Phylloxera
Stop the Spread!

A short guide to managing phylloxera on your property

Be Aware.
Be Active.
Be Vigilant.
The underlying purpose of this *Pocket Guide to Managing Phylloxera* (the guide) is to assist growers with a best practice approach to on-farm biosecurity measures.

The *Pocket Guide to Managing Phylloxera* serves as a handy reference tool for growers and contractor service providers, to support efforts in the fight against the spread of phylloxera.

This easy to use guide explains how the implementation of effective on-farm biosecurity measures will assist in avoiding or managing the presence of the pest. It also provides a summary of the relevant legislation, the government’s policy and responsibilities in phylloxera management, and outlines growers’ responsibilities.

The guide provides **general information only and should not be considered as a legal document.** This document is designed to offer an overview of phylloxera management issues that may be encountered in day-to-day operations.

Therefore, all recommendations associated with the guide are made in good faith on the basis of information available at the time. Notwithstanding anything contained therein, neither state government nor its servants or agents will, except as the law may require, be liable for any loss or other consequences arising out of the guide.
Phylloxera – Stop the Spread!

Be Aware.  Be Active.  Be Vigilant.

Be Aware - keep up to date on information, workshops, new findings and best practice biosecurity protocols

Be Active - monitor weak or suspect spots in your vineyard

Be Vigilant - have a strong farm gate policy and on-farm biosecurity measures in place
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What is phylloxera?

Phylloxera is a tiny yellow insect that destroys grapevines by damaging their roots. Secondary fungal infections can also occur as the roots are injured. As the roots die, so does the vine.

Adult phylloxera are approximately 1mm long and yellow-brown in colour. The adults are all female and are able to reproduce asexually. One adult female is capable of laying up to 200 eggs per cycle and can have several cycles in its lifetime. This means that only one insect is needed to infest a vineyard.

Some signs of phylloxera infestation include:
- paler green leaves then gradual yellowing
- stunting of growth as leaf function is modified.

Symptoms may appear within three years, with vine death possible within five to six years depending on the phylloxera genotype.

Once established, phylloxera is found in the vineyard throughout the year, with peak populations from November to February. The risk that people will pick up phylloxera crawlers on their clothing or footwear is particularly high between September and May, when phylloxera crawlers are likely to be present on the soil surface and in the canopy.

Even without the assistance of human contact or machinery movement in the vineyard, phylloxera has the capability of crawling up to 100m per season in a vineyard.

Phylloxera can’t be eradicated from a vineyard once established, as there are currently no effective chemical treatments. Vineyard owners can use resistant rootstocks as part of a risk management strategy.
Stunted growth as leaf function is lost

Root gall with phylloxera

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Phylloxera and the law in Victoria

The movement of phylloxera host material is regulated in Victoria by the *Plant Biosecurity Act 2010* (the Act) and the *Plant Biosecurity Regulations 2012*. These can:

- prohibit or restrict, subject to prescribed conditions, the removal, entry or movement of plants, plant products, used packages or used equipment or earth material, and
- require owners or occupiers of land to take certain actions. Phylloxera is a declared notifiable pest under section 17 of the Act; as such, industry members have a legal responsibility to report suspect phylloxera signs/infestations to government within seven days of observation by contacting 136 186 or emailing market.access@ecodev.vic.gov.au

The Act also restricts the intra and interstate movement of phylloxera host material unless certain conditions or restrictions are first met. Host material of phylloxera includes:

- grapevine foliage
- grapevine cuttings and rootlings
- whole fresh grapes
- grape marc and unfiltered juice
- unfermented grape must
- packages and equipment used in the cultivation and harvesting of grapes, including bins, buckets, vine guards, and vineyard posts (but not limited to these)
- vehicles and machinery used in a vineyard
- soil from vineyards
- green potted vines
- diagnostic samples.

For more information on the Act and Regulations, go to: http://www.legislation.vic.gov.au/
Under the provisions of the Act, an authorised inspector may issue a Control Notice under Section 26(2) containing orders or directions to any person who owns or is in possession or control of plants, plant materials or used packages in order to prevent an outbreak or prevent the spread of the pest. A person who contravenes or fails to comply with a notice may be subject to an Infringement Notice or court action.

**Movement controls into Victoria**

The Act prohibits the importation into Victoria from New South Wales, Queensland, Tasmania, South Australia and Western Australia and the Northern Territory and the Australian Capital Territory, any prescribed host material unless a person is in possession of either an assurance certificate, plant health certificate, or a plant health declaration, and presents the prescribed material for inspection, examination or treatment as required.

In Australia, three types of management zones are used to classify regions according to their phylloxera status.

- **Phylloxera Exclusion Zone (PEZ):** an area that is recognised as being free of phylloxera. PEZs are used to improve biosecurity and market access for the industry and must be protected from the introduction of phylloxera.

- **Phylloxera Risk Zone (PRZ):** any area not otherwise classified as a PIZ or PEZ – that is, an area where the phylloxera status is undetermined.

- **Phylloxera Infested Zone (PIZ):** an area that is known to be phylloxera infested. It is established to prevent the spread of the pest from the area.

An interactive application exists so you can determine where you are located in relation to the phylloxera management zones in Victoria.

For the latest map information go to:

Prescribed host materials are allowed into Victoria without certification, provided they originate from a state or part of a state for which an area freedom certificate has been issued in relation to phylloxera freedom.

If you need more information on movement controls into Victoria please contact the Customer Service Centre on 136 186 or email plant.standards@ecodev.vic.gov.au

Movement controls out of Victoria
Other Australian states have regulations regarding the movement of phylloxera host material that must be complied with. This is particularly important given South Australia, Western Australia, Northern Territory and Tasmania are all recognised PEZs. Movement of any host material from Victoria to other states must meet state-based Regulations. These Regulations are enforceable by law and failure to comply may result in prosecution.

Interstate Certification Assurance
In order to facilitate regular movement of grape material, Interstate Certification Assurance (ICA) arrangements are available. These can be used for interstate (and intrastate movement) of grape material between PIZs and PRZs or PEZs.

The ICA scheme is a national system that allows an accredited business to issue Plant Health Assurance Certificates (PHAC) without the need for an authorised officer to certify produce on behalf of the business. When a PHAC is issued by an accredited business, it is accepted as evidence of conformance with specified quarantine requirements for interstate and intrastate trade.

An ICA arrangement is an agreement between a business and the Department of Economic Development, Jobs, Transport and Resources (DEDJTR). The accredited business assumes responsibility for treating and/or inspecting produce and then issuing a PHAC.

For more information on the scheme and the types of accreditation available, go to: http://www.dqmawg.org.au/go/dqmawg/ica-database
If you need more information on movement controls into other states please contact the Customer Service Centre on 136 186 or email plant.standards@ecodev.vic.gov.au

Or, you can contact the relevant primary industries department in each state for more biosecurity information about phylloxera.

- Western Australia’s Department of Agriculture and Food: 08 9368 3333
- New South Wales Department of Primary Industries: 1800 808 095
- South Australia’s Primary Industries and Regions: 08 8226 0995
- Tasmania’s Department of Primary Industries: 1300 368 550
- Queensland Government’s Department of Agriculture and Fisheries: 07 3404 6999

**Movement controls within Victoria**

Strict prohibitions apply to the movement of phylloxera host material within Victoria. Failure to follow movement restrictions may result in prosecution.

If you need more information on movement controls and restrictions within Victoria please contact the Customer Service Centre on 136 186 or email plant.standards@ecodev.vic.gov.au


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The National Phylloxera Management Protocol (NPMP) has been developed by the National Vine Health Steering Committee (NVHSC) to reduce the risk of spread of grapevine phylloxera. The NPMP provides a consistent, technically justified framework for the movement of grapevines and grapevine material or associated potentially contaminated items between grape growing regions of different phylloxera status.

Responsibilities

Government
The state government is responsible for plant biosecurity programs in Victoria, including the provision of area freedom certification for phylloxera.

The state government:
• administers the Plant Biosecurity Act 2010 and associated Regulations
• develops appropriate policies and legislation that provide the basis for phylloxera management in Victoria
• is responsible for ensuring that officers are trained in administering relevant ICAs, regulatory procedures and phylloxera detection activities
• is responsible for informing industry of their statutory responsibilities regarding reporting of suspect detections, and the requirements for moving phylloxera host material within and into the state.

Phylloxera movement controls have been adopted by all states and territories as the basis for enabling intra and interstate movement of host material and used agricultural machinery. It remains the responsibility of industry to comply with these requirements and for government to ensure that the necessary certification services are available to growers and industry as required. Setting intra and interstate market access conditions is largely the responsibility of state governments in consultation with industry and affected businesses.

The management of phylloxera in Victoria is considered to be a shared responsibility between growers, contractor service providers and the state government.
Growers
Growers are responsible for:
- developing and implementing their own on-farm biosecurity practices
- inspecting vineyards for signs of phylloxera presence on a regular basis and reporting suspected infestations to the state government
- raising awareness of the importance of stopping the spread of phylloxera to other growers’ properties, and promoting broad adoption of on-farm biosecurity practices
- communicating biosecurity requirements to their staff, visitors and contractors on their property.

Contractors
Contractor service providers play a critical role in the management of phylloxera. They must safeguard against the introduction of phylloxera onto a property or its spread to nearby properties by their careful usage of farm machinery, bins and clothing. This can be achieved by adopting best practice biosecurity methods aimed at preventing the spread of phylloxera.

Contractor service providers also need to comply with the law and be aware of their responsibilities associated with the movement of phylloxera host material into and out of Victoria’s management zones (i.e. PIZ and PEZ).
Phylloxera is a declared notifiable pest under section 17 of the Plant Biosecurity Act 2010. Accordingly, industry members have a legal responsibility to report suspect detections to the government, who in turn must report changes in Victoria’s phylloxera status to all states and territories.

Growers and industry will:
1. report any suspect phylloxera signs/infestations to the state government within seven days of observation by contacting 136 186 or emailing market.access@ecodev.vic.gov.au

Upon receiving a report of a suspect phylloxera detection within a PIZ, the state government will:
1. contact the property owner/manager within seven working days of notification to arrange for sample collection; and
2. depending on the time of year, arrange for surveillance and sample collection:
   (a) December to April: within 14 working days or as agreed with the property owner/manager; or
   (b) May to November: in accordance with advice and guidance of state government scientists; and
3. forward suspect samples to Crop Health Services - the designated provider of diagnostic services to the state government - within one working day of sample collection (preferably on day of collection); and notify the property owner/manager of diagnostic results and forward a copy of the Crop Health Services report to the property owner/manager within one working day of receipt.
4. if phylloxera is reported within a PIZ or PEZ, samples will be collected immediately.

If phylloxera is confirmed on your property, you will be notified and will receive advice regarding options for controlling the infestation.
Property Identification Codes (PICs)

Property Identification Codes (PICs) are being progressively introduced to plant industries in Victoria. PICs will assist the state government to respond to plant pest and disease outbreaks, so that industries are informed earlier and disruption to trade is minimised.

If you grow 0.5 hectares or more of grapevines within Victoria, you are required by law (Plant Biosecurity Act 2010) to apply for a PIC.

Reporting suspected phylloxera

Early detection and a planned response are the keys to effective phylloxera management. If you think that you may have found phylloxera on your property, contact us on 136 186 or email market.access@ecodev.vic.gov.au.
Best practice biosecurity on-farm

What is best practice biosecurity? In the case of growers and contractor service providers, on-farm biosecurity means everyone practising effective hygiene and cleaning measures that will protect their property from the entry and spread of diseases and pests such as phylloxera. Farm biosecurity is everyone’s responsibility, and that of every person visiting or working on your property.

Practising good biosecurity can also minimise the impacts and spread of phylloxera on properties already affected by the pest.

The biggest risks for transferring phylloxera between vineyards include:
- **Vineyard equipment and machinery**
- **Harvested grapes and grape harvesting equipment**
- **People (visitors and contractors) and their clothes, shoes and vehicles**
- **Grapevine planting material**.

You can take some simple steps such as restricting access to your vineyard, cleaning and disinfesting your equipment and vehicles, and complying with state regulations regarding the intra and inter state movement of phylloxera host materials to help stop the spread of phylloxera.
How do I manage visitors and tourists entering my vineyard?
The more people, machinery and vehicles that enter your property, the
greater the risk that one of them will bring phylloxera with them, and
accidentally contaminate or infest your vineyard. Your aim should be to
limit access to your vineyard as much as possible – particularly to people,
vehicles and equipment that have recently been in other vineyards.

**Controlled entry point.** Have one signed entry
point to your vineyard and forbid unauthorised
entry or entry when the property is not supervised.
Ensure all visiting vehicles (including trucks, cars,
tractors, and contract machinery) arriving at your
vineyard or winery are clean and have complied with
the state’s Regulations for phylloxera management.
Check copies of any documentation.

**Controlled vehicle access.** Provide parking for
visitor vehicles away from your vines – preferably
on a hard surface. Prevent anyone taking
shortcuts through your vineyards; they must stick
to roads, designated tracks, headlands or hard
surfaces. Do not allow visitor vehicles to drive in the
vineyard. Use a vineyard vehicle wherever possible.

**Fences and gates.** Restrict access to your
vineyard as much as possible with fences and
(closed) gates – especially along main roads or
where people are able to enter the vineyard without
authorisation (e.g. to take short-cuts). If you have
gates, keep them closed and locked (if an absentee
owner). Don’t allow entry to vine rows.
**Signs.** Use signs to advise of conditions and restrictions of entry to your property (include a contact phone number for people to ring if access is required). The use of signs and notices to advise visitors of compliance with the state’s Regulations for phylloxera management is encouraged.

**Report arrival.** Require all visitors to report to an office or person on arrival. Keep a record of all visitors to the vineyard, including the date and purpose of their visit and any vineyard regions visited within the prior eight days. This would be very helpful if you ever have to trace the origin of an infestation on your property.

**Check recent vineyard visits.** Ask visitors about their recent visits to other vineyards. Consider denying access to anyone who has been in or near a vineyard in a known PIZ. Deny them access if they are wearing the same clothes, footwear or using the same vehicle, without appropriate cleaning and disinfestation.

Provide visitors and staff with information about the impact of phylloxera (e.g. brochures, pamphlets, maps, website addresses).
How do I clean and disinfect my equipment?

Use a designated cleaning area. Cleaning should be carried out in a designated area wherever possible – preferably on a hard surface (gravel, concrete or bitumen) and well away from the vineyard. Consider installing a dedicated wash-down bay with hot wash/pressure wash if you often have contractor equipment or machinery from other regions or states onto your property.

No run-off onto vines. Water run-off from cleaning must not be able to flow onto or next to any vines.

Get into the hard-to-reach bits. Remove any parts of machinery that may hold dirt or plant material debris, and thoroughly hot wash/pressure wash the machine or equipment, concentrating on the underside and other areas most likely to collect soil or plant material. Hot wash any associated equipment or vehicles – particularly wheels and mudguards.
All machinery, including contracted harvesting equipment, should be cleaned and disinfested prior to moving between properties, to comply with best practice for phylloxera management. Disinfestation procedures include hot water treatment (2 mins at 70C), steam (above 100C), or dry heat (75 mins at 45C, or 2 hours at 40C). If machinery or equipment are going from a PIZ to a PEZ or PRZ, they must be cleaned and disinfested by one of these methods.

Inspect bins on arrival to ensure they are free of dirt in the lift channels and any grape residues. If obtaining bins from a hire company, insist that they cleaned and disinfested before dispatched to your vineyard. Check that the appropriate legal requirements have been followed. Reject any loads that do not comply with the state’s Regulations for phylloxera management.

If you use picking buckets from another vineyard, make sure they are cleaned and disinfested before entering your vineyard, and have the appropriate certification. It is strongly advised to have picking buckets dedicated to your vineyard, which should not be loaned out to other vineyards.
Checklist

Have you asked contractors in advance to clean and disinfect machinery before arrival?  

Have you checked certification on machinery/equipment coming in to your vineyard to ensure it complies with the state’s Regulations for phylloxera management?  

Have you inspected machinery/equipment visually? (Do not allow any visibly dirty machinery/equipment to operate in your vineyard.) Remember, even though it looks clean, phylloxera may be present.  

Have you parked transport vehicles on hard stand areas and unloaded machinery/equipment well away from vines.

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How do I manage contractors and staff entering and exiting my vineyard?

Cleaning and disinfesting footwear before entering a vineyard

Dilute fresh household bleach with water in a tub to make a solution. The required mix needs to be diluted 50% bleach, 50% water to effectively kill phylloxera. And check the label - the active ingredient needs to be sodium hypochlorite.

Scrub boots in clean water with a scrubbing brush to remove mud.

Soak and scrub boots in freshly prepared bleach solution for 60 seconds.

Do not rinse in water immediately following immersion in bleach solution because this reduces the impact of the bleach.

Repeat recommended scrubbing, when leaving the property.
Clothing and hats are high-risk carriers of phylloxera because these articles can come into contact with vines, so minimise the risk by providing disposable or dedicated on-site clothes for workers to wear where possible.

If disposable clothes are not used, ensure workers have a change of clothing between properties and clothing worn during work has been put through a hot wash in a washing machine at 50°C or higher with detergent before being used again. All clothing used in vineyards in PIZs and PRZs should be sealed in a plastic bag for transport. Infested clothing must not be transported to another property and then re-worn.

Clean small hand tools such as picking and pruning equipment in 50% bleach, 50% water solution for 60 seconds.

The education and training of staff and contractors is very important. Supply fact sheets and make the phylloxera training video readily available.
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Checklist
Have your seasonal workers arrived in clean clothing and boots, particularly if they have come from a vineyard in a PIZ?

Have boots and shoes been scrubbed in the recommended bleach solution?

Have you provided disposable clothing?

Have your casual workers arrived with clean tools?

Have you provided your workers with information (e.g. fact sheets, including translated versions) on vineyard hygiene?

Phylloxera can’t be removed from vineyards once established because there are currently no effective chemical treatments and no biological controls. The only effective measure to manage phylloxera is to remove all vines and replant on resistant rootstocks. Phylloxera is a tiny yellow aphid-like insect that destroys grapevines by killing their roots. Secondary fungal infections then occur as the roots are injured. As the roots die, so does the vine. Adult phylloxera are 1mm long and yellow in colour in summer, tending to brown in winter. The adults are all female and are able to reproduce asexually. One adult female is capable of laying up to 200 eggs per cycle and can have several breeding cycles in its lifetime. This means only one insect is needed to infest a vineyard.

The first signs of a phylloxera infestation include:
• yellowing of vines
• stunting of growth as leaf function is lost.

Symptoms may appear within three years, with vine death within five to six years depending on the phylloxera genotype.

In the early stages of infestation, the affected leaves look like an oil spot in their spreading pattern as the phylloxera move from vine to adjacent vine. Soils such as cracking clays facilitate the spread in contrast to sandy soils that are more difficult for crawlers to move through. Wet seasons and well irrigated vineyards help the vine mask the damage caused by phylloxera.

Phylloxera infestations have the capability of moving up to 100m per season in a vineyard.

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How do I ensure my grapevine planting material is free of phylloxera?

It is prohibited to remove cuttings, rootlings and potted vines from a PIZ. Potted vines are prohibited from a PRZ into a PEZ but cuttings and rootlings can be imported under certain conditions. Please contact the Customer Service Centre on 136 186 or email plant.standards@ecodev.vic.gov.au

**Planting material should arrive clean.** Visually inspect dormant vines on arrival and reject any with dirt or insects on stems or roots.

**Rootlings/cuttings can be rinsed clean of soil.** Buy only high quality material of known origin and health status from an accredited nursery or vine improvement organisation, within a PEZ.

**Require that all material be hot water treated before leaving the nursery.**

The nursery should provide evidence of the hot water procedure used to ensure it is an effective hot water treatment for phylloxera.

**Clearly record the source and other details of the material planted on the vineyard.**
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Footwear is a high-risk carrier of phylloxera so minimise the risk by always providing foothbaths (or alternative footwear where possible).

Remember - phylloxera can go undetected

Phylloxera can go undetected for years. Do not assume grapevine phylloxera is absent on your property and act accordingly even though a detection has not been confirmed. Remember:

- Your neighbour may be infested even though your property is free of infestation.
- Phylloxera management begins at the farm gate so it is incumbent on managers/growers to prevent infestation and spread of the pest.
- This pest is spread easily on grapevine material, used agricultural machinery and people, so good farm hygiene is essential.
- There’s a legal requirement to notify the state government if phylloxera is suspected.
- Plan long-term for replanting with resistant root stock which reduces the risk of the pest multiplying and reduces the risk of spread. Phylloxera can still exist on properties with resistant root-stocks.
- For more information regarding grape phylloxera, what to look out for and on-farm hygiene practices, visit www.agriculture.vic.gov.au/phylloxera
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