



Congratulations Catherine!



Main photo courtesy of the Barossa and Light Herald.

Catherine Cox, the Rootstocks Project Manager for the PGIBSA, won the “2008 Barossa Young Viticulturist Fellowship Award” from the Barossa Grape Growers’ Vine Selection Society Inc.

Her success was announced at the Society’s annual function on the 21st September 2008. Catherine’s award included \$10,000 that will be put towards studying the performance of six different rootstocks grown in the Barossa, to confirm their reported drought tolerance. In addition, the project will examine the role of carbohydrates and whether drought influences a decline in carbohydrate storage, potentially affecting yield and reproductive processes such as pollination, fertilisation, fruitset and bud fertility in the following season.

The project is being run in collaboration with the South Australian Research and Development Institute in Nuriootpa, and has been expanded to fulfil a Masters project with the University of Adelaide. The Barossa fellowship will also enable Catherine to travel overseas to investigate how international rootstock breeding programs are responding to water shortages and how drought tolerant rootstocks are being used in other countries.

Catherine’s growing knowledge and experience will enable her to assist growers make a confident choice of rootstocks to maintain healthy vines and quality fruit in a changing and challenging environment.

If you have any questions about rootstocks for your vineyard, contact Catherine on (08) 8362 0488 or 0438 620 480.

Grapes now considered a risk for fruit fly

Grapes have previously been regarded as a non-host, or at worst a low level host for Queensland Fruit Fly (QFF), but after severe infestations in grapes in the Hunter Valley in 2007 (see picture), this position was reviewed, and grapes are now recognised as a host for both key pest species of fruit fly ie both the native QFF and introduced Mediterranean fruit fly (Medfly).

Infestation occurs when an adult fruit fly “stings” a grape, laying its eggs inside the berry. The eggs hatch and the larvae feed on bacteria introduced into the fruit as a result of the egg laying process (see picture on page 2).

Larvae (maggots) develop within the fruit. Several larvae can develop within just one berry. When fully developed (which can take up to several weeks, depending on temperature) larvae emerge from the fruit, burrow about 5cm into the ground and pupate. Adults emerge from pupae after between 10 days and several weeks.



Bunch of grapes affected by Queensland Fruit Fly. Note the sting marks on fruit and the discoloration indicating internal rotting as a result of larval feeding. Photo: A. Loch – NSW DPI.

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Merbein Research Station closing!

In May the CSIRO announced that due to budget restrictions the Merbein Research Station will close and the site is likely to be sold. The research station contains 650 wine grape varieties and clones and 85 rootstock varieties.



110 Richter rootstock mother vine.

The Phylloxera and Grape Industry Board of South Australia (PGIBSA) met with Dr Jeremy Burdon to discuss our concerns, on behalf of industry, regarding what will happen to the priceless historical collection. Dr Burdon advised that the station will not be closing for 18-36 months, and that CSIRO had renegotiated a 10 year lease on a property at Koorlong where a collection of the important wine grape varieties and clones will be planted, following an audit of plantings at Merbein. Dr Burdon assured the Board that "nothing unique will be lost".

Dr Burdon also explained that the grapevine research component of the Merbein current activities will be relocated to the Adelaide with the current trials maintained. In the longer term, support for tablegrape and citrus research is likely to be withdrawn.

PGIBSA has been advised by Dr Burdon that the Sunraysia Consultative Committee is currently developing a proposal to establish a Centre of Irrigated Horticultural Research (CIHR) at the Merbein site. This proposal will be put to CSIRO in about 3 months.

Dr Burdon has assured the PGIBSA that we will be kept informed of progress as the transfer process unfolds.

Grapes now considered a risk for fruit fly

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Adults are able to mate within one week of emergence, and female flies begin laying eggs shortly after mating. They pierce the fruit with a special "ovipositor", excavate an egg laying chamber under the surface of the fruit, and lay eggs. Each separate piercing into a fruit is called a sting and females may lay up to six eggs into each chamber and may sting the same piece of fruit multiple times. Females have the capacity to produce up to several hundred eggs throughout their lifetime.

The risk is that infested fruit will be transported into a region that does not have fruit fly, and some fruit will be spilt onto the ground – allowing the larvae to burrow into the soil and pupate. Adult flies hatch and move in search of food and a mate. If successful, a fruit fly outbreak can occur in the region. Grapes or other (more preferred) host fruits such as stone fruits and citrus can become infested.

To address this risk, the state regulatory authorities have agreed upon a new set of conditions relating to the movement of fresh winegrapes. Winegrapes coming from an area that has fruit fly will be required to be covered during transport, and to be processed immediately by an accredited winery upon arrival at their destination. Control of any spillage and cleaning of bins will form a key part of the receipt process.

SA is generally free of fruit fly, but outbreaks do occur from time to time. In the event of an outbreak (eg the recent outbreak around Daw Park in metropolitan Adelaide) a 15km or 30km (depending on the severity) suspension zone is established around the infestation, and this remains in place for a *minimum*



Queensland Fruit Fly larva and associated feeding damage inside grape berry.
Photo: A. Loch – NSW DPI.

of 12 weeks. Therefore any outbreak from now on will affect vintage 2009 for any regions caught up in the suspension zone (eg the Adelaide Hills – or potentially Adelaide Plains, Barossa Valley or McLaren Vale).

You may also be affected if you export grapes to New South Wales or Sunraysia, even if you are not in a suspension zone, or if you have to move grapes through a suspension zone – eg from the Limestone Coast to the Barossa Valley or the Riverland.

To find out more, ring the fruit fly hotline on 1300 666 010 or your local PIRSA office – or contact the Board.

A new era begins at the Board

It is with excitement and some trepidation that I take up the role of Chief Executive Officer for the Phylloxera and Grape Industry Board of South Australia.

I come with 25 years of experience of leading government and non-government organisations particularly in the health sector. So as you can imagine I do not have much knowledge and virtually no experience in the fields of viticulture and winemaking. I do, however, have my roots firmly in the country as I grew up as a farmer's son on Eyre Peninsula – only leaving in my late teens to pursue further studies in Adelaide. As a result, I bring a new set of eyes to this industry, and a commitment to apply my skills to ensure that South Australia remains phylloxera free.

“Grapegrowers are innovative, determined and passionate.”

What I have quickly learned is how incredibly innovative, determined and passionate grape growers are in striving for excellence in their practices.

The pest phylloxera needs no introduction to grape growers. The Board has for the past 12 years delivered a highly successful awareness campaign to enable growers to understand the “rogue” aphid, while also working in close collaboration with the Department of Primary Industries (PIRSA) to ensure that best practice quarantine protocols are in place and maintained. Under my watch, the Board will further enhance its awareness programs and partnerships with industry and PIRSA to maintain the confidence of grape growers in South Australia.



New CEO Alan Nankivell with PGIBSA Office Manager Rachel Inness.

As I am the “*new chum on the block*” or the vineyard, I want to understand more about growing grapes, the transport to wineries and production of wine and I welcome any offers to visit locations. Importantly, I welcome any feedback about the Board’s activities and how we can best achieve the Board’s objectives as set out in the Strategic Plan. A copy of the Strategic Plan can be found on the PGIBSA website www.phylloxera.com.au

Finally, thank you to all those growers and industry stakeholders who have made me feel so welcome, and I look forward to meeting you and serving you all in my role as CEO. I can be contacted on 8362 0488 or 0428 260 430.

Alan Nankivell

Phylloxera research program future secured

Earlier this year DPI Victoria withdrew its support for the national phylloxera research program that has been conducted by Dr Kevin Powell at the Rutherglen Centre for the past 10 years – threatening its continuation. This immediately provoked a strong industry response – including from the Board – and the decision was soon reversed. GWRDC has also renewed its commitment to this research work for the next three years, emphasising its importance at a time when applications far exceed the Corporation’s available funds. The Board has maintained its commitment of \$45,000 over three years. The work being undertaken will cover:

- Testing rootstock resistance to the six main genotypes of phylloxera
- Assessing rootstock performance in the field under different conditions including reduced water availability to determine whether there is any indication of breakdown in resistance to phylloxera
- Testing different systems of early detection, including emergence trapping, DNA probes and chemical and spectral fingerprinting, to try to develop a system that is more sensitive, earlier and/or less expensive.
- Measuring survival of phylloxera in white juice, to allow the development of an alternative protocol for disinfestation and safe movement of juice
- Education and extension programs including the annual phylloxera management workshops.

The total cost of the project over three years is close to \$1 million.



Glasshouse trial of rootstock resistance to different genotypes of phylloxera.



Be alert, not alarmed

Doubt over 1103 Paulsen nematode resistance

The root knot nematode (*Meloidogyne* spp) is highly damaging to the grapevine cultivars (own roots or susceptible rootstocks) on which it is able to feed and reproduce. They are the most widespread and economically-important plant parasitic nematodes of grapevines in South Australia (Walker 1997).

Control methods for nematode-infested sites include planting with nematode resistant rootstocks and increased water and nutrient inputs. With the current water situation, the latter is not a viable management strategy at present. Therefore, planting with the right resistant rootstock(s) is the only long-term solution.

1103 Paulsen has been widely recommended as an alternative to Ramsey in the warm-hot regions of South Australia, mainly because of its excellent drought and salt tolerance. To date, over 2,500 hectares of vines grafted from 1103 Paulsen have been planted in South Australia.



However, it has become apparent that 1103 Paulsen is underperforming in some sites, with the likely cause being root-knot nematodes (see picture). This is contrary to the current recommendations on the use of 1103 Paulsen, which classify it as having at least moderate resistance to root-knot nematodes. Differences in species of root-knot nematodes, and/or different field conditions such as soil fertility, available water and previous cropping history, may explain why 1103 Paulsen has been growing well in some South Australian situations where root knot nematode is present yet performing poorly in others.

The Board's Rootstock Project Manager, Catherine Cox, in conjunction with SARDI nematologist Dr Greg Walker, is currently examining the extent of this problem in 1103 Paulsen with the aim of characterising the nematode species associated with the decline of vines grafted to 1103 Paulsen and the extent to which this decline is occurring.

In the interim, for our recommendations, the tolerance of 1103 Paulsen to root knot nematode species will be downgraded from a rootstock with moderate to high root knot nematode tolerance to one with low tolerance.

For vineyard sites that do not have high nematode pressure (a large proportion of South Australia's current plantings), 1103 Paulsen is still an excellent rootstock and is likely to remain as one of the most preferred rootstocks on nursery orders. It has high vigour and deep extensive root system, as well as a long growth cycle and superior drought and salinity tolerance.

For more information, see our website or contact Catherine Cox.

*Left: Root knot nematodes magnified. Photo courtesy of www.oardc.ohio-state.edu/nematodes/photo_gallery.htm
Below: symptoms of nematode damage include stunting and poor shoot growth. Symptoms can be confused with nutrient and water deficiencies.*



How dry is too dry? Pushing the boundaries of drought-tolerant rootstocks

For many Australian vineyards, water has become increasingly scarce due to both lack of rainfall and reduced water allocations – in some regions as little as 6% of total allocation. For this reason, grapegrowers need strategies to cope with reduced water availability from season to season in order to produce a viable crop. One strategy is the use of drought-tolerant rootstocks. The Board, through its Rootstock Project Manager Catherine Cox, is currently investigating the drought tolerance of different rootstocks under extreme conditions (zero irrigation). In 2007-2008 a pilot trial was conducted to assess rootstock response to a zero irrigation regime in a region with 500mm annual rainfall.

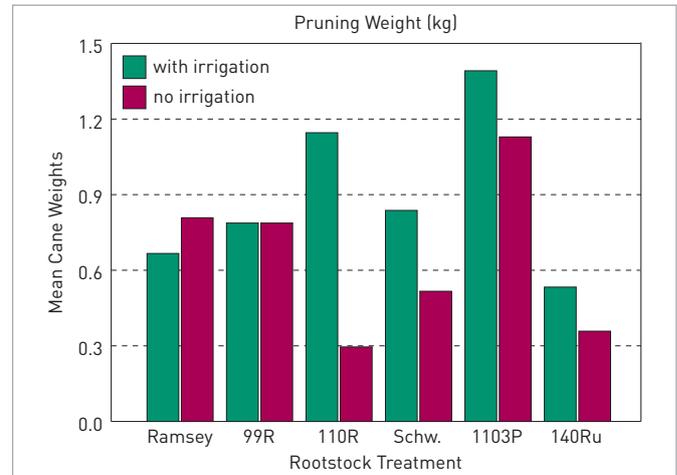


Schwarzmann treatment harvest, 21st February 2008. Treatments unirrigated (left) and irrigated (right) were analysed for response in growth to zero irrigation for the season and compared with control of 0.5ML/ha of irrigation for the season. The unirrigated treatment clearly shows reduced vigour compared with the irrigated control.

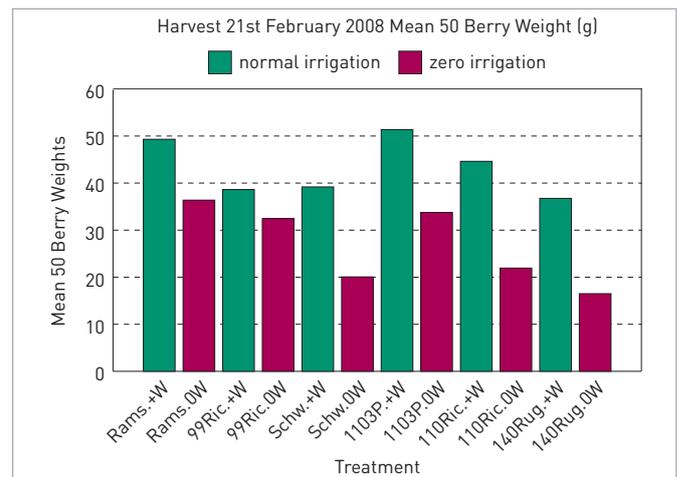
Shiraz on its own roots and grafted to rootstocks Ramsey (*V. champini*) a reported drought-tolerant rootstock, 140 Ruggeri, 1103 Paulsen, 99 Richter, 110 Richter (*V. berlandieri x V. rupestris*) all reported drought-tolerant rootstocks, and Schwarzmann (*V. riparia x V. rupestris*) a drought-intolerant rootstock were assessed for one season in the Barossa Valley, South Australia for their ability to maintain growth and produce a crop when subjected to a zero irrigation regime. Treated vines were deprived of any irrigation while control vines received 11 irrigations during December 2007 to February 2008, totalling 0.5ML per ha.

Berry weight decreased for all treatments in response to zero irrigation (see graph 1). Rootstocks Schwarzmann and 140 Ruggeri experienced a greater reduction in berry weight than Ramsey or 1103 Paulsen when not irrigated. 140 Ruggeri recorded the highest °Brix reading and lowest berry weight at harvest, implying a low tolerance to water stress. Ramsey and 1103 Paulsen reported similar °Brix and berry weights, comparable with their irrigated controls, which demonstrated an ability to cope with water stress.

Preliminary results indicate that Schwarzmann and 140 Ruggeri are showing symptoms of lack of tolerance to drought, and that the level of drought tolerance of rootstocks is not



GRAPH 1: PRUNING WEIGHTS (JUNE 2008) OF ZERO IRRIGATION AND 0.5ML/HA OF IRRIGATION (CONTROL) FOR THE SEASON.



GRAPH 2: 50 BERRY WEIGHT (G). ZERO IRRIGATION IN RED, NORMAL IRRIGATION IN GREEN.

necessarily correlated with rootstock parentage as historically reported. Overall, the *V. berlandieri x V. rupestris* hybrid rootstocks performed the best (with the exception of 140 Ruggeri) although the levels of this tolerance vary between the rootstocks of the hybrid *V. berlandieri x V. rupestris* which will be further investigated this coming season.

Bud fertility measurements during 2008-09 will be used to assess other long-term impacts of water stress. More detailed studies are underway to investigate the effects of water stress on the reproductive performance of rootstocks including analysis on pollen viability, fruitset and the role carbohydrates play in rootstocks and reproduction. This work has been made possible by the awarding of the Barossa young viticulturalist fellowship award to Catherine Cox, through Grape Barossa (see article page 1).

For a detailed report of this study, visit our website or contact Catherine Cox.

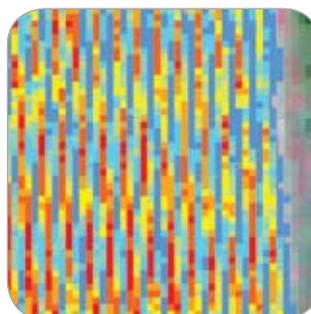


Benefits of GIS

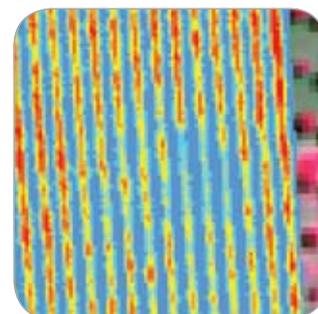
The Board has been acquiring aerial imagery of the state's vineyards since 2001 as part of its Early Detection Program. The imagery is analysed to identify sites of low vigour consistent with phylloxera damage. These sites are then visited by inspectors and the roots of the affected vines examined to ensure that the cause of the decline in vigour is not phylloxera. Over 2,300 sites have been inspected since 2002 with no phylloxera found. The program of site inspections continues this summer in the Barossa, Eden and Clare Valleys and Southern Fleurieu regions.

Through early detection, the threat that phylloxera poses to the state's wine industry can be minimised. Finding it early would give us the best chance to contain its spread, minimise the economic impact and even possibly eradicate it.

Although early detection is its main aim, the program provides other benefits. By actively inspecting for phylloxera, and not finding the pest, the state's phylloxera free status is validated and grower confidence is maintained. Unregistered vineyards over 0.5 hectares can also be identified and informed of their legal obligation to be registered. Using GIS, the state's vineyards can be mapped, providing accurate location information in case of an outbreak of phylloxera in the State.



2002 – 1 m spatial resolution.



2007 – 0.5 m spatial resolution.

The image on the right (above) shows a site with a patch of low vigour, similar to what would be seen if phylloxera was the cause. Red indicates high vigour, moving through orange-yellow-light blue to dark blue indicating low vigour. The image on the left shows the same site in 2002, when there was no evidence of loss of vigour. Comparison with previous years' imagery, and an improved spatial resolution aids in the task of understanding vigour variation within a vineyard.

Vineyard Imagery

Imagery can be provided to growers in hardcopy, PDF or JPEG formats for free, or in digital format at a cost. Details of the schedule of imagery acquisition are provided in the table below. For further information contact Martin Nolan at the office.

Region	Acquisition Year	Spatial Resolution (m)	Cost/ha *
Past and Current Program			
Limestone Coast	2001	1	\$1.00
McLaren Vale	2002	1	\$2.00
Barossa Valley	2004	1	\$3.00
Clare Valley	2004	1	\$3.00
Eden Valley	2004	1	\$3.00
Riverland	2005	0.5	\$5.00
Lower Murray	2005	0.5	\$5.00
Langhorne Creek	2005	0.5	\$5.00
Currency Creek	2005	0.5	\$5.00
Adelaide Hills	2005	1	\$5.00
Limestone Coast	2006	1	\$6.00
McLaren Vale	2007	0.5	**
Adelaide Plains	2007	0.5	**
Barossa Valley	2008	0.75	**
Clare Valley	2008	0.75	**
Eden Valley	2008	0.75	**
Sth Fleurieu (northern)	2008	0.75	**
Riverland & Lower Murray (other)	2008 (Dec)	0.5	**
Langhorne Creek	2009	0.5	**
Currency Creek	2009	0.5	**
Proposed Program – 3 Year Cycle			
Limestone Coast	2010	0.5	
Adelaide Hills	2010	0.5	
McLaren Vale	2011	0.5	
Barossa Valley	2011	0.5	
Clare Valley	2011	0.5	
Eden Valley	2011	0.5	
(Adelaide Plains & Sth Fleurieu)	2011	0.5	
Riverland & Lower Murray (other)	2011 (Dec)	0.5	
Langhorne Creek	2012	0.5	
Currency Creek	2012	0.5	

* Minimum cost for digital multi-spectral imagery – \$100

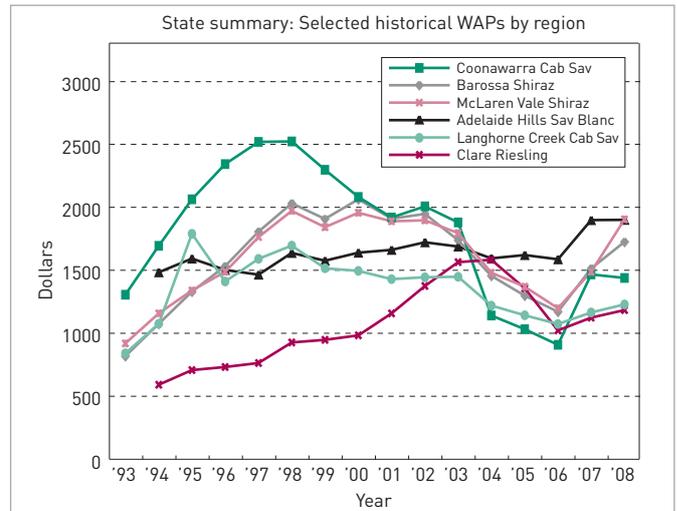
** Ownership of imagery retained by supplier. To obtain imagery contact the office.

Back to normal – or a flash in the pan?

Summary of the 2008 winegrape harvest in South Australia

The total crush of South Australian winegrapes in 2008 was 816,868 tonnes. This was more than 200,000 tonnes above the drought- and frost-devastated 2007 harvest, and was the fourth highest crush recorded for the state. Favourable growing conditions, purchasing of water and a mild February were the main factors that contributed to the harvesting of reasonable crops in most regions.

The total estimated purchase value of the crush was \$765 million, up by more than \$300 million from last year. The average purchase values for the major variety of each region increased again, despite the higher production, with the exception of Coonawarra Cabernet Sauvignon (see graph).



GRAPH 1: SA WINEGRAPE UTILISATION AND PRICING SURVEY 2008.

Put phylloxera on your list!

The Board has recently started a campaign to involve growers in early detection for phylloxera. This means inspecting your canopy regularly for symptoms of damage or disease, and putting phylloxera on your list of possible causes – not just assuming there is some other explanation.

An overview of the “VIP program” (vineyard inspectors for phylloxera) was given at the grower meetings this year, and published in the last newsletter. A detailed brochure can be obtained from the office or downloaded from our website.

This is a reminder that spring through to early autumn is the main time to find phylloxera in the vineyard. All recent detections in Victoria have been made between December and April. Please look out for symptoms and contact the Board if you suspect the cause could be phylloxera.



What to look for: Left: Late spring / early summer: Look for slow and stunted growth soon after budburst. From December onwards shoots will appear both stunted and stressed. Right: Late summer / early autumn: Look for premature yellowing of the leaves and early autumn defoliation. These are in fact the earliest symptoms of phylloxera damage in the canopy.

Projections for future supply and demand

The ABARE estimated supply of grapes for South Australia in 2013 is around 920,000 tonnes. This estimate is based on the assumption of a return to “normal” growing conditions and does not take into account any residual effects of drought and water restrictions or industry restructuring initiatives. The varieties likely to be most in demand, with significant shortfalls possible, are Sauvignon Blanc, Pinot Gris and Pinot Noir. There is even a small shortfall of Cabernet Sauvignon expected in 2013.

Vineyard plantings

Planting data derived from the Phylloxera and Grape Industry Board’s vineyard register shows that there were 78,717 hectares planted to vines in South Australia as at 30 April 2008. This represents an increase of 2,339 hectares; however, area adjustments and new registrations account for some of the increase. There was a total of only 973 hectares (1% of the total area) planted in spring 2007 (including topworking and replants as well as increases in net area). There were more new plantings of red than white varieties, for the first time since 2001. The major growth varieties proportionally were still Pinot Gris (89 hectares – 12% increase) and Sauvignon Blanc (181 ha – 8% increase). The rapid increases in plantings of these varieties suggests that there will be enough to fulfill demand in the medium term. Much more planting could lead to an oversupply, as happened with Chardonnay a few years ago. However, there are no indications that Pinot Noir is being planted at above a minimal rate (2%), and the current area (1462 hectares) will not be nearly sufficient to meet the anticipated demand of 28,000 tonnes in 2013.

The 2008 SA Winegrape Utilisation and Pricing Survey report is fully funded by the SA Wine Industry Association, the Wine Grape Council of SA and PIRSA. The report can be downloaded from the Board’s website. A hard copy has not been produced this year to save costs. For more information on the survey, contact Sandy Hathaway, the Board’s Manager of Information and Education Services.



Protect your vines... from tourists

Tourists present a small but real threat of introducing phylloxera to South Australia, if they have travelled in other wine regions where phylloxera is present (possibly undetected). In 2001 the Board launched a campaign: *Help Protect the Vines that produce our Wines*, aimed at tourists and the general public. The material was distributed to cellar door sales outlets in all grapegrowing regions.

We have recently produced an updated brochure, poster and vineyard sign, and are re-launching this campaign in time for Christmas 2008. The main message is that tourists should not walk or drive in vineyards without permission.

If you would like copies of the brochure (including a brochure stand) and/or a poster or vineyard sign (see illustration), please



contact us by phone or email. Even if you don't own a winery, you may be able to help by distributing the materials to a winery, bed-and-breakfast, motel or tourist office in your region. The sign can be made up in a range of sizes and can have an individual winery name or personalised contact information printed on it. The signs are sold for between \$50 – \$200. All other materials are free.

How up-to-date are you?

The Board is required under the *Phylloxera and Grape Industry Act (1995)* to maintain a complete and accurate register of grapegrowers in the state of South Australia. That means all grapegrowers need to provide the Board with accurate planting and contact details. Once a year, we send out annual *Vineyard returns* for you to check and alter as necessary. Please advise us of any changes to your plantings or contact details – including new plantings, removals and top-working; and also changes of address, contact names, emails etc.

When you have made any changes (or even if there are no changes), you need to sign the declaration to say that your details are correct, and return the form to us in the envelope provided. Your 2008 levy (raised in April 2009) will be raised on the information provided. It is an offence under the *Phylloxera and Grape Industry Act (1995)* not to be correctly registered.

Sale of property

You must notify us within three months of the sale of your property. A *Notification of Change of Ownership* form can be downloaded from our website – or contact Rachel Inness at the office.

An accurate vineyard register means that in the event of a phylloxera outbreak, the Board could very quickly contact all growers in or near the quarantine zone. It also enables us to produce up-to-date statistical information on vineyard plantings – including estimated production, changes in varieties etc. This information is vital for future planning for the industry and the state.

Permission granted?

The Phylloxera Board is always looking for ways to help save growers time and money, and increase the value you receive for your levy.

Recently we have discussed a partnership with the Wine Grape Council of SA – your state representative body – whereby we can provide them and/or your regional association with a copy of our mailing list once a year, to allow them to keep you informed about their activities.

This would mean they don't need to use their resources (and your

money) to maintain a mailing list of their own, and you don't need to fill in more paperwork giving them as well as us your contact details – and updating both organisations when anything changes.

In a recent survey conducted by the WGCSA, 86% of growers said they would be happy for the Board to supply WGCSA with their contact details. Without such a strong indication of general support, we would not be considering this arrangement. Enclosed with your newsletter is a permission slip for you to indicate whether you agree or not. Please send it back with your vineyard return, or by fax.

Disclaimer: While the Board has made every effort to ensure the accuracy of the information contained in this newsletter, it accepts no liability for the use of the information and any consequences arising from doing so.