

# Victoria State-wide Vineyard Health Check:

## The Growing Victorian Wine Into the Future Program



### INTRODUCTION

This state-wide vineyard health check is an ambitious and exciting project for Victoria. The opportunity provided by the **Growing Victoria Wine Into the Future** program to apply world's best-cutting edge technology and expertise across our whole state in a commercial setting – not just in a lab – is a rare one. This vineyard health check is just the first step towards understanding, managing, and improving the health of Victorian vineyards, young and old, to ensure we can continue to grow and make regional wines of distinction and mostly the wines more people want to drink.

Grapevine viruses can be associated with reduced quality and yield of grapevine budwood and fruit, and sometimes cause vine mortality. However, there are many viruses that may be benign. The incidence and genetic diversity of grapevine viruses within Victorian grape growing regions is not known. This lack of information can reduce the effectiveness of the biosecurity system that supports the health of Victorian vineyards, including the application of appropriate diagnostics testing and management strategies to reduce spread of important viruses.

In this project, a survey for the presence of viruses combined with vineyard performance data will provide a snapshot of the health of grapevines in Victorian grape growing regions. The project will focus on the varieties Chardonnay and Shiraz, two of the most grown varieties in Australia. Agriculture Victoria Research (AVR) scientists will use state-of-the-art technology, known as High Throughput Sequencing or HTS, to examine the diversity of viruses in Victorian grapevines. This powerful technology can detect any virus, known or unknown, that might be present in a sample and the information will provide insights into vineyard health and risk of viruses to vineyard sustainability and production. The information will assist in informing biosecurity practices, including diagnostic testing, that mitigate risk of spread of viruses within germplasm, source blocks, nurseries and during fruit production.

It is possible that known and novel viruses that have not previously been found in Australia will be detected using

this technology. Agriculture Victoria's biosecurity agency has an

intent to minimise risk to business continuity, while a decision is made about the response to a new finding. Where appropriate, Agriculture Victoria will work with the business and industry to implement measures that support the affected businesses while mitigating biosecurity risk. For example, the recent detections of grapevine pinot gris virus and grapevine red blotch virus did not result in quarantine measures that impacted Victorian grape growing businesses.

To gather the data, we are asking two to three growers of each variety from each of the 21 Victorian grape growing regions to supply samples for virus testing. This document presents instructions for sampling grapevines and sending samples to the laboratory for testing. It also contains a questionnaire to help us to gather information about the vineyard from which samples are collected. The vineyard information will enable us to assess the impact viruses might have on vineyard sustainability, productivity and wine quality to better inform the need for testing for particular viruses and management practices to mitigate further risk of the more harmful viruses.

Growers who provide samples will be provided with a report about the viruses detected in their samples and information about management strategies to reduce risk. The overall results of the study will be shared via a report and industry article that will be published on the Wine Victoria website and through other industry media. All individual data will be de-identified.

If you would like to take part in the survey and support health, sustainability and productivity of the Victorian Wine grape industry or if you require more information on the project, please get in touch with Agriculture Victoria:

**Dr Cliff Kinoti:**  
E: [cliff.kinoti@agriculture.vic.gov.au](mailto:cliff.kinoti@agriculture.vic.gov.au)  
M: 0452 404 107

**Dr Fiona Constable:** [fiona.constable@agriculture.vic.gov.au](mailto:fiona.constable@agriculture.vic.gov.au)



## SAMPLING PREPARATION

For grapevine sampling, you will need:

- Flagging tape
- Plastic sample bags
- Snips
- Permanent Marker
- Paper towel (unscented)
- Sampling record sheet.

*Timing of sample collection – please send samples before end of August 2023*

- Sampling can occur at any time except in during very hot days as virus levels may be reduced to undetectable levels
- It is imperative that the plant material is kept cool immediately post sampling and in transit to the laboratory. Poor quality material cannot be tested. Negative test results cannot be guaranteed if poor quality material is tested.
- If samples will be mailed to the testing laboratory, collect samples from Monday to Wednesday and send as soon as possible after collection to ensure they reach the laboratory by the weekend.
- If samples are hand delivered, they can be collected on any day but should arrive at sample reception no later than 4 pm on any day of the same week.

**PLEASE NOTE:** *If your samples are coming out of a phylloxera zone, contact Cliff Kinoti to organise a Permit for the movement of plant material out of a Phylloxera zone.*

## IN-FIELD SAMPLE COLLECTION

Virus infected vines can occur in a non-uniform manner in a vineyard, and it is important to collect samples from five representative vines that are spread across the vineyard.

For this study we require four shoots/vines per vine from each five grapevines (total of 20 shoots/dormant vines) of the same variety and clone. Bag the vines of each individual grapevine separately and then place all five bags into one larger bag with the sample record form.

### Locate and record location of your first target vine to sample

- Locate your first target vine, place flagging tape on its trunk and write the 'target vine number' on the flagging tape
- Where possible collect GPS co-ordinates of the grapevines
- On your 'Virus sample record sheet' (below), record details against the target vine number so you can locate it again:
  - row number, vine number, GPS coordinate.
  - photo number to record observed symptoms (if applicable).

### Collecting the dormant vine

- Choose at least 4 shoots per vine from all around the grapevine – dormant vines that are not dead (winter). Leaves should remain attached to the shoot sample.
- Remove the chosen dormant vine being careful to keep it intact. Trim the dormant vine so that you have a 20-30 cm basal section.
- Wrap the dormant vine together in dry paper towel and place the shoots in the sample zip lock bag and label the bag with sample number (row, vine number). Use a separate zip lock bag for each grapevine.
- Fill in the attached 'Virus sample record sheet' (below) and place in the bag with the sample and seal. (Multiple entries can be made on one form).
- Repeat steps 1 to 6 for the next four target vines placing the 4 green shoots into the same plastic sample bag.

### Sample handling and delivery

- Keep samples cool (e.g. refrigerator) prior to sending – it is best to send samples within a few days of collection
- If possible, please collect samples early in the week and send them as soon as possible after collection. Please keep the samples as cool as possible until they can be sent.
- Deliver, or send samples by courier or express post to the following address:

#### **Dr. Cliff Kinoti c/o Crop Health Services (CHS)**

AgriBio Specimen Reception, 5 Ring Road, Bundoora, Victoria, 3083

**Mobile:** 0452 404 107

**Email:** cliff.kinoti@agriculture.vic.gov.au

**GRAPEVINE VIRUS SURVEY QUESTIONNAIRE**

***Orchard Information***

Grower name:		Date:
Growers Address:		
Postcode:	State:	
Phone:	Email:	

***Vineyard background***

1. What is the GPS location of the vineyard? \_\_\_\_\_
2. What is the vineyard survey block unique ID? \_\_\_\_\_
3. What is the vineyard cropping area (hectares)? \_\_\_\_\_
4. What is the vineyard:
  - Age \_\_\_\_\_
  - Climate \_\_\_\_\_
  - Vineyard elevation \_\_\_\_\_
  - Annual rainfall average \_\_\_\_\_
  - Temperature average:
 

Summer _____	Autumn _____
Spring _____	Winter _____
  - Soil type:
 

<input type="checkbox"/> Clay <input type="checkbox"/> Sand <input type="checkbox"/> Other (specify) _____	<input type="checkbox"/> Loam <input type="checkbox"/> Sandy loam
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***Vineyard management***

1. Is the vineyard under irrigation?
  - Yes
    - Type of irrigation?
 

<input type="checkbox"/> Overhead	<input type="checkbox"/> Drip
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    - What is the frequency of irrigation?
 

<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> As required
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    - Average amount of irrigation water per hectare applied per annum? \_\_\_\_\_
  - No

**2. Do you use compost or fertilizer?**

Compost

- What is the frequency of application?

Monthly

Seasonally

As required

Fertiliser

- What is the frequency of application?

Monthly

Seasonally

As required

**3. Do you use insecticides?**

Yes

- What is the commonly used insecticides? \_\_\_\_\_

- What is the frequency of application?

Weekly

Monthly

As required

No

**4. Do you use herbicides?**

Yes

- What is the commonly used herbicide? \_\_\_\_\_

- What is the frequency of application?

Monthly

As required

No

**5. Do you sow any cover crops under vines in the vineyard?**

Yes

- What is the commonly used cover crop? \_\_\_\_\_

No

**6. Are the vines in the vineyards topworked or grafted on rootstock**

Grafted on rootstock

- What type of rootstock?

Ramsey

101-14

Schwarzmann

3309 C

Teleki 5C

Teleki 5A

99 Richter

110 Richter

1103 Paulsen

140 Ruggeri

SO4

420A Millardet

Other (specify) \_\_\_\_\_

Topworked

- When was it topworked? \_\_\_\_\_

- What Variety was it topworked onto? \_\_\_\_\_



### ***Vineyard production***

**1. What is the vineyard fruit yield?**

- Good
  Fair
  Poor

- What are the average tonnes/hectare? \_\_\_\_\_

**2. What is the vineyard fruit quality?**

- Good
  Fair
  Poor

**3. What is the average value of grapes per tonne (\$/T)? \_\_\_\_\_**

**4. What is the vineyard wine quality?**

- Good
  Fair
  Poor

**5. What is the average value of wine produced (cost per bottle)? \_\_\_\_\_**

### ***Vineyard health status***

**1. What is the vineyard canopy health?**

- Good
  Fair
  Poor

**2. Which of the following insect pests are present in the vineyard?**

- Scale
  Mealy bug
  Bud/blister mites

Other insects (specify) \_\_\_\_\_

**3. Has the vineyard been previously tested for viruses?**

- Yes

- What viruses were detected? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- No

