



Department of
Agriculture and Food



WINE INDUSTRY NEWSLETTER

ISSN: 0726-9498

NEWSLETTER OF THE DEPARTMENT OF AGRICULTURE AND FOOD

No. 89 December 2008

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Extension news

Glynn Ward, Project Manager, South Perth and Diana Fisher, Viticulture Development Officer, Manjimup



Greenhouse gases (GHG) training courses

DAFWA is seeking expressions of interest from grape and wine producers in training courses on GHG accounting and carbon management for the wine industry of WA

GHG and carbon management will have an increasing influence on the way the Australian wine industry performs in the international marketplace. It is important that the WA wine industry keeps up to date with the GHG issues to maintain our competitiveness.

Prominent wine industry consultant, Provisor was contracted by the Grape and Wine Research and Development Corporation (GWRDC) to write a comprehensive manual for "Wine industry greenhouse gas training courses". They were chosen due to their expertise and experience in this area including the production of the International Wine Carbon Calculator (IWCC). As a result, Provisor is delivering these manuals to the wine industry through participation in training courses being offered in a number of regions in Australia. Provisor would like to present a series of courses in the wine producing areas of WA prior to the start of the 2009 vintage should there be sufficient interest.

In these comprehensive half day courses, participants will learn about:

- Impact of the greenhouse effect and global warming climate change on the wine industry
- Carbon accounting methods and how they apply to the wine industry
- Industry applications, rules and regulations
- Marketing implications such as carbon labelling, greenwashing and environmental claims in advertising
- Emissions trading and the "Carbon Pollution Reduction Scheme", including how a "Cap and Trade" scheme works
- Calculating your carbon footprint using the IWCC using data from participants and industry typical figures

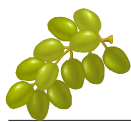
The current training course and carbon calculator focus on wineries and immediate benefits to course participants include:

- Identifying energy and emission savings in your winery
- Meeting future market requirements
- Training in use of the carbon calculator

For more specific information about the content of the courses please visit the Provisor website on:

www.provisor.com.au, or contact:

Phillip Michael Tel: 08 8303 8702
(Provisor)
Glynn Ward Tel: 08 9368 3568
Diana Fisher Tel: 08 9777 0000.



Expressions of interest

The number of respondents will determine where the courses on GHG accounting and carbon management will be held in WA. The half day courses will be limited to 25 people and will cost about \$150 per participant.

Please register your interest with the Manjimup Office of DAFWA on Tel: 08 9777 0000 or E-mail: dfisher@agric.wa.gov.au.

Preparing for a variable and changing climate

Three workshops were held at Margaret River, Manjimup and Albany in September to give grape and wine producers specific climate projections for their region and information on best technologies and options to better manage seasonal variability and climate change. They were attended by about 120 participants. The workshops focused on four key topics identified by industry at a workshop in November 2007: climate projections, varieties, water and vineyard management. Regional climate projections for Margaret River, Pemberton and Mt Barker were presented.

Specialist speakers presented information and options on the four key topics: Professor Tom Lyons, Murdoch University (key climate information), Professor Snow Barlow, University of Melbourne (options for existing and new varieties to suit your region), Dr Tony Proffitt, AHA (addressing future water management issues) and Dr Erika Winter, GrapeLinks (adapting vineyard management practices for grape and wine quality).

Grape and wine producers participated by contributing their ideas and developing action plans for research they would like to see happen in their region. Key action plans included: identifying the key climatic indicators for grape and wine quality in current varieties; developing a data base of phenology and variety information by vineyard and region to improve reliability of predictive climate and variety models; providing within season climate projections to better manage vineyards; providing information on water policy and legislation; developing new and extend current technologies on water collection, storage and reducing water use; managing higher temperatures and impact on wine quality using canopy management to moderate bunch zone temperatures.

DAFWA is collating the information to report to GWRDC, State and Regional Associations and interested producers. Researchers (Curtin, UWA, Murdoch, DAFWA) will consider the actions plans to establish regional research projects. Grape and wine producers will be kept informed and engaged with developments including climate projections for other regions.

A Preliminary Project Application has been submitted to GWRDC on one of the key outcomes from the workshops. The project focuses on adapting canopy management to moderate bunch zone temperatures for the production of consistent grape and wine quality under a variable climate. Sauvignon Blanc will be used because of its sensitivity to temperature and its importance as an aromatic white variety in many cooler climate regions in Australia. The research will be piloted in different climatic regions in South West Western Australia engaging producer groups in each region to monitor premium Sauvignon Blanc blocks in their region.

Information from presentations will be available on Curtin University (including video) and DAFWA websites www.agric.wa.gov.au.



The presenters and facilitators at the Manjimup workshop: Tom Lyons, Tony Proffitt, Snow Barlow, Diana Fisher, Erika Winter and Glynn Ward.

Improving spray application in the vineyard

Two workshops on improving spray efficiency in vineyards were held in Margaret River and Mt Barker in October. There was a lot of interest in these workshops with about 60 participants in Mount Barker and 70 in Margaret River.

Dr Andrew Landers from Cornell University, New York USA presented information on safe effective spray techniques focusing on reducing spray drift, improving chemical deposition and canopy penetration. A highlight was his information and practical demonstration on improving spray efficiency using minor (inexpensive) modifications to sprayers and simple techniques to measure air flow spray distribution, deposition and drift.



Dr Lander's visit was funded by GWRDC to present these workshops in 15 wine regions around Australia. SARDI initiated the visits and DAFWA linked with the National Wine Grape Industry Cluster to ensure Dr Landers visited WA. Support for the workshops in WA was gratefully provided by Cape Mentelle, Great Southern Landsdale and Nufarm Australia.



Mount Barker participants receiving valuable advice from Dr Andrew Landers



Dr Andrew Landers demonstrating some simple techniques to use when spraying.



The mist from the sprayer is contained fairly effectively due to the equipment being set up well. Notice there is little drift beyond the area being sprayed.

Copies of presentations and feedback

Please find copies of the Dr Andrew Landers presentations at:

www.csu.edu.au/nwgic/news/The_answer_is_blowing_in_the_wind.htm

There is an online survey at this site. Participants are encouraged to complete this survey. Two companies have donated a hand held anemometer as an incentive to provide this feedback - Windmate 200 and Kestral 1000. These will be awarded to the 20th and 50th person who completes the survey.



Flowering: a critical time for disease management

Andrew Taylor, Horticulture Pathologist, Bunbury

It is that time of the year when many cultivars have or are beginning to undergo flowering and it is at this time where disease control is critical to ensure a good harvest. With the erratic weather conditions over the last month it has meant that **powdery mildew** and **botrytis bunch rot** have the potential to cause severe crop damage this season.

Spray programs for powdery mildew should have begun soon after bud burst to reduce the initial level of spores in the vineyard. It is at flowering time however that spread of the disease can be most severe and important to the seasons' outcome. Bunches are highly susceptible to infection until 5 weeks after flowering. If temperatures remain around 25°C and with high humidity or rainfall such as we have seen recently then a new population of the disease can occur every 5 days.

There are now several products from different chemical groups that are available for control of powdery mildew. Sulfur is a commonly used protectant fungicide but its efficiency is decreased with increased rainfall and does not provide protection to new growth. Despite the number of chemicals available resistance management is a must particularly with DMI fungicides and the recent detection of resistance to Strobilurin fungicides in America.



Latent infection of bunches with *Botrytis cinerea* is also common at flowering time due to the natural wound created from the removal of the flower cap. Warm

temperatures and high humidity at flowering favours latent infections. Once infection occurs the developing berry prevents the infection from progressing further until veraison begins. The level of spores present at flowering has been positively associated with the severity of botrytis bunch rot at harvest. Control during flowering is further emphasised due to the reduced number of products available after flowering as a result of MRL's and withholding periods.





Pests of viticulture so far this season

Stewart Learmonth, Entomologist and Mark Stanaway, Technical Officer, Manjimup

The cool weather in spring has caused some erratic occurrences of vineyard pests so far this season.

While **garden weevil** has been around in low numbers since September, larger numbers are only just being seen over the last couple of weeks. Reports from vignerons indicate patchy distribution of weevils and spot treatment with insecticide rather than wholesale vineyard or block spraying.

Now that garden weevil is really starting to emerge, our trials with different cover crops including mustard will start to show any effects on the timing and numbers of garden weevil adults.

We have conducted some area wide monitoring of **longtailed mealybug** numbers in vineyards monitored in previous seasons in Margaret River and Manjimup/Pemberton regions. Numbers have been low enough to date in many areas to not warrant any action. In a few cases, numbers have been at levels we feel warrant some action, but at least we are not seeing the huge numbers present in previous seasons. It is great to see some bark examinations happening during dormancy as a means of getting an early warning on the likely numbers of insects for the coming season.

We have been undertaking monitoring for **eriophyid mites (bud mite/rust mite group)** in two blocks of cabernet sauvignon in the Margaret River region. The reason for this is because of a theory that these mites may be involved in yield decline recorded for this variety. Despite high levels of bud mites from bud dissections, we have found very few mites on the young canes. They have been detected only behind the very basal bract near where the cane is growing from the cordon. The vines we have been monitoring have shown uneven growth which is reflective of earlier damage to buds, but this requires confirmation by further sampling for mites. In between showers during early cane growth we have been spraying weekly to see if we can confirm the mite association with dropping yields. We won't really know if mites are the cause until buds are examined during dormancy and canes are assessed next season.

Six-spotted mite is still on our radar after the increase in the distribution of the mite to Manjimup/Pemberton vineyards where we recorded about half the vineyards examined in a survey last season had some level of mite presence. We are interested to



hear from any vigneron finding the mite – request a copy of Farmnote No. 146 on this mite from DAFWA or visit our web site to view colour photos of the characteristic signs of mite feeding on leaves. We have applied to GWRDC to continue work on this mite – looking at softer sprays, predators including predatory mites and clarifying the biology, pest status and distribution of six-spotted mite.

There have been a few enquiries about **European earwig** in vineyards across the south west of WA this season. Previously the big numbers of earwigs were confined to a few vineyards in the Frankland/Mt Barker region, but reports from Manjimup/Pemberton and Margaret River have been received. The lace-like windowing of leaves is characteristic of earwig feeding. With high numbers, leaves can look very tatty in late spring/early summer, but the earwigs don't seem to feed on the developing bunches or cause any damage to growing tips. The main problem with earwigs is in machine harvested vineyards where masses of the insects turn up in the bins. APVMA have approved a permit for a bait – for details see the APVMA website and search for Permit No. 10162. Because the earwigs have a strong affinity to the ground even though they are present on trunks and in the canopy during the day, the application of the bait can reduce numbers even in the presence of a well developed canopy.



European earwig feeding on leaves is characterised by the lace effect on leaves, compared to garden weevil feeding where entire portions of leaves are removed.





R&D projects and priorities - WIAWA Technical Committee

Sue Vidovich, CEO, Wine Industry Association of WA

The Wine Industry Association WA (WIAWA) Technical Committee is a committed group of key industry stakeholders who meet bi-monthly to discuss and formulate policy on 'technical' issues across the WA industry and make recommendations to the WIAWA Board of Directors where necessary. Some of the issues addressed include: Department of Environment and Conservation prescribed burns program and the smoke affect on grapes; new water resources legislation; starling incursions; rainbow lorikeets; quarantine and the importation of clonal material; locust plagues; national pollutant inventory; proposed container deposit legislation and the national packaging covenant, fertilizer action plan; climate change and wine labeling.

Another key role of this committee is to regularly review R&D priorities for WA and submit project applications where applicable. A full list of current and potential R&D projects is available on the WIAWA website www.winewa.asn.au. The projects recently submitted for funding are listed below.

Funding applications submitted - DAFWA

1. Pathogenicity and isolate variation of *Botryosphaeria* species causing bunch rot and trunk canker in Western Australia – GWRDC.
2. Biology and management of six-spotted mite in vineyards – GWRDC.
3. The role of eriophyid mites in yield decline in cabernet sauvignon in Western Australia – GWRDC.
4. Management of eutypa dieback and botrytis canker in south-west Western Australian vineyards – GWRDC.
5. Completing the Smoke Effect Picture: Systems development to reduce the negative effects of smoke on grapes and wine – GWRDC.
6. Keeping in the zone: regional and seasonally adapted vineyard management practices for grape and wine quality in a changing climate – GWRDC.
7. Is latania scale (*Hemiberlesia lataniae*) a vector of grapevine leafroll associated virus -1 and -3 (GLRaV-1 and GLRaV-3)? – GWRDC.

Funding applications submitted - Curtin

1. Preparing Irrigated agriculture for statutory and climate changes in the South West of Australia - National Program for Sustainable Irrigation
2. Understanding regulation of within-canopy carbon partitioning – the key driver of regional differences in grapevine yield – GWRDC.
3. Vineyards for 2025 – Improved industry returns from soil and water research – communication and adoption of the 5-site and management units project outcomes – GWRDC.
4. Beating the rush – capitalising on behaviour of emergent wine consumers in South East Asia – GWRDC.
5. Evaluation of remotely sensed hyper-spectral canopy reflectance for monitoring vine water and nutrient status – GWRDC.
6. Vineyards for 2025 – Management units: A step change in resource use efficiency – GWRDC.
7. Identifying future water use requirements for irrigated viticulture in the Whicher sub-region of the South West of Western Australia in the context of climatic and statutory impacts – GWRDC.

Have your say

The WIAWA Technical Committee is keen to ensure all industry players have the opportunity to provide input into the R&D program. If you have a potential project or are aware of an issue which should be addressed please visit the WIAWA website www.winewa.asn.au and click on R&D for the link to our Technical Coordinator Keith Pekin. Alternately, you may email Keith at keith@winewa.asn.au.





Determining the geographical origin of wine

Alex E Martin and R John Watling, Centre for Forensic Science, University of Western Australia, 35 Stirling Highway, Crawley, WA 6009

The commercial value of wine is influenced by its geographical origin, and as such, some individuals and organisations are fraudulently misrepresenting the origin of wines for commercial gain. As wine fraud is one of the biggest challenges currently facing the industry, a significant amount of research has been conducted internationally in the past decade with a view to developing a scientific technique that can accurately identify the geographical origin of a wine sample. Several previous studies on wines from other countries have indicated that using modern analytical instruments such as mass spectrometers to determine the trace elements present in wine samples is the most promising of the techniques investigated. Provenance establishment of wine is based on the principle that elements in the wine are derived mainly from the soil and environment, and that the concentration of the majority of elements will not be significantly changed during wine production, transportation or storage. Evaluation of the resulting data generally resulted in accurate classification of wine samples according to their geographical origin.

The research conducted thus far has indicated that the trace element content of wines is dependent on several factors, including: soil, grape variety, weather or environmental conditions and viticultural practices. As the trace element concentrations are dependent on so many factors, using these concentrations to determine the geographical origin of a wine sample is extremely challenging. However, it is thought that the relative concentrations of elements in the soil are the most significant influence on the trace

elements present in the bottled wine. Therefore, it is reasonable to expect that as soil compositions vary from region to region, so too will the trace elements in wine. As a result, initial, unpublished, studies to relate the chemical "fingerprint" (the unique combination of elements present in a wine) of Australian wines to geographical growing area have attained some degree of success.

The research conducted into the provenance establishment of Australian wines thus far has only been of a preliminary nature. As such, a PhD programme is currently being undertaken to investigate two separate areas of interest:

- Whether it is possible to classify wine samples from Australia according to their region of origin based on their chemical fingerprints. This will involve analysing as many samples of Australian wines as possible in order to construct a reference database of chemical fingerprints. Wines will be analysed using mass spectrometry and emission spectroscopy, which will enable the accurate determination of the concentrations of over 60 elements in each wine sample.
- A significant study will be undertaken to identify and understand the uptake mechanism of selected elements from the soil into the vine, the grapes and the subsequent bottle of wine. In this way, it may be possible to extract information about the growing conditions and likely geological environment of a wine sample even without its region of origin being represented in a reference database.

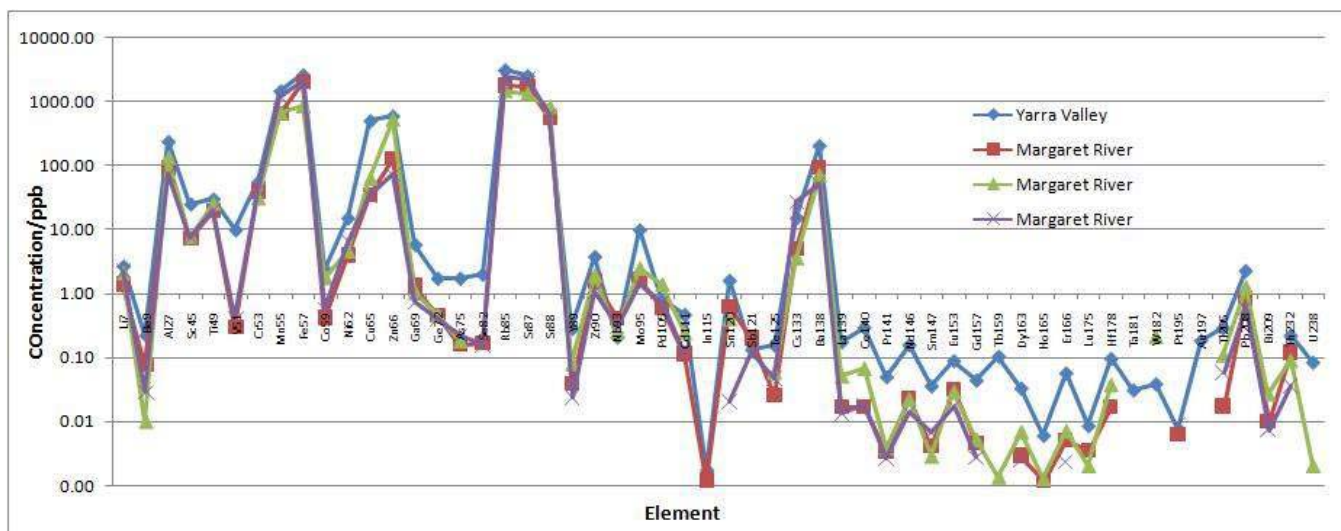


Figure 1: Chemical fingerprints of three cabernet sauvignon samples from Margaret River and one sample from the Yarra Valley



With the cooperation of a number of Australian wineries, approximately 440 wine samples have been analysed so far, with very promising results. While viticultural practices do appear to have an influence on the chemical fingerprints, it has been found that the fingerprints are generally far more dependent on the growing region and the grape variety. In other words, wines of the same grape variety produced in the same region will have very similar chemical fingerprints, which will generally be quite different to those of the same grape variety in other regions. This is demonstrated using the following example. Figure 1 is a graph of the chemical fingerprints of three cabernet sauvignon samples from Margaret River and one from the Yarra Valley, which clearly demonstrates that the Margaret River samples have very similar fingerprints while the Yarra Valley sample has an altogether different fingerprint.

When dealing with more samples, data reduction techniques such as linear discriminant analysis (LDA) can be applied. LDA attempts to group samples according to user-defined groups (in this case, region of origin). If samples do separate into groups according to region of origin, there must be generic differences in the chemical fingerprints of wines between these regions. samples can be separated into groups based not only on the state in which they were produced, but also their individual growing region.

As it is possible to separate cabernet sauvignon samples into groups using LDA according to their geographical origin, it will also be possible to identify the origin of a cabernet sauvignon sample of unknown origin by observing which group it belongs to, assuming that the region is represented in the reference database. This has also been found to be the case for other grape varieties, however, the database does not contain sufficient samples at this stage of the research to do this for all grape varieties analysed. Therefore, any samples of bottled wines or wines currently maturing in barrels that wineries would be willing to provide would be greatly appreciated. Only 15 mL of each wine is required, and all data obtained will be given to participating wineries.

In order to investigate the uptake mechanisms of elements from the soil into the bottled wine, a rigorous sampling regime is currently being conducted. One-off soil samples, and monthly leaf and grape samples are currently being collected from 7 growing sites throughout WA for the duration of the current growing season. At each site, between four and six grape varieties are sampled at several different sites. This collection will be undertaken using at least four sites per cultivar per growing site.

After the grapes have been harvested early next year, samples of the resulting wines will be taken every two months until bottling. As with the wines, all these samples will be analysed for over 60 elements in order to investigate the association between the trace elements in the soil, the plant, the fruit and most importantly, the wine.

For further details about this research or if you would like to donate samples, please contact Alex Martin E-mail: martia07@student.uwa.edu.au or John Watling E-mail: john.watling@uwa.edu.au.

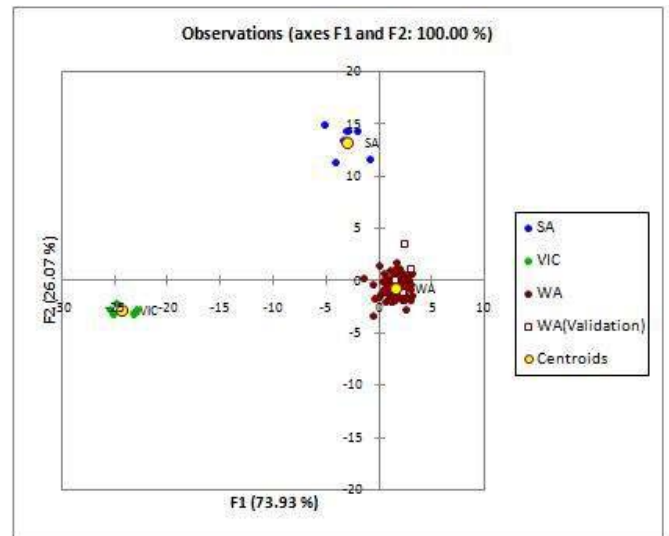


Figure 2 – LDA of cabernet sauvignon samples from WA, SA and Victoria

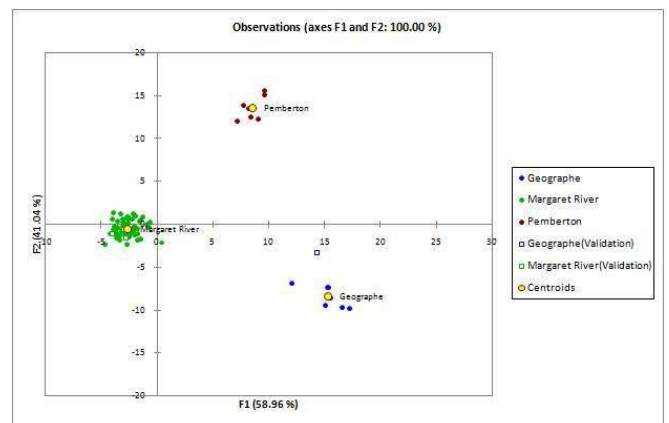


Figure 3 – LDA of cabernet sauvignon samples from the Margaret River, Pemberton and Geographe regions of WA





Green snail found in the south west

Brian Smith, Biosecurity Officer, Bunbury and Diana Fisher, Viticulture Development Officer, Manjimup

Green Snail (*Helix aperta*) has been confirmed on a property in the Shire of Capel in September. The detection means interstate exports of all plants susceptible to green snails, which are grown or packed within a 25 km radius of the infested area, must now be certified by a DAFWA Inspector for entry into other States or Territories.

Green snail was first discovered in WA in 1980 and is firmly established in and around the Perth metropolitan area. This was the first detection in the south west.

Immature green snails have a yellow-green shell and a creamy coloured body. The shell of mature green snails can become dark brown, but this colour is uniform, without any bands of different colour. Green snails rarely exceed 25 mm in shell diameter. In spring, green snails burrow underground 25 to 150 mm and spend the dry summer months in an inactive state. They are re-activated by rainfall and falling temperatures in autumn.

Green snail host material includes leafy vegetables, nursery stock including cuttings and budwood, bulbs with leaves, cut flowers, and hay and chaff.

All growers / exporters are to contact Quarantine WA (9334 1800) if they are moving any host material interstate from a property in the following shires: City of Bunbury, Shire of Busselton, Shire of Capel, Shire of Dardanup, Shire of Donnybrook – Balingup or Shire of Harvey.

It is also requested that all growers report suspect snails to their local DAFWA Office for identification.



Green Snail is currently a declared species under the *Agriculture and Related Resources Protection Act 1976* and any detections outside of the metropolitan area are to be reported immediately to DAFWA for identification

Further information is available in Garden Note No. 11/2004 *Pest snails and slugs of Western Australia* and APB InfoNote No. 6/89 *The Green Snail* or contact DAFWA's Pest and Diseases Information Service on 1800 084 881 or Quarantine WA on (08) 9334 1800.



Help needed to spot rainbow lorikeets

Dennis Rafferty, Regional Invasive Species Project Manager, Bunbury

Grape growers and public are being urged to report sightings of rainbow lorikeets (*Trichoglossus haematodus*) outside the Perth metropolitan area.

There is an established population of more than 20,000 rainbow lorikeets in the Perth metropolitan area but sightings have been made in other regional locations.

Since November 2007 small numbers of lorikeets have been reported in the towns of Sawyers Valley, Bakers Hill, Wundowie, Toodyay, York, Beverley, Kellerberrin, Cunderdin, Brookton, Pingelly, Wandering, Narrogin, Williams, Boddington, Serpentine and surrounding areas. The most recent was a pair of mated rainbow lorikeets found in the Walpole area.

Lorikeets are a serious agricultural and horticultural pest. They cause major damage to fruit crops, including wine and table grapes, fowl vehicles and

outdoor living areas, are extremely noisy, and compete with native species for food.

The risk is that if they move into grape growing areas there could be a real risk of significant damage and cost to growers in those areas.

Rainbow lorikeets are a declared species and are removed when found in the wild outside of the Perth metropolitan area.

Anyone who sees a rainbow lorikeet should report the sighting to DAFWA's Pest and Disease Information Service on freecall 1800 084 881.

Further information about rainbow lorikeets is available on the DAFWA website www.agric.wa.gov.au search 'rainbow lorikeets'.





WAVIA news

Jim Campbell-Clause, WAVIA Chairperson, Chris Harding, WAVIA Secretary and Diana Fisher, Viticulture Development Officer, Manjimup

Several new WAVIA source blocks have been established or expanded this past year including:

- § Cabernet Sauvignon LC9
- § Cabernet Sauvignon LC10
- § Vermentino H62.1LN
- § Semillon 32
- § Grenache 38
- § Arneis CVT CN15
- § Tannat H9V3
- § Fiano Merbein
- § Albarino Galicia
- § Petit Manseng Merbein
- § Pinot Gris D1V7

Propagation material will be available from some of these source blocks next year.

Now is the time to submit suggestions of varieties and clones currently unavailable in WA that may have potential for the WA industry. Please inform your relevant regional WAVIA representative or alternatively submit these suggestions in writing to: WAVIA, PO Box 941, Margaret River WA 6285 or E-mail: dfisher@agric.wa.gov.au.

To view a complete list of varieties and clones already available to the industry go to:

www.agric.wa.gov.au/content/hort/vit/wavia_info2008.htm

Go to the bottom of this WAVIA home page and click on 'Grapevine varieties and clones held by the Department of Agriculture and Food'.



DAFWA staff movements

Colin McDonald Viticulture Research Officer in Albany retired in October after a long (nearly 30 years) and illustrious career with the department. In the last few years Colin made a valuable contribution to the wine industry, particularly in water harvesting (roaded catchments and vineyard inter-rows), cover crops and work with the Great Southern Viticulture Group. The Premium Wine team benefited greatly from Colin's energy, experience and practical approach to research.



We wish Colin well in what we understand will be a busy retirement following his interests in bushwalking, canoeing, community groups and music.

Colin's position at Albany will be maintained. In the short term **Vivek Bhat** will complete the cover crop work with **Rob Hetherington**. **Miriam Lang** (Farming Systems) and **Kelly Hill** (NRM) will team with **Rob Hetherington** to test the efficiency of roaded catchments in the Great Southern.



Richard Fennessy has been appointed the new Wine and Table Grape Research Officer in Bunbury.

Richard has a Bachelor of Science in Viticulture and Oenology from Curtin University and has 10 years experience in the wine industry. Richard started his career working in vineyards across Margaret River, after graduating from Curtin he joined Evans & Tate and was there for 5 years. Having worked through the ranks at Evans & Tate his last position was responsible for co-ordinating and overseeing winemaking operations in the Murray-Darling and Riverina regions. Richard has also worked vintages in Napa Valley, California and Marlborough, New Zealand.

Richard will be responsible for winemaking, directing wine styles and performing wine sensory evaluation on the Novel Variety Project. In addition to this he will also be making the wines for the smoke taint trial, Verdelho rootstock trial and Cabernet clonal trial. Richard's time will be evenly shared between Premium Wine and Table Grape Projects.





Wine Industry Newsletter

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The Department of Agriculture and Food staff would like to take this opportunity to wish you a very Merry Christmas and a safe and prosperous New Year



CHANGE OF DETAILS

If your name or address is incorrect, please return these details to the editor of the Wine Industry Newsletter.

Fax: (08) 9777 0001 E-mail: dfisher@agric.wa.gov.au

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