in the industry, particularly the Winemaker's Federation of Australia's Australian Wine Industry Stewardship (AWIS) program."

Mr Trezona said the program had provided participants with expertise in environmental risk management that they otherwise would not have been exposed to.

"We want a system of environmental risk management where issues identified in the vineyard are addressed using best management practices," Mr Trezona said.



Guy Adams of Metala Vineyards, Sarah Keough of Kirribilly's Birchmores Vineyard and Rick Trezona at the Angas River Catchment Group's plant nursery.

"Individually, growers can give evidence of their environmental management and plan for the sustainability of their properties.

"Many growers are enjoying the opportunity to discuss and learn about common issues in the district."

According to Mr Trezona, the program has helped grape growers introduce environmental management systems into their operations, by providing guidance and encouragement.

"We have also been able to develop a community driven biodiversity plan for the region with which to link the biodiversity BMP," he said.

An example of how the program is working can be seen in the risk management processes being developed that are addressing biodiversity issues of Redgum swamps in the region.

"These Redgum swamps are watered naturally from floods of the Angas and Bremer Rivers. They may be adversely affected by the reduced water flows in the two rivers and by irrigation practices," Mr Trezona said.

"We are currently working on a risk management plan to address this so that irrigators are aware of the issue and tailor their irrigation practices accordingly.

"I believe that good environmental practices will ensure the sustainability of this exceptional region."

CEO's Report

CEO column



Jim Hardie

Arrangements are now formally in place to extend the Cooperative Research Centre until 30 June 2007. During this period the CRCV will implement its Wind Up Plan. Under the Plan the Head Office staff will remain until 31 December this year with the outstanding matters to be completed by a Wind Up Agent under the supervision of the CRCV Board.

The Plan allows for the completion of a number of projects that have been delayed for various reasons including student and staff appointments. It will also allow the CRCV to complete a range of communication and commercialisation activities associated with both supplementary and core projects to maximise delivery of research outputs to end-users.

The coming months are a period to reflect on the achievements of the CRCV's two terms and the models, programs, systems and philosophies it has put in place and how we can continue to apply them to pave the way forward for viticultural research and development in Australia.

During the development of the plan, much effort was made by our Program Managers and industry reference groups to identify the expertise and experience in key areas of research developed within the CRCV and those aspects that should be maintained for the benefit of the industry.

What do we need to do to maintain our competitive advantage? How can we maintain a collaborative approach to research and the practicalities of grape growing and winemaking? How can we continue to improve grape quality to help our grape growers remain viable?

These are all questions that have been exercising the minds of industry leaders. The Winemakers' Federation of Australia (WFA) and Wine Grape Growers' Australia (WGGA) are leading discussions on how the industry can create an enduring industry-funded successor to facilitate collaboration in research and development, education and extension based broadly on the CRC model.

In this time of reflection and progression, we can draw on the expertise and experience of many industry leaders who have played a significant role in the success of the CRCV and we have dedicated a new series in this newsletter to their insights, called *Retrospective*.

You can read the thoughts and comments of key contributors to the CRCV such as **Graeme Wellman**, a former industry reference group member and **Peter Hayes**, a former Director of the CRCV, on pages four and five of this edition and the comments of other industry leaders in the final two editions of the newsletter (September/October and November/December).

Jim Hardie
CEO

Newsletter

The Cooperative Research Centre for Viticulture Newsletter is produced bi-monthly. All contributions are welcome, especially reports from conferences, seminars and international trips.

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Vis-NIR developments bring small wineries a step closer to fast and affordable colour measurement

Road testers of the exciting new bench-top Visible Near Infrared Spectroscopy (Vis-NIR) device have reported time and cost savings as major benefits of the breakthrough device, developed by the CRCV and Integrated Spectronics.

Until recently, Vis-NIR technology, used for fast measurement of red grape colour and other quality parameters, was only available to companies with the budget, expertise, staff and laboratory set-up required to use device.

Now, it appears the expensive and time-consuming days of traditional wet-chemistry methods for measuring colour and quality may soon be over for small to medium wineries.

After several years of collaboration, research and development, the CRCV with Sydney-based Integrated Spectronics developed a bench-top version of the Vis-NIR device, which is easy to use, requires minimal sample preparation, and measures colour, pH and sugar levels.

With the prototype completed earlier this year, several wine companies recently road tested the device and have shared their feedback about the promising product.

Sharni Hill, Laboratory Manager for McWilliams Wines, said her organisation had tried a number of different instruments for measuring colour in red grapes and found the CRCV and Integrated Spectronics beta bench-top product to be a fast way to measure colour.

“We trialled the instrument and found the speed in which the unit produces results is impressive – it only took one minute to get a reading once the samples were prepared,” Sharni said.

“Once the calibrations are perfected and it’s ready to market, we feel the instrument could contribute cost savings and cut down on the number of staff required to analyse samples. It could also contribute to cost savings due to the reduction of chemicals required to perform each measurement.

“We anticipate the instrument will improve over time with additional data and calibration. It will be impressive to see the finished instrument, where we can press a button and get results in an instant.

“We also appreciate the fact that the device is so compact. Since we only have a small lab, we found the unit ideal because it’s portable and is about the size of a handbag. That’s perfect for sitting on top of a bench.”

Time and cost savings are the major benefits that **Michael Harding**, Laboratory Manager for Angove’s Pty Ltd, experienced while testing the beta unit.

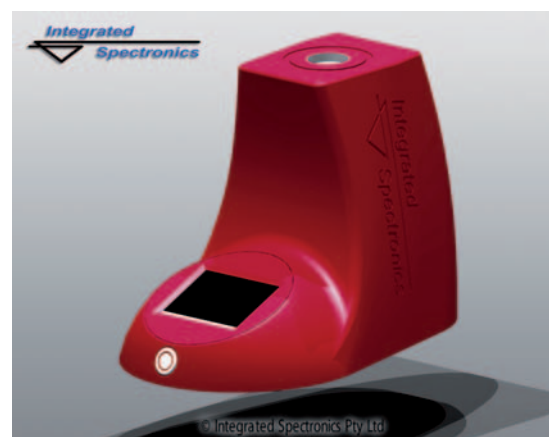
“Our chief winemaker heard about the device, and brought it to my attention. We contacted the CRCV, as we were keen to trial a beta unit. We were eager to see how the colour assay could be streamlined by utilising such a unit,” Michael said.

“We tested it for a week, and found that the device eliminates many of the complexities of wet chemistry.”

Michael found he was able to reduce colour measurement time from four or five hours to thirty minutes, including sample preparation.

“The benefit of time efficiency in the lab is obvious,” Michael said.

“Cost efficiencies are also a definite plus. With more time available it would free us up to work on other vintage analysis projects.



“We think this would help out wineries of any size that are interested in colour and quality analysis – not just small ones.”

Henry Perez, Laboratory Manager for DeBortoli Wines, heard about the beta test through the Wine Grapes Marketing Board, asked for a unit, and tested the device over a period of two weeks.

Like the other testers, DeBortoli Wines uses wet-chemistry methods to test its colour and quality parameters. “We are looking into purchasing the product once the calibration feature is ready to market, because we believe we would see a quick return on investment,” said Henry.

“The improvement of cutting down on staff time required to take measurements is a big consideration, and would enable us to concentrate on other things in the lab.

“We’re looking forward to seeing the finished product.”

For more information about the release of the bench top Vis-NIR device, contact CRCV Technical Applications Manager **Ian Atkinson** on (08) 8303 9304.

Retrospective

As the CRCV nears the end of its second term and the industry looks to a successor to maintain grape and wine research and development in Australia, it is time to draw on the expertise and experience of many industry leaders who have played a significant role in the success of the CRCV. This new series, *Retrospective*, plays tribute to key contributors to the CRCV. You can read their comments and insights about the industry in an open Q&A session here, and in the final two editions of the newsletter (September/October and November/December).

Peter Hayes

1. What is your full name and current position?

Peter Hayes, I am currently operating as an independent wine industry strategist and advisor, having previously occupied positions as:

- National Viticulturist and Industry Relations Manager, Southcorp Wines then Fosters Wine Estates; 2003-2005;
- National Viticulturist and Grower Relations Manager, Southcorp Wines; 2001-2002;
- Director of Viticulture, Rosemount Estates; 1999-2001;
- Executive Director, GWRDC; 1992-1999; and
- State Viticulturist Agriculture Victoria; 1986-1991.

2. What was your role with the CRCV and what are the dates you commenced and completed your position?

I was involved with each of the CRCV (CRCV 1 and 2) bid committees and have been at times a CRCV board member or alternate, an industry reference committee member for a number of the programs, and I acted as CRCV 1 Director for a period of eight or nine months prior to the appointment of Jim Hardie.

3. How would you describe the role the CRCV has played in improving viticulture in Australia during its 12-year term?

It has been a focusing point for some of the major emerging issues in R&D including:

- Defining and measuring compositional specifications (*quality attributes*).
- Environmental sustainability and development of sustainability diagnostics and Best Management Practice (BMP) guidelines.
- Salinity impacts and management, in an integrated, optimised water supply context.
- Crop yield assessment and management.
- A coordinated approach to vineyard environment and management influences on productivity and quality attributes (flavour compounds) with a clear interface to oenology and wine chemistry.
- The need for rational research and evaluation of precision/zonal viticulture and its applications.
- Crop yield assessment.

It has been an agent for national delivery of information and professional development:

- Delivery of professional development training, notably “Research to Practice”
- Skills development in/of trainers for this program
- Engagement of industry in program development and review
- Regional program delivery e.g. “On-farm Trials”
- Assessment of gaps in viticulture knowledge and generation of research responses, guided by the development of “AusVit™” and “VineLOGIC™”

It has generated R&D capacity:

- Graduate students most notably;
- Initial phases in broadening to a “Systems Approach” for national industry benefit.

4. Given that a key goal of the CRCV is to improve grape quality through innovative viticultural practices, how do you rate its success?

I rate the approach quite high, and would give an 8/10 if asked – a high silver or gold.

5. What do you think are the three most important practical outcomes the CRCV has achieved for the Australian grape and wine industry?

1. Significantly better professionalism across the industry’s operators and managers.
2. Ability to better predict and manage crop yields and style/quality attributes, regionally and nationally.
3. Tools to deliver better environmental outcomes whilst managing with greater NRM/ environmental pressures.

6. How do you see the way forward for Australian viticultural research and development?

- Continued effort to define and deliver on nationally relevant fundamental and strategic initiatives to build a regenerating base for innovation and adaptation, combined with;
- An effective regional focus to deliver evaluation and adaptation and this needs to be supported by;
- Appropriate regional adoption support facilitated by well trained and supported industry development staff.

7. Other comments?

We should continue to build, refine and support the highly interactive researcher-industry model as pioneered by the CRC; this may (or should) evolve into a more developed form, but the fundamentals of its success should not be lost or we will revert to a highly fragmented and less focused, less effective delivery model.

Graeme Wellman

1. What is your full name and current position?

Graeme Wellman,
Viticultural Consultant.

2. What was your role with the CRCV and what are the dates you commenced and completed your position?

I have been a member of the Industry Reference Group for Program 2 since the first CRC was established.

3. How would you describe the role the CRCV has played in improving viticulture in Australia during its 12-year term?

The CRCV has seen a concentration of research outcomes of benefit to the practical viticulturist. It has underpinned these practical aspects with sound, innovative and world leading research.

4. Given that a key goal of the CRCV is to improve grape quality through innovative viticultural practices, how do you rate its success?

The CRCV has been extremely successful in identifying aspects of grape quality that have now been adopted as key indicators. Other aspects of quality will emerge over time as R&D outcomes are adopted on a larger scale.

5. What do you think are the three most important practical outcomes the CRCV has achieved for the Australian grape and wine industry?

1. Increased adoption of more scientific based technology.
2. Increase in the human, scientific resource through the comprehensive PhD program.
3. Maintaining Australia's position of innovative market leaders in viticulture and winemaking.

6. How do you see the way forward for Australian viticultural research and development?

With the current economic environment and the industry's general lack of support for R&D funding, the direction of R&D without the CRCV structure may stall. Initiatives need to continue to develop the work done over the last 12 years and especially from the last three years of programs.

Perfecting the blend: Vines, wines and a CRC



Back from left: **Jason Cappello** (Technical Officer Riverina WGMB), **Richard McGeachy** (Landmark Consultant McLaren Vale). Front from left: **Julie Sippo** (Victorian DPI), **Emma Grabham** (IDO WGMB Riverina), **Liz McGuire** (IDO MVWG Sunraysia).

Getting the right balance between academic research and the practicalities of everyday grape growing and winemaking has been a long-term aim of the CRCV, and an area where it has arguably been the most innovative.

In the words of Emma Grabham, Industry Development Officer from the Riverina Wine Grapes Marketing Board, it is all about ‘perfecting the blend’.

During her presentation at the CRC Association’s Annual Conference in Brisbane in May, Emma examined the benefits delivered by a CRC from an end user’s perspective.

Sharing her experience of working on the Viticare extension program with the CRCV in the Riverina wine region in New South Wales, Emma said grape growers would have been significantly out of touch without the CRCV’s regional approach.

“In the beginning the interaction between grape growers and the CRC was predominantly research-based,” Emma said.

“Prior to 2001, the scope in the Riverina was limited to three research projects, with no practical transfer programs in place.

“Gradually, the research started to become more regionally relevant and we saw a subtle shift in the way traditional research and development was conducted.

“Then in 2003 the CRCV made a break through by introducing programs such as the Research to Practice Hands On workshops, Viticare On Farm Trials workshops and the Viticare Extension program which provides funding for regionally specific projects.”

Emma told delegates at the conference that these new regionally focused activities were based on what the region wanted and needed, which was of great benefit to local growers.

“The real shift was in transferring research to growers by working collaboratively at a local level,” Emma said.

“I think the key has been in transferring technical information into practical, hands on workshops where growers have an opportunity to learn from an expert right there in the vineyard. They can then apply those practical steps to their own vineyards.”

Emma believes that without this new approach to research adoption, grape growers would have been less informed.

“Considering the CRCV is approaching completion, it is fantastic to see cooperation between researchers, grape growers and winemakers alive and well,” Emma said.

“While the model of hands on research and technology transfer established by the CRCV will remain, I don’t believe the industry will realise the loss of the CRCV until it’s gone,” Emma said.

CRCV Visiting Scholar Program benefits grape berry research

On a recent visit to the University of California's Davis Campus, CRCV PhD student **Joanne Tilbrook** learnt the most effective methods of using a cell pressure probe, while passing on a few techniques of her own.

Joanne, a University of Adelaide student, is studying Shiraz berry weight loss at sub-optimal maturity.

She utilised the CRCV's Visiting Scholar Program to visit the laboratories of cell pressure probe experts **Professor Ken Shackel** and **Professor Mark Matthews** at Davis from August to September 2005.

Joanne had two main aims for her visit. The first was to learn the techniques of using a cell pressure probe to measure turgidity within individual grape berry cells and the flux of water across cell membranes.

"This type of work is particularly difficult on cells within grape berries and the Shackel laboratory in conjunction with the laboratory of Mark Matthews are developing methods to do this successfully," Joanne said.

Spending most of her time in the Shackel laboratory, Joanne learned how to prepare materials and equipment associated with the use of a cell pressure probe on grape berry cells.

According to Joanne, one of the issues with using a cell pressure probe on grape berries is that the tip of the glass capillary inserted into the grape cell gets blocked.

"The laboratories in California have solved some of the many problems associated with using the probe to experiment on grapes," Joanne said.

"Ken Shackel uses an unusual method of tip bevelling to reduce the incidence of blockage.

"The tip is inserted into a stream of polishing compound suspended in water. The tip is shaped and opened, and the rate of airflow is measured through the capillary to ensure consistency in opening size.

"I also learned to use an electronic micro-manipulator which is a technique that helps reproduce experiments."

Joanne's second aim was to demonstrate the techniques she has developed in her PhD to measure hydraulic properties of grape berries using a modified root pressure probe.

While in California, she presented a seminar of published and unpublished data to a joint meeting of laboratories.

Joanne used the visit as an opportunity to observe and learn from other researchers and said the most rewarding part of the trip was the exchange of ideas.

"The exchange of ideas and techniques with people from many countries and scientific backgrounds has resulted in new methods being trialled and developed which I believe will show benefits in the future," Joanne said.

"A visit to wineries and vineyards in the Sonoma Valley area made an interesting comparison with those I visited as part of the CRCV student Professional Development Program earlier in my PhD."

Joanne said the trip also provided her with the opportunity to meet and establish contacts with several leading, published, viticultural researchers.

In addition to Professor Ken Shackel and Professor Mark Matthews Joanne met **Post Doctoral Scholar Hiroshi Wada**, who is developing a cell pressure probe method that will reduce variability in the operation of the probe.



Joanne Tilbrook using a cell pressure probe.

She also observed **Post Doctoral Scholar Mark Krasnow** who is investigating a problem found in Cabernet Sauvignon berries in California where berries fail to accumulate sugars post veraison.

Post Doctoral Scholar David Chatelet's work on grape berry xylem in the Matthew Laboratory was also of interest.

"Dr Chatelet's results support work from the Shackel and Matthews laboratories demonstrating, contrary to long accepted views, that there are no breakages in functioning xylem vessels within the post veraison berry," Joanne said.

Joanne believes the techniques she learned at the University of California will benefit her research. She applied some of the techniques over the summer of 2005-2006 and data is currently being analysed.

"I would like to thank the CRCV for the opportunity to work in another laboratory focussed on viticultural research that is likely to complement and expand my work and will hopefully have an impact on the whole industry in some way."

Brief News

New pest and disease Vitinotes available

The CRCV has published five new, pest and disease Vitinotes providing growers with information about sampling, monitoring and management of nematodes and light brown apple moth.

The five Vitinotes are available on the Viticare Extension section of the CRCV website and include:

- A sampling method for nematode monitoring
- Nematodes in Australian Vineyard Soils
- Monitoring for Light Brown Apple Moth eggs and caterpillars
- Developing a basic cost effective monitoring program for Light Brown Apple Moth and
- Options for effective management of Light Brown Apple Moth.

To view the Vitinotes, visit:

<http://www.crcv.com.au/viticare/vitinotes/>

On Farm Trials – practical guides for growers available

In an effort to impart the knowledge gained through the CRCV's extremely successful On Farm Trials project, the practical steps involved with conducting an On Farm Trial have been reproduced in a series of three manuals that can be downloaded from the CRCV website.

The series includes information on how to establish an On Farm Trial, how to trial soil improvements, vine nutrition, pest and disease management, canopy management, and how to measure aspects such as fruit quality, soil profiling and vine health.

To download the manuals visit www.crcv.com.au/viticare

Diary Dates

Thursday 12 October 2006

Some Like it Hot – Riverland technical conference

The Riverland's principal wine industry technical forum, **Some Like it Hot**, will be held on Thursday 12 October at the Chaffey Theatre in Renmark. Attendance at Some Like it Hot 2006 is critical for wine grape growers, winemakers, industry scientists, consultants and business people. Never before has there been a more important time for Australia's largest wine region to get together and discuss issues pertinent to warm climate viticulture, winemaking, wine business and the outlook for the future. The seminar organising committee is currently securing speakers for the event, if you have a suggestion for a topic or speaker you would like to put forward for consideration please contact the Seminar Coordinator – **Emily White** on phone (08) 8582 2952 or email emily.white@riverlandwine.org.au.

Winter 2006

Mediterranean International Wine Challenge Tel Aviv, Israel

TerraVino is an exciting new wine contest that will be held in Israel this coming winter. As a new part of the World Association Wine & Spirits Writers & Journalists (WAWSWJs) annual ranking, it is an opportunity for participating wineries to gain exposure in the international wine market. The contest will take place at the Israel Trade Fairs & Convention Centre, as part of the 1st international wine exhibition in Israel, IsraWinExpo 2006. Today Israel's production capabilities now top 35 million bottles annually, with revenues of \$180 million. Its famous big labels – Carmel Winery, Barkan Winery and the Golan Heights Winery – have been joined by 150 medium to small boutique wineries producing some very exciting wines.

For more information visit <http://www.israwinexpo.com>

Your CRCV

The Cooperative Research Centre for Viticulture is a joint venture between Australia's viticulture industry and leading research and education organisations.



It promotes cooperative scientific research to accelerate quality viticultural management from vine to palate.

Australian grapegrowers and winemakers are key stakeholders in the CRCV, contributing levies matched by the Australian Government and invested by the Grape and Wine Research and Development Corporation in the Centre.

Newsletter Disclaimer

While every effort has been made to ensure the accuracy of the information in this newsletter, the Cooperative Research Centre for Viticulture cannot accept responsibility for the consequences of the use of this information. The document provides you with an explanation of research in progress and is a guide only.