

Volume 4  
Winter 2000



COOPERATIVE  
RESEARCH CENTRE  
for  
VITICULTURE

# Newsletter

## Inside

- CEO's Report **2**
- Education and Training **3**
- PhD Students **4 - 5**
- Research to Practice **6**
- Tannin research **6**
- Workshop dates **7**
- Viticare **8**

### Cooperative Research Centre for Viticulture

Adelaide University  
The National Wine and Grape Industry Centre  
(Charles Sturt University, NSW Agriculture)  
The Australian Wine Research Institute  
CSIRO  
Department of Natural Resources  
and Environment, Victoria  
Primary Industries & Resources SA  
The Australian Dried Fruits Association Inc.  
Winemakers' Federation of Australia Inc.  
Winegrape Growers' Council of Australia Inc.  
Grape and Wine Research  
and Development Corporation  
The Dried Fruits Research and  
Development Council  
(Wine Industry National Education  
& Training Advisory Council Inc.)  
WINETAC Inc.



A view of the VineLOGIC Model Overview



Rob Walker



Karl Sommer

## Grapevine simulation package on track

Evaluation of a prototype grapevine simulation software package being developed by the CRCV has revealed strong support from potential users.

The software package, VineLOGIC, simulates grapevine growth, water use and potential yield and was evaluated in a series of six focus groups held in Mildura and Adelaide recently.

The groups included growers and representatives from wineries, extension and consulting services and the education sector.

VineLOGIC was commenced six years ago by CSIRO Plant Industry and Agriculture Victoria researchers, led by **Dr Karl Sommer**, and funded by the Grape and Wine Research and Development Corporation. The project (2.1.3) is now being completed by the CRCV which aims to develop the software to become a key decision support tool to improve the profitability and sustainability of vineyards.

CRCV Program 2 Manager **Dr Rob Walker** said one of the main outcomes of the focus groups was the potential seen in VineLOGIC to be used as an educational tool in universities and TAFE.

As a result of that feedback an educational version of the package is likely to be developed, trialled and then refined for subsequent release.

The focus groups, facilitated by the CRCV's Viticare Coordinator **Noel Ainsworth**, were useful for revealing some of the deficiencies in the package so researchers can fine tune it to meet the specific needs of target groups.

"People said it could be improved by including a wider range of irrigation options," said Rob.

"It needs to better cater for those grapegrowers who have limits on the amount of water they have available to them and need to decide what period during the season they might most effectively apply the limited water they have."

Information about rootstock influences was also identified as a need by the focus groups.

The corporate sector saw the inclusion of grape quality attributes, particularly sugar concentration, as a high priority.

## CEO's Report

On reading this newsletter, I think you will find evidence that cooperation among CRCV participants and the broader industry is stronger than ever.

This is certainly encouraging given that one of the Centre's key objectives over the next six years is to entrench the culture of cooperation in research and education leading to an enduring industry-funded facility. The matter of future funding of a facility and development of appropriate strategies is one that will be exercising the minds of the Executive Management Group in coming months.

There are many examples of cooperation and support for CRCV programs in this issue of the newsletter. The focus groups that met to provide the VineLOGIC

project team with their impressions of the prototype software and advice on improvements and potential applications is an excellent example. A total of 57 potential users of the software participated in day-long sessions to provide this guidance.

**Peter Mansfield** similarly encountered a great deal of interest and support in his series of meetings to identify the education and training needs of the industry. More than 200 people contributed their thoughts and ideas to this study.

At a regional level, **Noel Ainsworth** also reports a great deal of interest and support from the first Viticare groups and **David Shearer** has had a positive response to establishing on-farm trials.

At the state level, cooperation in the delivery of CRCV outcomes through its Research to Practice™ program took another significant step forward with the sub-license agreement with Agriculture WA to deliver the program in that state.

Internationally, the collaboration between CRCV and French researchers at the Institute Supérieur de la Vigne et du Vin in Montpellier is a significant initiative. The arrangement allows CRCV researcher **Dr Stéphane Vidal** to spend time working at the French laboratory and the AWRI. The arrangement will strengthen ties between the research groups and is expected to greatly enhance the chances of success with the challenging goal of defining the contribution of specific tannin classes to wine quality.

All this signals a great willingness to cooperate and furthermore that the CRCV has its priorities on track. I doubt whether the willingness to contribute so freely in time, technical expertise and advice would be as forthcoming if the CRCV's objectives were not of such vital importance to the further growth and development of the industry.

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.

**Editorial:** Anne Cope  
Peter Fuller & Associates,  
PMB 1, GLEN OSMOND 5064  
Phone: (08) 8303 7337  
Fax: (08) 8303 7136  
Email: anne.cope@adelaide.edu.au

**Published by:** The Cooperative Research Centre for Viticulture, Plant Research Centre, Hartley Grove, URRBRAE SA  
Phone: (08) 8303 9405  
Fax: (08) 8303 9449

**Graphic design by:** de Masi Jones design  
263 Waymouth Street ADELAIDE SA  
Phone: (08) 8212 9065  
Fax: (08) 8212 9064

### Grapevine simulation package on track

Rob said extension, consulting and corporate services participants identified broadly similar needs which has raised the suggestion of developing a professional package for this sector.

He said the project group had suspected that needs would be different across a range of sectors and the focus groups had confirmed that. The result may be three tailored versions of the package to cater for students, professional advisers and growers.

The recommendations of the focus groups will be reported to the GWRDC to guide further development of the software.

"Our challenge is to come up with formats that are useful to a broad range of users," said Rob.

"We were really pleased that broadly there was acceptance that VineLOGIC had potential and that people said they could use it provided it met the perceived deficiencies they raised."

## CRCV completes Australia - wide review of education & training



*Peter Mansfield*

Increased cooperation and greater use of technology are needed to improve training and education within the wine industry, according to a report being prepared by the CRCV.

The CRCV report is based on the views of more than 200 people from 55 industry organisations across 23 different regions.

Project leader **Peter Mansfield** said few regionally-specific issues were revealed which meant recommendations for improvements to education and training would be made on a broad scale.

"It also means there will be no five-minute solutions," Peter said.

The report was part of *Project 4.3* Wine and grape industry personnel, education, training and assessment needs analysis, aimed at identifying deficiencies in the availability or quality of training.

Conducted by the Wine Industry National Education and Training Advisory Council (WINETAC) participants in the CRCV, it also addresses requirements for certificate level qualifications; the geographical spread of training facilities; and whether current technologies and research project findings are efficiently delivered to industry through the education and training sector.

Peter said the willingness of training, education and associated industry providers to be a part of the study was a good sign for future cooperation and industry advancement.

"We found that despite time constraints, people wanted to be involved and they are passionate about their industry and making it better," he said.

He said a key finding was the distinct difference between attitudes of small and large enterprises towards training and education.

Large corporations have embraced training and education concepts, implemented training programs and become involved in research and development.

But smaller enterprises, because of a lack of awareness of training opportunities and limited resources, need to be encouraged to put a greater emphasis on education and training, Peter said.

"It was very clear in our research that where collaboration had occurred between grape and wine businesses and providers of training and education, business was more advanced and far better off," he said.

"There is a clear need for various stakeholders to work together, for greater interaction and more cooperation in the industry."

Those interviewed, especially the smaller companies, favoured cooperation and were keen to develop a coordinated approach to training and education needs.

The study also revealed that while the use of electronic communication, the internet and email, in the wine industry, on the whole, was still in its infancy people recommended the development of a centralised web site to provide information on courses and qualifications as well as advice and examples of training delivery options.

"Through our research we have updated our database of information containing all current educational and training institutions available and this will serve as a valuable resource," Peter said.

The final report will be available at the end of September and will be used by the CRCV and peak industry bodies in decision making processes.

For more information please contact **Peter Mansfield** on (08) 8373 7090.

# *New talent to underpin technological innovation*



*David Lee*



*Rachel Ashley*



*Karen Herbert*



*Lexie McClymont*



*Keren Bindon*



*Carolyn Puglisi*

## **Rachel Ashley**

Rachel is from Adelaide and has a Bachelor of Science in Botany and Honours in Soil Science from Adelaide University. She completed her Honours research in the Barossa Valley, studying the movement of soil-water through macropores in duplex soils. After a six-month backpacking adventure in Europe and the UK, she started her CRCV PhD studentship in May this year.

Rachel is working on 'Improving sustainability and wine grape quality in warm-region irrigated vineyards' (*Program 2, Sub-Project 2.3.2*). It involves developing irrigation and canopy management strategies for increasing wine grape quality and

reducing chemical use for controlling Powdery Mildew and Botrytis bunch rot in warm irrigated vineyards.

The project is supervised by **Peter Clingeffer** and involves CSIRO Plant Industry, DNRE and Adelaide University. Rachel is based at the CSIRO Plant Industry Horticulture Unit, Merebin, Victoria and her field trial is at Deakin Estate, Wingara Wine Group, Nangiloc, Victoria.

## **Lexie McClymont**

Lexie grew up on a property west of Longreach, Queensland, and has a Bachelor of Natural Resources (Honours)/Bachelor of Environmental Engineering (Honours) from the University of New England (Armidale).

Her Honours project examined the possible environmental impacts of growing cotton in northern Queensland and made recommendations regarding best management practices for such developments.

During the summer, Lexie worked as a cotton consultant in Moree.

Her CRCV project is 'Optimising root volume through soil amelioration' (*Program 2, Sub-Project 2.3.4*). The main objective is to identify the optimum soil volume for root growth and partial rootzone drying that will sustain consistent yields, quality fruit and maximum water use efficiency. Her supervisor is **Ian Goodwin**.

Lexie is based at the Department of Natural Resources and Environment, Tatura, and will also be spending time at La Trobe University.

### Keren Bindon

Keren is from Durban in South Africa and has a Masters in Plant Biotechnology from Stellenbosch University in South Africa.

After completing her Masters, she has made the long journey to South Australia to start her CRCV PhD studentship.

Keren is working on 'Optimising wine quality with partial rootzone drying (PRD)' (*Project 2, Sub-Project 2.1.2*). The project is supervised by **Peter Dry** and **Brian Loveys** and its proposed experiments will determine whether bunch exposure alone, or biochemical changes induced by PRD are driving expressions of fruit composition and wine quality. An expected outcome is a better understanding of the effect of PRD on long-term productivity and fruit specification under conditions of limited water availability.



### David Lee

David is from Melbourne and has a Bachelor of Applied Science (Honours) majoring in chemistry from RMIT University.

His research project at RMIT was investigating the properties of chitosan (a polysaccharide) and polyHEMA (a hydrogel) laminates. The project investigated the effectiveness of certain crosslinking agents and the permeability of the laminates.

He completed his Honours in 1998 and was keen to take up a CRCV PhD studentship for the opportunity to gain work experience in a vineyard.

David is working on 'Wine grape tannin and colour specification' (*Program 1, Sub-Project 1.2*). He is based at the Waite Campus of Adelaide University and supervised by **Graham Jones**.

His project involves researching winegrape tannin and colour specification, in particular investigating oligomeric pigments in red wines. By understanding the structures, colour, taste effects and possible reactions within the wine, it is hoped the quality of red wines will improve.

### Carolyn Puglisi

Carolyn, originally from New South Wales, has a Bachelor of Science in Chemistry at Flinders University and an Honours degree in Organic Chemistry from Adelaide University.

After finishing her Honours degree, Carolyn was offered a summer vacation scholarship at the General Repatriation Hospital.

Carolyn is working on 'Vicultural control of flavour compounds in wine' (*Program 1, Sub-Project 1.3*).

The project is based on the identification and synthesis of flavour compounds in wine. Identification of flavour compounds

and an understanding of how they are formed may allow manipulation of such components in order to improve the taste of wine.

The project involves Flinders University and the AWRI and is supervised by **Mark Sefton**.

### Karen Herbert

Karen grew up in Baranduda, in North-East Victoria, and has completed a Bachelor of Science at La Trobe University, and a Masters Preliminary at Monash University.

Prior to starting her PhD, Karen was employed by CSIRO Forestry and Forest Products in Melbourne, as part of the CRC for Hardwood Fibre and Paper Science.

At the CRCV, Karen is working on 'Early detection and alternative management of phylloxera on ungrafted vines' (*Program 2, Sub-Project 2.1.6*).

The project will concentrate on methods that will rapidly identify phylloxera in the field before the visual symptoms of phylloxera are observed. If phylloxera can be identified in its early stages, control methods can be applied so to minimise irreversible vine decline.

Karen is working with Agriculture Victoria, Rutherglen, and Adelaide University's Department of Horticulture, Viticulture and Oenology. She is supervised by **Drs Kevin Powell** and **Robyn van Heeswijk**.

Most of the research conducted in this study will be based at Rutherglen in North-East Victoria, alongside the Phylloxera Research Team. This is because studies using live phylloxera can only be conducted within a quarantine district. Molecular work for the project will be carried out in Adelaide.

## Turning science into vineyard profits

The CRCV's Research to Practice™ (Viticulture) has moved into a new phase with the signing of a recent sub-licensing agreement with Agriculture Western Australia.

Research to Practice™ is the CRCV's flagship in its new Education & Training Program. Since its inception in spring 1996, Research to Practice™ (Viticulture) has delivered in excess of 120 workshops, covering four major topics, to more than 2,500 grapegrowers and associated industry people in every state of Australia, except the Northern Territory.

Project Leader **Dr Robert Sward** says the main factor in its national success has been the ready involvement of scientists and viticulturists from all states in the development and delivery of the workshops.

"Developed by the CRCV at Agriculture Victoria's Institute for Horticultural Development (IHD) Knoxfield,



*Witnessing the signing of the WA Research to Practice™ sub-licensing agreement by Diana Fisher (seated in centre) are Kristen Kennison (seated on left) and standing (L to R), Jim Campbell-Clause, Robert Sward (CRCV Project Leader), Sarah Whiteley, Colin Gordon and Stewart Learmonth.*

Research to Practice™ (Viticulture) is designed to promote the adoption of best practice systems such as sustainable irrigation and integrated pest management (IPM)," Rob said.

"The signing of the new sub-licensing agreement with Agriculture Western Australia is the first step towards localising

Research to Practice™ and an indication of strong industry and public sector support.

"The benefit of having AgWA sub-licensed to run the workshops in Western Australia is that they will be able to work in closely with regional associations and respond to high priority topics in their areas. At the same time, they will be able to retain close links with the national team of viticulture experts who are part of the Research to Practice™ project."

Until now, most Research to Practice™ workshops have been arranged and run through the central team, based at Agriculture Victoria Knoxfield, with local viticulture associations and state agencies providing support for the workshops.

For more information contact **Dr Robert Sward at the Institute for Horticultural Development at Knoxfield on (03) 9210 9219.**

## Finding the answer to a complex question



*Stéphane Vidal and Veronique Cheynier*

The CRCV has joined forces with French researchers in an effort to find the answer to a seemingly simple yet complex question - what makes a wine mellow, astringent or dry?

A sub-project within *Project 1.2* 'Wine Grape Tannin and Colour Specifications' has been established to identify the tannins in grapes and wines which are of sensory importance.

Also being investigated is the interaction of wine components, such as proteins and flavour compounds, with tannins and what impact that has on the perception of wine palate sensory attributes, particularly astringency.

One of the sub-project's key researchers is biochemist engineer Stéphane Vidal, from The Australian Wine Research Institute, who is based at the Institute Supérieur de la Vigne et du Vin in Montpellier, France, in Dr Véronique Cheynier's reference laboratory until October this year.

Dr Cheynier, who has a high international reputation in the area of red wine pigments and proanthocyanidins, leads a research group which has made considerable progress in identifying new pigments in wine and investigating their formation mechanisms.

"The real aim is to be able to find the molecules, or the interactions between molecules, that could explain the fact that wines are differently perceived and described as mellow, astringent or dry," said Stéphane.

"We want to test if tannins have influence on sensory attributes on their own. If not, we intend to evaluate if interactions with other wine components might explain these differences."

Stéphane said if it was known which molecules were responsible for positive and negative palate perception then winemakers would be able to adapt their winemaking techniques to master the release of such molecules and the CRCV could begin to look at the impact of viticultural practices.

## 2000 schedule for research to practice™ workshops

RCV Research to Practice™ is a series of accredited award-winning programs designed specifically to provide participants with the skills and knowledge to manage their vineyards more effectively through the application of new research-generated science and technology.

Each program consists of a one or two-day interactive workshop with presentations from top-class researchers and hands-on vineyard activities, with a follow-up-day to consolidate and discuss participants' application experiences later in the season.

Below is a listing of workshops being run from August until December this year.

Please contact Bronwyn Clarke or David Braybrook on (03) 9210 9222 for further information.

### Spray Application for Viticulture

Location	Date	Contact	Phone
Karadoc	8th-9th August	Wendy Allan	08 8560 9322
McLaren Vale	15th-16th August	Kevin Fiddamon	08 8383 0001
McLaren Vale	17th-18th August	Wendy Allan	08 8560 3922
Griffith	29th-30th August	Kerry DeGaris	02 6962 3944
Orange	31st August-1st September	Tom Ward	02 6364 3118
Coonawarra	13th-14th September	Wendy Allan	08 8580 9322
Rutherglen	21st-22nd September	Rebecca Dunstone	02 6030 4531
Tumbarumba	5th-6th October	Brian Wilkinson	02 6948 5214
Albany	24th-25th October	Kristen Kennison	08 9771 1299
Langhorne Creek	16th-17th November	Bruce Henderson	08 8537 3165

### Integrated Pest Management

Location	Date	Contact	Phone
Griffith	19th-20th September	Kerry DeGaris	02 6962 3944
Echuca	3rd-4th October	Vincent Lakey	03 5434 1447
Rutherglen	24th-25th October	Bronwyn Clarke	03 9210 9222
Margaret River	26th-27th October	Kristen Kennison	08 9771 1299
McLaren Vale	14th-15th November	Kevin Fiddamon	08 8383 0001
Gippsland	12th-13th December	Sue Hasthorpe	03 9345 6608

### Grapevine Nutrition

Location	Date	Contact	Phone
Adelaide Hills	11th-12th September	Alan Dean	08 8339 6719
Robinvale	21st-22nd September	Phillip Englefield	03 5026 9448
Langhorne Creek	26th-27th September	Bruce Henderson	08 8537 3165
Griffith	3rd-4th October	Kerry DeGaris	02 6962 3944
Murrumbateman	6th-7th October	Dane Dahlberg	02 6227 5672
Mudgee	17th-18th October	Frank Helwig	02 6373 3721
Hunter	19th-20th October	Brett Keeping	02 6547 2556
Mt Benson	30th-31st October	Jeff Flint	08 8768 6264
Hobart	6th-7th November	Duncan Farquhar	03 6233 6811
Nagambie	15th-16th November	Gayle Greiger	
Margaret River	22nd-23rd November	Kristen Kennison	08 9771 1299
Queensland	30th November-1st December	Julianne Ferguson	07 4684 1263
Barossa	11th-12th December	Chris Canute	08 8563 2976
McLaren Vale	14th-15th December	Kevin Fiddamon	08 8383 0001

### Water Management for Grape Production

Location	Date	Contact	Phone
McLaren Vale	7th-8th September	Kevin Fiddamon	08 8383 0001
Geelong	13th-14th November	Graham Bonney	03 5243 6766
Angaston	19th-20th September	Nigel Blieschke	08 8561 3325

## Viticare - on the ground and running



David Shearer

The Viticare initiative is making strong progress with key positions filled and the planning and consulting stages yielding the development of a number of trials.

National Viticare Coordinator **Noel Ainsworth** says some industry groups have been approached to join the Viticare network to ensure communication systems are appropriate and working.

The first group joined in June and, according to Noel, the potential to successfully share industry information about trials and events is already apparent.

National Coordinator of the Viticare On-Farm Trials project, **David Shearer**, said he was pleased to confirm commitment from growers and companies to trials across Victoria, New South Wales and South Australia.

He said trial sites were located in Loxton, Wagga Wagga, the Yarra Valley, Heathcote, Rutherglen and Tatura with further sites to be established in the Hunter Valley and Nuriootpa in the near future.

David and his team have developed the following trials for this season:

- Comparing irrigation strategies such as RDI and PRD
- Soil moisture management with cover crops and mulches
- Managing hard-setting and crusting soils
- Ameliorating acidity of viticultural soils

- Nitrogen management to optimise grape yield and quality
- Comparing phosphorus fertilisers
- Managing cropping levels to improve grape quality

David said a compilation of methods for conducting trials, from establishment to measurement of results, had been developed. A key aspect of each trial would be quality and sustainability parameters associated with different viticultural practices.

"Quality parameters will include yield, colour, brix, pH, titratable acid and disease, while indicators of the natural resource, such as soil biology and structure, water and nutrient management, will be assessed to determine the effect on sustainability," he said.

"The groundwork has now been done to design, develop and validate clear protocols for measuring variability in vine growth, productivity and fruit quality that emphasise simplicity, time efficiency and usefulness."

Meanwhile, the Environmental Management Systems project team is working on the integration of information into best management practice packages, necessary for the implementation of an environmental management system.

The project team will address the issues of soil and water and pest and disease management. Draft modules will be prepared for industry comment by the end of the year.

Environmental Management Systems officer, **David Baker**, says he is preparing a discussion paper which describes and analyses the different systems to enable viticulturists to decide on the most appropriate framework for environmental management.

The paper will be presented to industry at the wine industry environment conference in November.

## Diary Dates for 2000

### Australian Association of Natural Resource Management Conference

"Sustainable Horticulture: What's the Future? A Focus on Viticulture"

Where: La Trobe University, Beechworth, Victoria

Date: 21– 23 August, 2000

Further details: Lachlan Campbell or Paul Coope on (03) 5721 0200

### First National Wine Industry Environment Conference and Exhibition

"Setting the Agenda"

Where: Ridley Convention Centre, Adelaide

Date: 31 October – 1 November, 2000

Further details: (08) 8363 4399 or [wiec@hartleymgt.com.au](mailto:wiec@hartleymgt.com.au)

### VINITECH 2000

International Exhibition of Equipment and Techniques for Grape Growing and Wine and Spirits Production

Where: Bordeaux, France

Date: 28 November – 1 December 2000

Further details: Vincent Grenie on 33 (0)5 56 11 99 13

or [vinitech@bordeaux-expo.com](mailto:vinitech@bordeaux-expo.com)

Website: [www.bordeaux-expo.com](http://www.bordeaux-expo.com)

### Gene technology brochure

Enclosed in this edition of the newsletter is an information brochure the CRCV has produced for growers and winemakers about gene technology in the Australian grape industries.

The brochure is also available on the following websites:

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

<http://www.gwrdc.com.au>

<http://www.winetitles.com.au>