update

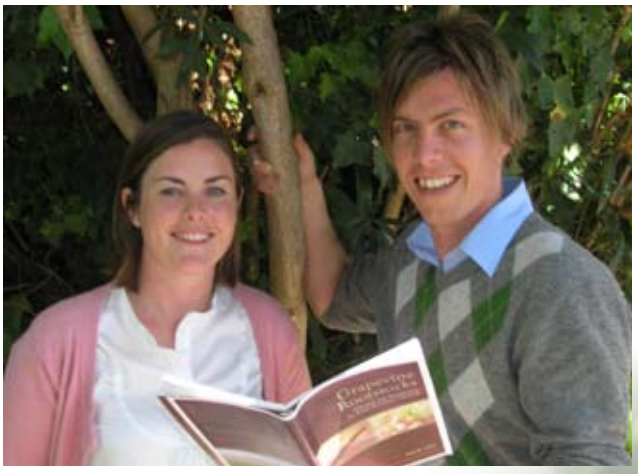
Phylloxera and Grape Industry Board of South Australia

Dry book is a great read

The Phylloxera and Grape Industry Board has just completed a three year project to address low rootstock use in regions throughout South Australia.

The project culminated in the publication of a new book entitled "Grapevine Rootstocks: Selection and Management for South Australian vineyards"

This comprehensive book by Nick Dry clearly outlines the benefits of using rootstocks, the characteristics of different rootstock varieties and the site factors that need to be taken into account in choosing a rootstock. It provides regional recommendations for rootstock selection, supported by up-to-date, local evidence. There is also a chapter on managing rootstocks to ensure you get the best out of your selection. The book is available from the Board's office, and is free to registered growers.



Newly appointed Rootstock Project Manager Catherine Cox with previous incumbent Nick Dry. Nick has left to travel and work in vineyards in Engand and the USA.

Growers to become VIPs!

One of the most important facts to emerge from recent phylloxera outbreaks is that grapegrowers and vineyard workers are usually the first to detect the signs of phylloxera attack. Aerial remote surveying, soil DNA sampling and phylloxera trapping methods are proving useful in confirming the extent of a phylloxera infestation but almost always this is after the pest has been found and after it has had a chance to become well established and perhaps spread to other vineyards.

Growers and vineyard workers can therefore play a vital role in protecting vineyards by systematically inspecting their vines for signs of phylloxera and acting on any suspicions straight away.

The Phylloxera Board is asking all South Australian grapegrowers to become 'VIP's' (Vineyard Inspectors for Phylloxera) beginning this spring/summer. It's an ambitious exercise but we believe it could prove to be very important for the future of the wine industry in this state – increasing our confidence that there is no phylloxera present, or making an early detection that could save millions of dollars by reducing the impact of an outbreak. This should not be a difficult or time-consuming job, as you would carry out the inspection while you, your workers or consultants are in the vineyard anyway; spraying, checking irrigations, yield forecasting or pest and disease monitoring.

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Growers to become VIPs!

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Spray operators are likely to be the most effective 'VIP's'. They see the vines regularly and are often the flrst to note changes in the size and appearance of the vine canopy. It may only be a matter of informing them of what to look for and encouraging them to report what they see as described below.

Do-it-yourself phylloxera vineyard inspections

To participate, all you need to do is inspect your vines for a number of distinctive signs. Because phylloxera can appear anywhere in a vineyard, it is important that each row is inspected. All the vines flrst need to be "eyeballed" and suspect vines (see below) should be taped and their location (row and vine number) marked on a copy of your vineyard plan. Those vines should be looked at more closely. If the cause isn't clear, notify the Phylloxera Board and we will send someone to inspect the vines with you. If, as is most likely, it turns out that phylloxera is not responsible for any symptoms observed, continuous vigilance and follow up remains critical to identifying and correcting other disorders.

What to look for

For phylloxera detection vigilance is required from bud-burst to leaf-fall. There are some key signs to look for:

Stunted Shoots

The shoots of vines that have been infested for some time may be noticeably stunted.

In advanced infestations there may be no budburst at all

Premature Yellowing

Leaf yellowing is an early symptom in all grape varieties; progressive reddening from the leaf edge inwards usually follows in red varieties.

Symptoms will usually be flrst apparent in two or three adjacent vines; usually, but not always within the same row.

Root Galling

Infested roots are distinguished by yellow ‡eshy galls

As the season advances these increase and the phylloxera insects will be noticeable if the root is viewed with a magnifying glass.

Damage spreads in typical "oil spot" pattern

Premature Yellowing

Stunted Growth

'Oil spot'

As the number of phylloxera increase, the host vine will gradually dies and the insects move to adjoining vines

This is the start of the typical "oil spot" pattern, which grows progressively in size as neighbouring vines, both within the row and across it become infested.

Symptoms may be easily confused with other causes. Phylloxera itself may be difficult to detect because of low numbers. Any suspected infestation warrants further investigation by a specialist. Soil DNA analysis may now be used to conflrm presence of phylloxera in those situations.

This article is a summary of our document, 'A Growers Guide to Canopy Inspection'. Copies available from the offlce or from www.phylloxera.com.au

A small investment for a potentially great return

Typically when phylloxera is flrst discovered in a vineyard it has had 3-5 years to multiply. Research has shown that up to 3000 phylloxera can emerge from a single vine in a two-week period. Considering that emergence takes place over 4-5 months each year and over several years before detection, this represents a signiflcant opportunity for the phylloxera to be spread to other vineyards by humans, vineyard equipment and possibly birds and animals. The quicker it can be detected, the better the chances of containment or at least slowing down the spread and hence reducing its impact.

Phylloxera Workshop gets Farm-Bis subsidy

The Board has conducted an annual 2-day phylloxera identification and management workshop in northeast Victoria for the past 11 years. As part of our ongoing commitment to maximising value for our growers, we have just applied for and been granted Farm-Bis registration for the workshop. This means that 60% of the course costs will be subsidised by Farm-Bis for eligible participants (any grapegrower or vineyard manager will generally qualify unless they work for a publicly listed company).

As always, the workshop provides a unique opportunity to meet grapegrowers, researchers and winery staff in other regions, and see first-hand the impact that phylloxera has on their vineyard operations.

Participants travel to vineyards in North-East Victoria to learn how to recognise canopy symptoms of phylloxera and find phylloxera insects and galls on root material. We also look at winery and transport hygiene, observe phylloxera under a microscope and study rootstock trials in the field and the glass-house. While the focus is on learning, when you bring a group of grapegrowers and viticulturists from around the state together you can't help but have a bit of fun as well! The workshop fee of $495 (inc GST) covers all accommodation, meals and workshop notes – except for travel to and from Melbourne airport. (Farm-Bis subsidised price approximately $250.)

Examining root galls in the field in North-East Victoria

Dates for the 2008 workshop: February 4 – 6.

For information and bookings ring 8362 0488.

Numbers limited.

Drought to increase bird damage?

Growers are being warned that one outcome from the drought could be higher damage from birds targeting grapes this season.

According to Dr Ron Sinclair of the Department of Water, Land and Biodiversity Conservation, the effect of drought on the production of bird food by plants (flowers, fruits and nuts) may be greater in the year after a drought. Already this year, the reduced availability of resources has impacted on many bird species, especially honeyeaters and small seedeaters whose numbers are near all-time lows.

While bird numbers may be down, grapes, a predictable food resource for birds especially during summer, could well be targeted and feeding levels might be similar to or worse than in non-drought years. As a result, the level of damage as a proportion of the crop and the financial value of the lost fruit could be greater particularly when the recent rise in grape prices is factored in.

Dr Sinclair warns that the conditions this season are unprecedented and it is not therefore possible to accurately predict what will happen. He advises growers to be vigilant in their vineyards particularly in the key period 6 to 8 weeks prior to harvest. Specifically he recommends continual monitoring of fruit condition and to take action as soon as damage is noted.

The Phylloxera & Grape Industry Board of South Australia, in conjunction with Dr Ron Sinclair from the Dept of Water, Land and Biodiversity Conservation, has produced a booklet entitled *A Growers' Guide to Managing Birds in South Australian Vineyards.* This provides growers with information on how to assess their level of bird damage, how to monitor their crop and what to do to reduce their losses. The booklet is free to registered growers and is available from the PGIBSA office.

New direction for rootstock project

The publication of the Grapevine Rootstocks book signifles an end to stage one of the Rootstock Project and the beginning of a new direction. In October the Phylloxera and Grape Industry Board employed a new rootstock project manager: **Catherine Cox**.

Catherine originates from Mt Evelyn, near Victoria's Yarra Valley. After completing a bachelor of Viticultural science, Catherine furthered her studies going on to complete an honours degree in viticulture at CSIRO studying plant hormones and pollen tube growth in grapevines and Arabidopsis thaliana. This project was part of a GWRDC and CRCV-funded honours scholarship. After completing the project Catherine gained employment as a viticultural agronomist servicing the regions Coonawarra, Wrattonbully, Robe and surrounds.

The future direction for the rootstock project will include tackling the issues current to the industry such as drought, salinity and emerging new varieties, and continuing to gather information on appropriate rootstock–scion combinations and regional interactions.

Picture A shows budburst of Schwarzmann rootstock and picture B of 110 Richter. How the obvious difference translates to rootstock-scion interaction is currently being examined.

Rootstocks: a grower's secret weapon?

Even without the substantial beneflt of guaranteed protection against phylloxera, rootstocks can offer growers signiflcant opportunities for cost savings and increased productivity. The following examples from the Adelaide Hills demonstrate this.

Case study: Adelaide Hills

The issues presently facing the Adelaide Hills as a grapegrowing region include:

- **high vigour vines growing on fertile soils,**
- **cool wet springs and summers that can be detrimental to fruitset and delay maturity,**
- **waterlogging and highly leached acidic soils.**

These limiting factors can be addressed by the strategic use of rootstocks.

Example: vigour control

Different rootstocks impart different levels of vigour to the scion. If you are planting Chardonnay or Sauvignon Blanc on a highly fertile site with reasonably high rainfall, you can control vigour by planting on a devigorating rootstock, such as 101-14, Schwarzmann or 3309C. At such a site, planting on a devigorating rootstock would lead to consistent (better) quality, reduction in vineyard variability enabling more accurate yield forecasts - and lower canopy management costs.

Example: Delayed Maturity

The following rootstocks can overcome this limitation:

- 101-14
- Schwarzmann
- 5C Teleki

All these rootstocks consistently ripen one week earlier than own roots (Hannah and Krstic, 2003). This beneflts growers and ensures that in cool or wet years, full ripeness occurs at harvest with added possibilities for Baume bonuses. Potential cost savings can be achieved through reduced incidence of late season disease and consequent spraying. Confidence of maturity at harvest will also enhance the grower's relationship with the winery.

These examples are just a sample of the capabilities of rootstocks for redressing vineyard issues. Before you plant or replant vineyards consider the use of rootstocks as tool for increasing vineyard profltability as well as sustainability.

For more information visit the Phylloxera and Grape Industry Board's website: www.phylloxera.com.au/viticulture/rootstocks or contact the Board's Rootstock Project Manager Catherine Cox on 8362 0488.

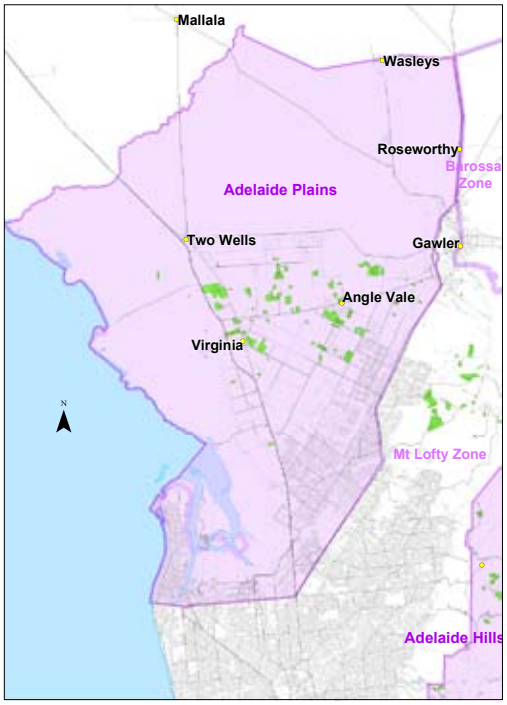
Shiraz on own roots in Adelaide Hills. A good example of an unbalanced vine showing excessive vigour.

Shiraz on 101-14. The vine here is balanced and controls the high vigour Shiraz scion in fertile environments.

Adelaide Plains: caught on camera

The map opposite shows the Adelaide Plains vineyards captured for the flrst time by the Board from imagery collected in January 2007. The Adelaide Plains is a very large GI region: at 92,000 hectares more than double the size of McLaren Vale (43,000 hectares). However, the total area planted to vines in the region is only around 800 hectares, compared with 7,500 hectares in McLaren Vale!. As part of the Board's Early Detection Program, vineyard inspections are due to be conducted in the McLaren Vale and Adelaide Plains regions this summer.

The GIS project offlcers are currently identifying sites of interest from the imagery captured in February 2007 and will be contacting growers to gain approval for inspections in the New Year.



Vineyards of the Adelaide Plains GI and Mt Lofty Zone

International Phylloxera Symposium

Peter Hackworth attended the 3rd International Phylloxera Symposium held in Hungary in September. The symposium brought researchers together from Germany, Brazil, Austria as well as Australia.

Hungary is one of a number of former eastern block countries attempting to make the transition from communism to democracy and integration into the European community. Until recently, investment in vineyard and winery technology has been low. Funding for education and research has also been difflcult and during the symposium the Hungarian government announced a 30% cut in the budget for university agriculture courses.

The countryside is very beautiful and vineyards typically very small. Total area of vines is 93,000Ha and the major disease issues are botrytis and viruses. There has been a strong focus on breeding new varieties more suited to local conditions. Industry organisation at all levels is very poor.

Rootstock resistance was a primary focus for the symposium. As the major defence against phylloxera, long term resistance is essential for future vineyard viability. UC Davis phylloxera researcher, Jeffrey Granett, reported that there is no evidence of phylloxera overcoming rootstock resistance in California. In Germany an increase in the number of tuberosities on the rootstocks SO4 and 5C Teleki has been observed but without impacting on vine yield. Trials of a new chemical are showing positive preliminary results in that it appears to suppress phylloxera populations. We will be following the progress of this research closely. Contact was also made with a research group in Germany who have plant breeding rights to two rootstocks that, like Börner, are reported to be completely resistant to phylloxera. The Board has expressed interest in undertaking trials of these rootstocks in South Australia.

An interesting side note to the symposium is that Dr Kevin Powell who heads up Australia's phylloxera research team, was invited by the Dutch equivalent of AQIS to educate their inspectors about phylloxera (viticulture in the Netherlands is on the increase – a result of their climate warming). Less than a week later they found phylloxera on the roots of a huge potted vine imported from Italy!

Vineyards in Hungary

2007 Annual Grower Meetings

Our annual grower meetings in 2007 again proved popular and we would like to think all who attended for their support. Numbers were up in most regions except the Riverland where we believe the difficulties facing growers in surviving the drought affected attendance rates.

Guest speakers included Dr Leanne Webb, talking on the impact of climate change on viticulture, Dr Chris Preston and Dr Richard Hamilton on weed management, and Ashley Ratcliff on using rootstocks as a management tool.

In presenting the Board's annual report Chief Executive Peter Hackworth advised that a review of the Board has recently been completed at the request of Rory McEwen, SA Minister for Agriculture. The review was chaired by Brian Walsh of Yalumba Wines and he was assisted by Vic Patrick (representing grapegrowers), Phillip Laffer (wineries), Peter Stephens (PGIBSA Chairman) and Kris Roberts (PIRSA).

The review panel strongly endorsed all major programs including *the Vineyard Register, phylloxera research funding, phylloxera workshops, education and awareness and the annual grower meetings.* The rootstock project was identified as a program that was under-resourced and should be expanded, with external funding, because of its importance in offering solutions for dealing with drought and salinity.

The Board's major achievements in 2006/07 included:

- Completion of the third year of a major project to identify optimum phylloxera-tolerant rootstocks for viticulture regions of South Australia;
- 98% of South Australia's vineyards have now been checked for phylloxera under the early detection program
- Substantial progress towards nationally agreed plant health standards for the movement of phylloxera risk vectors between states
- $60,000 invested in collaborative research to further understand the biology and behaviour of phylloxera and to develop strategies to minimise damage to grapevines;
- Distribution, through the Board's three regional committees (Limestone Coast, Central region and Riverland) of $22,850 in small grants to local grapegrower associations
- Publication of our 10th annual Utilisation and Pricing Survey.
- Leading a grower study tour of French and Spanish vineyards.

Climate Change and viticulture

The IPCC (Intergovernmental Panel on Climate Change) expects the temperature in Australia's viticulture regions to increase by 0.4 to 2.6C by 2050. Dr Leanne Webb recently completed a PhD which modeled the potential impact of climate change on grape production across Australia. She spoke at the Coonawarra and Barossa grower meetings. The following is a summary of her presentation.

Earlier harvests

The timing of phenology is determined by temperature. Dr Webb's modeling of the likely impact on harvest dates found that by 2030 Coonawarra vineyards may be harvesting 15 to 23 days earlier than the current average. By 2050, harvest will be 21 to 45 days earlier. In the Riverland, harvest will be 6-13 days earlier by 2030 and 8-24 days earlier by 2050. Grapes will be harvested at a warmer time of year in a warmer projected climate. In Coonawarra by 2050, Cabernet may be harvested at a temperature on average 4.5C higher than it is now.

If this scenario pans out, there will also be infrastructure implications as wineries manage fruit coming in over a shorter period of time.

As temperatures increase, some regions may need to change the varieties they grow. Coonawarra and the Adelaide Hills may be more suited to growing Shiraz, the Clare to Verdelho and new varieties may be needed for the Riverland.

Quality implications

Dr Webb found a strong correlation between MJT (Mean January Temperature) and quality; ie as MJT increases the price paid per tonne drops. (see diagram)

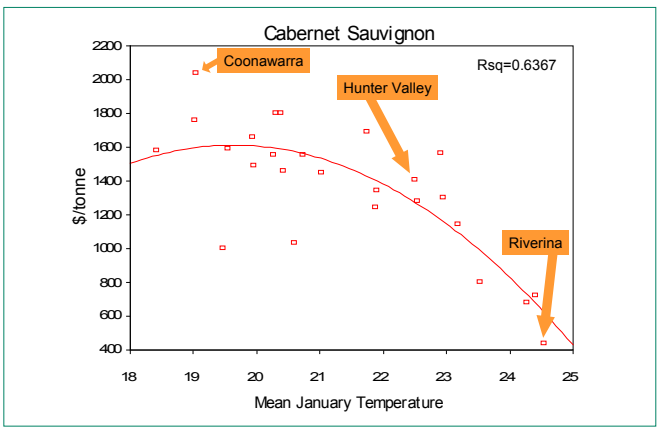
The model found that the quality of winegrapes across Australia may drop by 7% to 23% by 2030 with the biggest drop occurring in the inland regions. By 2050, the impact on quality may be in a range of 12% to 57%.

Rainfall

Dr Webb explained that while there is a high degree of confidence in modeling the impact of climate change on temperature, there is less confidence in predicting the impact on rainfall. However, the models suggest that overall annual rainfall will tend to fall in all regions, particularly in spring and winter. This may have implications for frost management and ensuring adequate soil moisture at flowering, a problem exacerbated by the likelihood of lower inflows into the Murray Darling catchments.

A video of Dr Webb's presentation can be found at our website, www.phylloxera.com.au. An article published in Grapegrower and Winemaker summarising her research can be obtained from our office.

Relationship of MJT to grape prices



Managing weeds in vineyards

When we conducted our grower survey at the beginning of the year, the number one pest management issue of concern identifled by grapegrowers was weed control.

Therefore we invited Dr Chris Preston from the CRC for Australian Weed Management and the University of Adelaide to give a presentation on controlling weeds in vineyards at some of the 2007 annual grower meetings. The following summary is based on his presentation, supplemented by practical information provided by our new rootstock project manager, Catherine Cox, who has had extensive prior experience as an agronomist in the Limestone Coast, helping growers to manage weeds effectively.

Herbicides can be divided into pre-emergents (also known as residuals) or post-emergents (knock-down or systemic). **Pre-emergent herbicides** are put on prior to the weed emerging and are leached into the soil by rainfall or irrigation. In general they target the weed seed and are best applied to a bare ground so they can more effectively adsorb onto soil particles. **Post-emergents** control weeds that are present at the time of application and will not have any effect on the seed bank. Knock-down herbicides are fast-acting and very toxic, but kill only the tissue they come into contact with. These can be used safely when vines are growing provided they are not allowed to contact the vine directly. Systemic herbicides (eg glyphosate or "Round Up") move from the point of contact throughout the plant tissue, preventing further growth of the plant. In general these herbicides are slow acting; however they tend to kill the whole plant over time.

Post-emergent selectives such as ‡uazifop ("Fusilade") are a good option for controlling annual grasses, and have no residual activity.

Many vineyards are now showing at least some glyphosate resistance, and weeds need to be managed by combining a glyphosate application with a "spike" of either carfentrazone (Hammer) or oxy‡uorfen (Goal).

It is important to identify the weeds you have growing, and apply the most suitable herbicide for your weeds. Don't assume that the weeds will be the same as last year; in fact, if you have been spraying effectively you are likely to see a change in the weed population over time.

Use the right amount of water and ensure it is of good quality (rainwater if possible). If in doubt, have your water tested.

Websites such as www.pestgenie.com.au, can be a useful resource with up-to-date and comprehensive information on herbicides and other crop protection products.

Photo demonstrates the importance of choosing the right herbicide for the job. The figure displays a good kill on the Porto cocksfoot grass by the grass-selective herbicide and a lack of effect on the broad-leaf weeds still green and actively growing.

different weeds need different controls

Abandoned Vines and the Phylloxera Levy

A number of growers have contacted us this year asking whether they still need to pay the phylloxera levy when they have abandoned, uneconomic vines. We have advised these growers that South Australian law requires all vine plantings of 0.5ha or more, regardless of whether they are productive or not, to be included on the Phylloxera Board's vineyard register. This includes vines grown for private use as well as commercial; they must be registered and are liable for the Phylloxera Levy.

Where the vines are dead - ie there are no shoots on almost all the vines and they are beyond recovery - we can remove them from our records. If you have vines in that state and wish to deregister them please contact the offlce and we will arrange to visit the vineyard.

Abandoned vineyard

Call for improved plant protection legislation

The Phylloxera Board has called for PIRSA to be given greater powers under a revised Plant Health Act, currently being drafted. The Board has been concerned for some time that PIRSA inspectors have insufficient powers to protect SA's vines (and other commercial plants).

Our submission has recommended that, when an offender admits a breach, PIRSA should have the option of entering into a written contract with that person or entity to take immediate remedial action to minimise the risk caused by the breach. This might include issuing recall notices, paying for disease eradication or even providing compensation. Court action would only arise if PIRSA believed that the contract had been breached.

The significant advantage of having this power (similar to that which the Australian Competition and Consumer Commission has) is that it would achieve the same outcome as court action without the delays, cost and risk of failure to get a conviction. The case whereby Bunnings allegedly brought vines into SA illegally in 2006 is a clear example: a year after the event the case is yet to get to court and there may be no prosecution because of a legal technicality.

Other important changes proposed are:

- A broader range of actions to prevent the potential outbreak or spread of a declared pest.
- Broadening the responsibility for reporting a quarantinable pest or disease to include any person who knows or suspects that it is present. Currently only the landowner is required to do this.
- Allowing inspectors to undertake emergency actions to control, prevent spread of, or eradicate a declared pest.

For more information contact Peter Hackworth 8362 0488

2007 Vintage Survey Report published

The 2007 SA Winegrape Utilisation and Pricing Survey has been published. This comprehensive report includes a summary of last vintage, for all major regions in SA, as well as projected supply and demand figures for the next five years. The report is available free to registered growers. Contact the office for a copy. Report can also be downloaded from our website.

New Staff

We welcome Rachel Inness to the Board, in the position of Office Manager. Rachel comes to us with an impressive record in senior administration, prior to which she was an enrolled nurse for 11 years. We all feel much safer with her around!

Already she has made a positive impact in the office and has quickly learned the ropes (including spelling phylloxera). Look out for her cheery voice when you ring up.

We welcome Rachel Inness (left) and Catherine Cox (right) who has joined us in the position of Rootstock Project Manager (see page 4).

Syrah Decline Worsening

Photo courtesy of ENTAV

Syrah Decline, a disease which is having an increasingly detrimental impact on the 53,000Ha of Syrah planted in France. Foliar leaves redden at the end of summer and, on grafted vines, a distinctive grooved swelling at the graft union occurs. The symptoms have also been reported in California and South Africa. The cause of the decline is unknown but researchers have ruled out bacteria and viruses. They believe fungi could play a role and phytoplasma are also being investigated. There have been no reports of the symptoms in Australia but the issue reinforces the importance of only sourcing planting material from accredited nurseries and Vine Improvement schemes, and obtaining documentation from the supplier on the health of the material.

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