Department of Agriculture and Food

WINE INDUSTRY NEWSLETTER

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NEWSLETTER OF THE DEPARTMENT OF AGRICULTURE AND FOOD

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Contents

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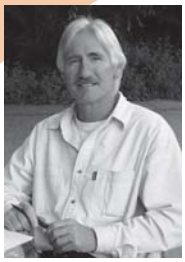


Planning and managing vineyards under a changing climate

Glynn Ward, Premium Wine Project Manager, South Perth
Colin McDonald, Viticulture Research Officer, Albany
Diana Fisher, Viticulture Development Officer, Manjimup
Kristen Kennison, Viticulture Research & Development Officer, Bunbury

Regional workshops for grape and wine producers

Three workshops will be held in the south west to keep local grape and wine producers informed and engaged in the issues, challenges and opportunities presented by a variable and changing climate in their region.

The half day workshops will focus on the climate projections and vineyard planning and management options for three specific regions: Margaret River, Pemberton and Mount Barker.

The workshops will be held in:

Margaret River
Tuesday, 16 September
8.20 am - 12.30 pm
Curtin University Wine Centre

Manjimup
Wednesday, 17 September
8.20 am - 12.30 pm
Dept. of Agriculture and Food

Albany
Thursday, 18 September
8.20 am - 12.30 pm
Albany Senior Citizens Hall

Last year's *'Viticulture Climate Change Seminar'* at the Manjimup Horticultural Research Institute attracted 24 vignerons, winemakers and viticulturists who identified seven key areas where they wanted more information, involvement and engagement with researchers in order to better plan for and manage the impacts of climate change in their region. We have invited specialist speakers to the workshops in September to present the latest information on four priority topics:

Specialist topics and speakers:

- Climate projections for your region: Margaret River, Pemberton and Mount Barker
  Prof Tom Lyons, Murdoch University
- Variety choices and suitability
  Prof Snow Barlow, University of Melbourne
- Water use management under a drying climate
  Dr Tony Proffitt, AHA Viticulture
- Vineyard management under a warming climate
  Dr Erika Winter, GrapeLinks

The presentations will be followed by a short planning session where grape and wine producers will have the opportunity to discuss ideas, identify the important factors, what needs to be done, when and by whom.

The workshops are designed to provide the wine industry with the information

and tools needed to make the best planning and management decisions for their vineyards and wine businesses under a variable and changing climate.

To register your interest in attending the workshop in your region please contact:

Department of Agriculture and Food
Manjimup Horticulture Research Institute
Tel: (08) 9777 0000
or
Email: dfisher@agric.wa.gov.au

Please register early to secure a seat as places are limited.

A flyer with workshop program details and venues will be posted to grape and wine producers closer to the date of the workshops.

For further information on the September workshops please contact Glynn Ward, Department of Agriculture and Food on Tel: (08) 9368 3568, Mob: 0439 523 024 or E-mail: gward@agric.wa.gov.au.

Cabernet Sauvignon clone evaluation

Glynn Ward, Premium Wine Project Manager, South Perth
Ian Cameron, Viticulture Development Officer, Forrestfield
Bob Frayne, Senior Technical Officer, South Perth

The Department of Agriculture and Food (DAFWA) has been asked by the industry to put together information on the history of Cabernet Sauvignon in Western Australia.

A major reason for the request is the belief that the original Houghton clone which was the basis for the establishment and early development of the industry in the south west from the late 1960s to early 80s is making the best wines.

The first clonal selections of Cabernet Sauvignon in Western Australia were carried out by DAFWA at Houghton's Swan Valley vineyard over 3 harvests, 1968 to 1970. Cuttings of the Houghton clone material was distributed to the industry in the south west through the late 1960's and early 70's. DAFWA planted trials of the high performing selections at vineyards in Gingin and Frankland in the early 1970's. The Frankland site was of most interest as it included a replicated trial of 20 Houghton clone selections and the introduced clone SA126 which is now the industry standard.

Ian Cameron and Glynn Ward have researched the Department's files and tracked the distribution of the Houghton clone material to put together a comprehensive history of Cabernet Sauvignon in Western Australia. We aim to have a draft document including a flow chart of the distribution of clone material ready by the end of August.

In collaboration with Hardy's (now Constellation Australia) DAFWA has been re-evaluating the Houghton clone selections this year. Vine, yield and berry sensory data has been collected and analysed. The wines made from 8 priority Houghton clone selections and SA 126 have been evaluate by a DAFWA taste panel. The wines will be evaluated by an industry winemaker's panel later in August. The data so far indicates that there may be several Houghton clones with genuine viticulture differences that would be valuable to the industry. These clones need to be evaluated over the next two seasons to confirm the findings.

We plan to send the draft history to vignerons involved in the early development of Cabernet Sauvignon in the south west for their input to complete the story. A workshop with industry to present the history and this year's clone evaluation results is proposed for later in the year. This work is part of the Department's efforts to assist industry produce great wine by identifying the best genetic material for planting.

Glynn Ward and Bob Frayne from DAFWA assessing cabernet sauvignon clones.

Pests of viticulture to watch for this season

Stewart Learmonth, Horticulture Entomologist, Manjimup
Mark Stanaway, Senior Technical Officer, Manjimup

While garden weevil has been a constant issue for vignerons in the south west, other pests are either on the rise or seem to pop up unexpectedly. The four main ones are longtailed mealybug, six-spotted mite, common auger beetle and possibly bud inhabiting mites. All of these deserve attention. Some of the key points for each are considered.

We are in the last year of a joint research project with A/Prof Mark Gibberd Curtin University on **garden weevil**. The project has been extended for one year to give us a chance to conduct work on the role of cover crops in weevil abundance and activity. We are seeking sites which are known to have a history of garden weevil infestation with a preference for sites which had significant infestation during the 07/08 season. Research activities will involve monitoring of weevil immergence and relating weevil population and damage to vines to spatial variation in cover crop species. Would willing vignerons please contact Mark Gibberd, E-mail: m.gibberd@curtin.edu.au or Tel: (08) 9780 5830 or Stewart Learmonth, E-mail: slearmonth@agric.wa.gov.au or Tel: (08) 9777 0000. We will also take advantage of this opportunity of the time extension to further our investigation on the use of refined kaolin clay trunk drenching on exclusion of weevil adults from the vine canopy.

Longtailed **mealybug** remains a problem in some vineyards, especially in the Margaret River region. It seems to be the case that one season of pest outbreak with associated pain of sooty mould production has to be seen before concerted action can be taken to avoid such a problem in the following season. Mealybug is the sort of pest where low numbers can be tolerated, but when conditions are right for a pest explosion, there are few reliable tools available to deal with late season problems. The way forward for mealybug management at this time is good monitoring and well timed intervention.

Monitoring for mealybug can take place during vine dormancy. Trunk inspection across blocks where mealybug were a problem last season will give a good indication of whether the pest is likely to be a problem for the coming season. If the infestation of live mealybugs is sufficiently high, and a level of around 10 to 20% trunks with live insects is suggested, then a program of leaf monitoring as soon as leaves appear in spring should be put in place. Mealybug crawlers are present in vineyards in late winter, taking refuge under the bodies of their mothers. These crawlers are ready to disperse onto leaves as soon as temperatures rise. Eventhough crawlers are small, their brown colour on new leaves makes them relatively easy to see. Weekly leaf checks will clarify the timing and extent of an infestation of crawlers on leaves. This information is vital in timing insecticide applications should this approach be adopted. Whether follow-up intervention is required can also be determined form on-going leaf monitoring. DAFWA have developed a suggested program for monitoring longtailed mealybug in grapevines.

As has been reported earlier, **six-spotted mite** seems to be on the move – with two commercial vineyards in the Manjimup/Pemberton region in the 2007/08 season having infestation levels high enough to cause premature leaf browning. The mite is still an issue in at least one vineyard in the southern Margaret River region. The damage caused by the mite has not been quantified, but to see leaves turn brown while grapes are still on the vine is not a pleasant sight. With more monitoring by DAFWA in the coming season, we hope to get a better understanding of the dynamics of this relatively new pest. One pleasing aspect of infestations last season was the rise in numbers of predatory thrips which appeared to help contain mite numbers. We encourage vignerons to be familiar with the characteristic leaf damage cause by the mite and to advise DAFWA of infestations. In case you do not have a copy of the farmnote on this mite, one is available from DAFWA Offices and the DAFWA website.

Enquiries regarding **common auger beetle** are still being received, though they are few. This native insect bores holes in the trunks and to a lesser extent cordons and canes of grapevines. The aim of this feeding activity is actually to kill vines so the adults can lay eggs. Larvae of the beetle can only survive in dying or recently pruned wood of grapevines. We have rarely seen or been advised of beetle larvae in growing healthy canes. Therefore, numbers of the beetle can be reduced in vineyards by managing pruned wood. This is achieved by thorough sweeping under vines and either removal or mulching of pruned material. In this way the feeding source of the beetle is destroyed. Beetles can still fly into the vineyard from nearby bush, but at least you won't be promoting the ongoing cycling of the insect within your vineyard. A farmnote on this insect is also available from DAFWA.

Monitoring for **bud inhabiting mites** is a new activity to be undertaken this season. This pest or group of pests has come "under the microscope" because they are suspected of being responsible for an inexplicable decline in the yield of Cabernet Sauvignon in some vineyards in the Margaret River region. An application for funding to support research has been made to GWRDC. The main objective of the studies is to determine whether the mites are causing the decline in yield. Any vigneron experiencing a similar issue is asked to contact Stewart Learmonth in Manjimup,Tel: (08) 9777 0000 E-mail: slearmonth@agric.wa.gov.au.

National Smoke Effect Working Group technical workshop

Kristen Kennison, Viticulture Research & Development Officer, Bunbury

Glynn Ward, Premium Wine Project Manager, South Perth

The Grape and Wine Research and Development Corporation (GWRDC) recently held a National Workshop to discuss the issue of smoke taint in grapes and wine on the 29th of July. The GWRDC invited researchers, forest management agencies and vignerons within Australia to share their experiences and identify future opportunities for research, development and collaboration. Western Australian research and experiences with smoke taint were presented by Kristen Kennison (DAFWA), with Glynn Ward (DAFWA) and Drew Haswell (DEC) detailing the relationship and interaction between the wine industry and forest management agencies. Future directions for WA based collaborative research and development by DAFWA, Curtin University, DEC, and the Wine Industry Association of WA in the area of smoke taint was presented. Areas of further investigation include:

- Research into the effects of smoke concentration, duration and composition (of smoke generated from various fuel types) on the development of smoke taint in grapes and wine. Development of a model vineyard based system to provide a risk assessment of smoke taint development from grapevine smoke exposure;
- Incorporation of research understanding the key periods of smoke uptake by grapevines into the development of a model system to predict seasonal smoke taint susceptibility;
- Researching the influence of smoke exposure on smoke uptake by a variety of grapevine varieties;
- Trial of potential chemicals that can be used as protective sprays to reduce uptake of smoke compounds by grapevines; and
- Development of a comprehensive vineyard database incorporating vineyard locations (maps) and contact details to be used for communication and as a consideration in forest management activities.

Expression of interest for smoke detection systems

Monitoring the density and duration of smoke and its effect on the development of smoke taint in wine

Kristen Kennison, Viticulture Research & Development Officer, Bunbury

The smoke effect research program has been employing the use of nephelometer based equipment for determining the duration and density of smoke applied to grapevines during field studies. Gas-phase nephelometer equipment is often used for the detection of smoke and other particles associated with combustion and is able to detect smoke at extremely low concentrations (0.005%). We are currently investigating the use of this equipment in vineyards to detect the presence of smoke, it's duration and density and the resultant development of smoke taint in wine. It is envisaged that this equipment is eventually utilized as an early warning detection system and risk analysis for the development of smoke compounds in fruit that lead to smoke taint in wine.

The smoke research program is interested to hear from vignerons who have experienced smoke in their vineyard and who may be willing to establish nephelometer based equipment. This cost will be at the vigneron's own expense (approx. $3100 incl. GST, excluding installation) and we are currently seeking funding to further reduce this cost.

To register your expression of interest please contact:

Kristen Kennison
Tel: (08) 9780 6189
E-mail: kkennison@agric.wa.gov.au, or

Diana Fisher
Tel: (08) 9777 0000
E-mail: dfisher@agric.wa.gov.au

Understanding smoke taint

Dr Kerry Wilkinson, School of Agriculture, Food and Wine, University of Adelaide

Recent research has demonstrated that the intensity of 'smoke taint' can increase during the fermentation of smoke affected grapes, due to the progressive release of guaiacol throughout the winemaking process.[1] The release of guaiacol during primary fermentation could be attributed to simple extraction from grapeskins, except that guaiacol concentrations continued to increase during malolactic fermentation; i.e. after the skins were pressed from the wine. This implies the conjugation of smoke derived guaiacol following grapevine exposure to smoke, and the occurrence of one or more smoke taint precursor compounds. The release of guaiacol following enzyme (β-glucosidase) hydrolysis of smoke affected grapejuice suggests precursors of a glycoconjugate nature.

The provenance of glycoconjugate precursors of guaiacol in smoke affected grapes is currently under investigation by University of Adelaide PhD student, Kerry Dungey. Under the supervision of Dr Kerry Wilkinson, and in collaboration with the Australian Wine Research Institute's Dr Yoji Hayasaka, Kerry has tentatively identified the glucoside of guaiacol (Figure 1) in fruit harvested from grapevines exposed to smoke under experimental conditions. However the glucoside could not be detected in the corresponding control (unsmoked) fruit. The research team is currently working to develop a quantitative analytical method which will enable the release of guaiacol from its glucoside precursor during fermentation to be investigated. The identity of other putative precursors is also under investigation.

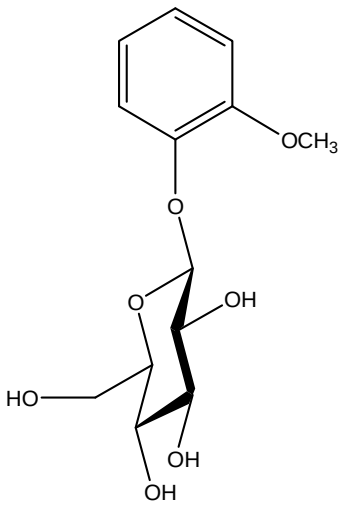


Figure 1. Guaiacol β–D-glucopyranoside

Anthea Fudge is also undertaking a PhD at the University of Adelaide. Her project has two major aims:

(i) to identify other volatile compounds responsible for smoke taint; and

(ii) to evaluate Near InfraRed (NIR) spectroscopy as a rapid analytical method for detecting smoke taint in grapes and wine, with the expertise from AWRI's Dr Daniel Cozzolino.

Anthea's project will involve the chemical and sensory analysis of a range of smoke tainted wines. Multivariate analysis will then be used to correlate spectroscopic, chemical and sensory analysis results. Any winery interested in contributing tainted wine samples to this research should contact Anthea's supervisor, Dr Kerry Wilkinson. The research team is happy to share the results from their analyses, and will ensure the origin of all samples remains strictly confidential.

Both PhD projects, funded by the Grape and Wine Research and Development Corporation, are aligned with existing smoke taint research being undertaken by the Department of Agriculture and Food, Western Australia and Curtin University of Technology, and lead by Kristen Kennison. It is hoped that the outcomes of this collaborative research will improve current understanding of smoke taint and provide industry with rapid analytical tools for assessing smoke taint in grapes and wine.

References

Kennison, K.R., Gibberd, M.R., Pollnitz, A.P., Wilkinson, K.L., 2008. Smoke-derived taint in wine: The release of smoke-derived volatile phenols during fermentation of Merlot juice following grapevine exposure to smoke. **J. Agric. Food Chem**. (in press).

For further information contact:

Dr Kerry Wilkinson
Tel: (08) 8303 7360
E-mail: kerry.wilkinson@adelaide.edu.au

Eutypa dieback in WA

Andrew Taylor, Horticulture Pathologist, Bunbury

Eutypa dieback caused by the fungus *Eutypa lata* is considered one of the most destructive pathogens of grapevine wood in Australia. Losses of 860 kg/ha of shiraz have been attributed to eutypa infection in South Australia (Wicks and Davies 1999). Eutypa dieback is widespread in many grapegrowing regions of Australia but the extent to which it occurs in Western Australia is uncertain. Only a single record of the fungus in WA exists from 1975 (Shivas 1989).

Symptoms of eutypa dieback include leaves that are smaller than normal, cupped and with chlorotic margins. Other symptoms include dead or dying arms and wedged shaped internal lesions. Symptoms of eutypa dieback are generally more apparent on grapevines 8 years or older and when the new seasons shoots are 25-50cm long. Examples of these symptoms can be found at: http://www.sardi.sa.gov.au/pages/hort/hort_crops/grapes/eutypa_trunk_disease/eutypapage1.htm. Once present in a vineyard the number of infected vines progressively increases over time causing substantial yield loss.

As the distribution of eutypa dieback in WA is not known researchers from the South Australian Research and Development Institute and DAFWA are planning to survey for eutypa dieback this coming season. Combined with the survey, seminars will be conducted on various other diseases present in WA vineyards from interstate and international guests. If you feel that you have seen symptoms that look similar to those of eutypa dieback and are willing to take part in the survey please contact **Andrew Taylor E-mail: ataylor@agric.wa.gov.au or Tel: (08) 9780 6100.** We are particularly keen to visit vineyards close to apricot orchards as apricots also host *Eutypa lata*.

Shivas RG (1989) Fungal and bacterial diseases of plants in Western Australia. *Journal of the Royal Society of Western Australia* **72 (1&2)**, 1-62.

Wicks T, and Davies K (1999) The effect of Eutypa on grapevine yield. *Australian grapegrower and winemaker.* **426a**: 15-16.

The Dog Book

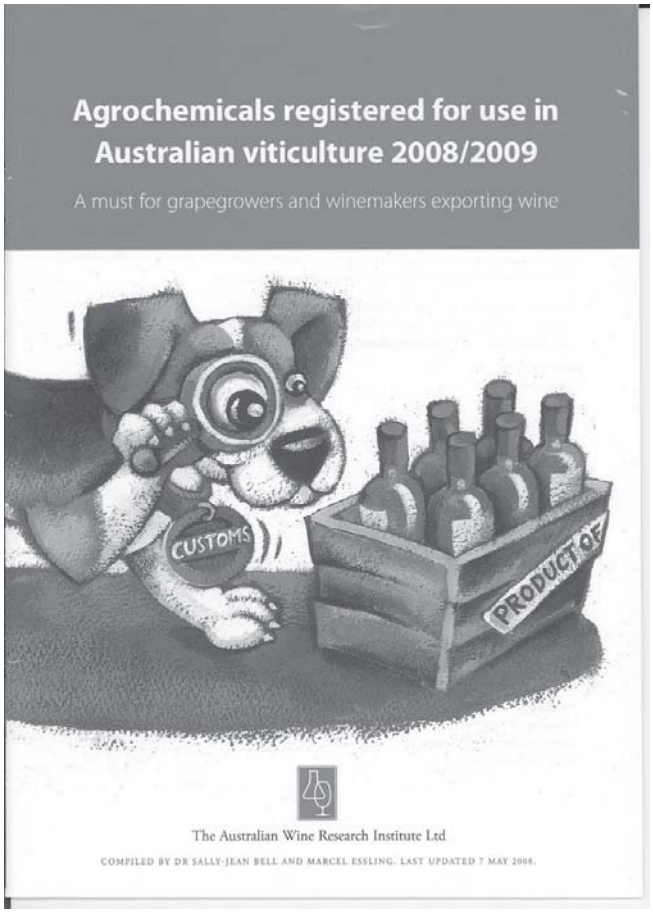
Diana Fisher, Viticulture Development Officer, Manjimup

The *'Dog Book'*, officially titled *'Agrochemicals registered for use in Australian viticulture'* is produced by The Australian Wine Research Institute Ltd. An updated version is released each season. The current edition for the 2008/2009 season is orange. This book is a must for grape growers, winemakers and wineries growing/using grapes for export wine.

Current editions of 'The Dog Book' are available from:

- Australian Wine Research Institute
  Tel: (08) 8303 6600
  Fax: (08) 8303 6601
- Australian Wine Research Institute (AWRI) website: www.awri.com.au
- Department of Agriculture and Food, Manjimup Horticultural Research Institute
  Tel: (08) 9777 000
  Fax: (08) 9777 0001

The information in the booklet was last updated on 7 May 2008. The most up-to-date information is available on the AWRI website.



ASVO seminar

'Footprints, food miles and furphies' key presentation
'Food and wine value chains: Prosperity through collaboration'

Philippa Pattison, Executive Officer ASVO, Adelaide

The program for the ***'Footprints, food miles and furphies'*** seminar has now been finalised with agreement from **Professor Andrew Fearne,** Adelaide Thinker in Residence, to provide a presentation on September 10. The working title for Andrew's presentation is Food and Wine Value Chains: Prosperity through Collaboration*, although it is possible that this will be reworked prior to the seminar.* The fifteen partners and two sponsors of Andrew's residency have generously included this engagement as part of Andrew's next period of residence, and the seminar convenors extend their thanks to all of these bodies for their support of this event.

Andrew is Director of the Centre for Supply Chain Research at Kent Business School, University of Kent. He is an expert on food marketing, consumer behaviour and supply chain management. An economist by training, Andrew moved into the area of supply chain management because of an interest in an area of growing importance not usually covered by economists.

During the past twenty years he has been researching consumer requirements and expectations in a wide range of food supply chains in the United Kingdom, shedding light for farmers, processors and retailers on the changes needed to lift agribusiness performance in supply chains and the consumer food experiences in supermarkets into better value chains for stakeholders and better and safer eating experiences for consumers. He has also worked in France, Ireland, Slovenia, Germany, North America, the Middle East and South-East Asia.

Professor Fearne's integrated chain analysis research system and style of communication has been particularly effective during a period in the UK food and beverage sector when assaults to public confidence in food products from livestock disease outbreaks demanded system change. Growing up on a family farm and his early career role as an economist with the national farmers' organisation in the UK were formative and influential stepping stones to an academic and consulting career which has been consistently transforming underperforming supply chains into value chains by focusing on consumer preferences.

His research and facilitation activities have involved the strategic analysis of consumer behaviour and the co-ordination of agri-food supply chains with clients and research partners from around the world.

Professor Fearne is the founding editor of the International Journal of Supply Chain Management, author of over 100 articles, and editor or contributor to over a dozen books on industry values chains and related matters. (Further details of Andrew's residency may be found at www.thinkers.sa.gov.au the website from which this material was sourced).

The inclusion of Professor Fearne in an already outstanding program of speakers should make this an event not to be missed in 2008.

ASVO recommends that you visit www.asvo.com.au/news/registration to view th complete program and register.

This seminar will also be available via pay per view webcast 48 hours after the event

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Future Events

ASVO Seminar

'Footprints, Food miles and Furphys'

ADELAIDE SA
10 September 2008
(Videoconference or web video to WA)
ppattison@asvo.com.au
www.asvo.com.au

Climate Change Workshops

16 - 18 September 2008
Margaret River, Manjimup, Albany
Tel: (08) 9777 0000
gward@agric.wa.gov.au

8th International Symposium on Grapevine Physiology & Biotechnology

National Wine Centre of Australia
ADELAIDE SA
23-28 November 2008
Tel: (08) 8410 9855
admin@asvo.com.au
www.asvo.com.au/8isgpb

CHANGE OF DETAILS

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

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