

# P H Y L L O X E R A   S U R V E Y P R O C E D U R E S

## Vineyard Surveys

This survey method is designed on the observance of other physical parameters that may indicate the presence of phylloxera other than an inspection of the young feeder root system of the vines for galls, colonies of adults or nymphs (crawlers) in the vineyard. Listed below are some of the areas in which critical assessment must be made during the survey.

## Phylloxera Indicators

### **Poor Vine growth** (Sections of cane growth not reaching the foliage wire)

Short cane growth and a reduction in the internode distance may be associated with soil type, depth of top soil, available moisture and fertility but may also indicate the presence of some pest or disease causing problems with the root system of the vine. This is very evident when vines appear weak and unthrifty but there is strong weed or grass growth at the base of the vines.



**Fig 1**

**Fig 2**

Fig 1 Shows poor vine growth, foliage wire visible and strong grass growth under vines.

Fig 2 Same vines 2 years later showing decline with coloured stressed leaves.

### **Dead vines**

Where surveys are to include areas in vineyards that have dead vines, do not waste time sampling these vines. The vines to be concentrated on are the vines showing only slight decline on the edges of the dead patches where the insects have recently invaded, populations will be high and active on the root systems if the phylloxera aphid is the cause of death to the vines.

### **Volunteer seedlings**

Some grape varieties produce seedlings that give the opportunity to examine young newly established root systems for the presence of galls or insect colonies. This is of particular value when surveys are conducted in vineyards that are planted on phylloxera resistant root stocks.

### **Root stock over-growth**

The bright green and different leaf shape may be observed during the inspection of vine on rootstocks and these over-growth canes should be scanned for the

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presence of leaf galls. This would indicate the presence of a phylloxera population that may be difficult to find on the inspection of the roots.

### **Layering of the scion**

In areas that support vigorous cane production layering of scion may occur, these should be dug up and inspections of the roots carried out. This is an additional opportunity for the detection of phylloxera aphids.

### **Survey details**

#### **Survey intensity:**

A minimum visual inspection of every 3rd row of vines and the more detailed inspection of feeder roots under magnification taken from one vine in every 5th panel of that 3rd row.

#### **Timing of surveys**

Surveys should preferably be carried out during the optimum period of detection and this would be from December to the end of April depending on the district to be surveyed.

#### **Survey team members**

Teams should consist of at least 2 and up to 6 people who will carry out the survey. Team members should be selected who do not have conflicting interests with any sections of the grape industries.

All team members will be trained to recognise suckers of root stocks, vine feeder roots, phylloxera leaf galls, root galls and nymphs (crawlers).

Teams leaders will be appointed and trained in the survey method, sampling procedure, recording principles and phylloxera identification before they begin surveying. The team leader will be the spokesperson for the group and will be the only person to discuss survey issues with the vineyard owners, managers or staff.

#### **Before entering the vineyard/or property**

- Vehicles not to be parked in vineyard.
- Property owners will (where possible) be notified in advance of your arrival, and asked to provide a suitable sketch or plan of the vineyard. Additional information relating to poor vine growth areas indicated on the sketch plan will also assist in the survey. Owners will also be asked to restrain pets. Where the owner has not been contacted and there is a risk (from pets or other), the team leader will decide if surveying is to proceed.
- Team leaders to identify the group to the property owner/manager before surveying commences, and will explain the objectives of the survey. Team leaders to request location of potential blocks for survey, (blocks less than 2 years old should not be included in survey) and check for the availability of a farm/vineyard sketch plan.
- Surveying not to proceed if the property owner refuses entry.
- Team leader to record property details on survey sheet including history of planting material and grape and machinery movements.

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- All team members to change into gumboots and clip on identification tags. (Do not enter the vineyard in your street footwear.)

**Survey procedures**

- Team members to survey a row each
- Eyeball both sides of the vines for areas of poor growth, additional weed growth, seedlings etc.
- Dig under the vine (one in every 5th panel or other suspect areas) 600cm from the trunk or in the near of irrigation drippers to expose the actively growing feeder roots.
- Sever the roots if necessary and inspect for phylloxera colonies or galls using the 10x magnification hand lens.



- Mark suspect vines with survey tape and alert team leader
- Team leader to assess marked vines removing samples where required (see sample procedure below)
- Once the survey of the vineyard has been completed return to the vehicle to disinfect gumboots, shovels and clothing.
- Record the longitude and latitude of the vineyard (GPS)

**Sampling procedures (team leaders only)**

- Samples must be taken for positive identification by an entomologist experienced in the identification of phylloxera for any suspected detection in a district that phylloxera has not been recorded.
- Mark vine with survey tape before the removal of the sample
- Remove the sample and check with hand lens for the presence of insects.
- Place sample in a sample bottle or vial containing 70% ethanol.
- Label sample, and cross reference to survey form
- Place sample into storage esky.
- Record number and details of vine position, row number and sketch plan and position of vine on survey form.
- If the team leader is confident that phylloxera is present in the vineyard the survey can be terminated.
- Vineyard personnel should be informed that a sample has been taken for positive identification and that notification will follow positive identification and additional surveys may be necessary.

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### Disinfestation procedures (all staff)

- All staff are required to disinfect gum boots and shovels before leaving a property.
- Set up disinfestation station on a suitable hard stand or grassed area.
- Remove large clods of soil from boots and shovels with screwdrivers.



- Clean shovels (including the handle and tongue) and boots with detergent and water, use scrubbing brush to remove aggregate soil and plant matter in washing tubs
- Place 20 cm of 1.0% available chlorine in the form of sodium hypochlorite solution into container and scrub shovels and boots. Avoid splashing on clothing and exposed skin, rinse hands in clean water.



- Discard the water and detergent, rinse the wash tub using the contains from the chlorine wash container.
- The team leader should inspect all cleaned equipment prior to leaving the property.
- Team members to change into street footwear before leaving the site.
- If phylloxera is suspected to be present in the vineyard clothes or overalls must be replaced before entering another vineyard.
- If you re-enter the vineyard for any reason change into gum boots and repeat disinfestant procedure

### Before leaving property

- Check all equipment is packed in vehicle
- Check all samples are labelled, forms completed and are secure

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- Team leader to inform grower or representative if samples have been taken from the vineyard

**Before finishing shift**

- Team leaders to record details of hours worked by team members on record sheets provided
- All team members to record hours worked on personal employment record sheets
- Survey problems to be reported to Supervising Officer
- Any other problems (OHS, Health, etc.) to be reported to appropriate officer
- Dispose of autoclave bags in the recommended manner

**Equipment to be supplied to teams**

- 10x magnification hand lens
- Disposable Bags
- Survey Forms, Survey Tape
- Vials, bottles and labels
- Spray Bottle containing 70% Alcohol
- Identification Tags
- Sample Storage Eskies
- Portable Cleaning Kits (Sodium hypochlorite solution, Detergent, Screw drivers Scrubbing brushers, 2 Foot Baths)
- Gum Boots (where required)
- Plastic rectangular bucket
- Mobile Phone
- Hand soap
- Water
- Paper towels
- Sun screen
- Brushers or Rechargeable vacuums cleaners
- Drinking water (8 litres)
- First aid kit

**Equipment supplied by team members**

- Changes of clothes or overalls
- Lunch and Refreshments
- Gum Boots
- Sun or safety glasses
- Other Footwear (or other suitable footwear, etc.)
- Wet Weather Gear (No surveying to take place during wet weather periods)
- Hat

**Dress and conduct during survey operations**

- Staff are to wear identification tags.
- Staff must be polite and respect peoples' property.

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- If entry to a particular property is refused, leave and respect the owners' or occupiers' wishes, note the address of the property and report the incident to the Survey Supervisor

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NATIONAL PHYLLOXERA MANAGEMENT PROTOCOLS VINEYARD SURVEY SHEET

State:.....

Survey Sheet No:.....

Property Owner	
Name: (eg. C & N & Sons Pty etc) .....	
Postal Address: .....	
.....	Post Code: .....
Residential Address: .....	
.....	Post Code: .....
Telephone: Home: .....	Shed: .....
Mobile: .....	Fax: .....
Email:.....	

Property Details		GPS:.....
Manager: .....	Location: .....	
Map Ref: .....	Area of Vines: .....	
Age of Vines: .....	Variety of Vines: .....	
Source of Vines:.....	Source of Rootstock:.....	
Area (Ha): .....	Harvest Method: .....	
Shared Machinery : Yes / No.....Name & Address of Person Shared:.....		
External Contractors:.....		
Other Property:.....	Location:.....	Map Ref:.....

Sampling Information (Pest or Disease) :.....

Date Sampled: :.....

Variety	Rootstock	Date Planted	Area	Sample Result
1				
2				
3				
4				
5				
6				

Officer:.....Signature:.....Date:.....