

Grape sampling, processing and transport following vineyard smoke exposure



Introduction

If grapevines are exposed to a smoke event at any stage after E-L 26 (cap-fall complete), AWRI recommends that potentially affected grapes be submitted to an analytical laboratory for analysis of smoke marker compounds (volatile phenols and glycosides).

AWRI advises sampling grapes for analysis three weeks prior to harvest to allow time for transport of samples, analysis and receipt of results before making harvest decisions.

This fact sheet provides detailed instructions on how to collect grape samples, package them and transport them to an analytical laboratory for smoke analysis. In some cases, regional associations may play a role in coordinating sample submissions.

Collecting grape samples

Previous research has indicated that the vine-to-vine variability of free volatile phenol compounds across an individual vineyard is high; it is therefore important to ensure that a representative sample is collected from across the entire vineyard. A random 30-bunch sample is recommended to be collected from across the vineyard, with only one bunch per vine to be taken. Where there are multiple blocks of the same variety on a single property, producers may wish to select a sub-set of blocks for testing.



Figure 1. A diagrammatic representation of randomly selecting 30 positions across an individual vineyard to select one bunch per vine

Once all 30 bunches have been collected, strip approximately half the berries off each bunch and place them in a large container. Mix the berries thoroughly, and from this container collect, bag and label a sample of berries weighing approximately 500 grams. Avoid leaves and matter other than grapes (MOG). Zip-lock bags are ideal for this purpose.



Figure 2. Plucking berries from bunches into a typical 'kitty litter' tray prior to mixing and sub-sampling 500 grams into a zip-lock plastic bag

Required treatment and documentation

Grape samples collected from within a Phylloxera Infested Zone (PIZ), Phylloxera Interim Buffer Zone (PIBZ) or a Phylloxera Risk Zone (PRZ) often need to be transported to a Phylloxera exclusion zone (PEZ) for the purpose of laboratory analysis. Procedure C in the [National Phylloxera Management Protocol](#) outlines conditions that must be met for the transport of grapevine material for diagnostic purposes.

The following treatment and documentation are required:

- Samples must undergo disinfestation by a procedure that involves freezing at -18°C for at least 24 hours, prior to packing on cold packs for transport. (Note that dry ice is considered a hazard by some transport companies.)
- A permit for [Phylloxera Control Areas](#) is required to move grape material out of these zones. A copy of the certificate and permit must be sent with the grapes. PIZ, PIBZ and PRZ are mainly in Victoria, but also some parts of NSW and Queensland as detailed in [Vine Health Australia's map of Phylloxera Management Zones of Australia](#). A permit application form for Host Material movement into or from a Phylloxera Control area is available from the relevant State Department of Agriculture/Primary Industries. In most cases the relevant organisation is the Victorian Plant Standards Branch, which can be contacted on (03) 8401 6900 or plant.standards@agriculture.vic.gov.au. Samples from a PIZ or PRZ shipped without relevant documentation cannot be processed and will be destroyed.
- If samples are being shipped to Affinity Labs (AWRI) in South Australia, a [Plant Material Movement and Declaration Form](#) must be completed and shipped with the sample. This is a requirement of the CA12 accreditation granted by the Department of Primary Industries and Regions South Australia (PIRSA) that allows the importation of grapevine material by Affinity Labs for testing purposes.

For grape samples from a Phylloxera Exclusion Zone (PEZ) bound for a laboratory in a PEZ in another state, the following treatment and documentation are required:

- Samples must undergo disinfestation by a procedure that involves freezing at -18°C for at least 24 hours, prior to packing on cold packs for transport.
- If samples are being shipped to Affinity Labs (AWRI) in South Australia, a [Plant Material Movement and Declaration Form](#) must be completed and shipped with the sample. This is a requirement of the CA12 accreditation granted by the Department of Primary Industries and Regions South Australia (PIRSA) that allows the importation of grapevine material by Affinity Labs for testing purposes.

For grape samples from a Phylloxera Exclusion Zone (PEZ) bound for a laboratory in a PEZ in the same state (e.g. for South Australian samples travelling to a South Australian laboratory or Mornington Peninsula samples travelling to a Mornington Peninsula laboratory), the following treatment and documentation are required:

- Samples should be refrigerated unless they are likely to take more than three days to reach the laboratory, in which case they should be frozen.
- A Plant Material Movement and Declaration Form is NOT required.

Packaging and transport of samples to an analytical facility

All grape samples should be double bagged in appropriately sized zip lock bags then placed in a standard -18°C freezer for at least 24 hours prior to being dispatched to an analytical laboratory.

Individual samples should be well packaged, so that there is no possibility of sample leakage or cross-contamination. Both the inner and outer bag need to be clearly labelled with adhesive labels stating the grower's name and address as well as variety and block details. It is important to include the grape variety because interpretation of the analytical results will vary depending on the variety.

Frozen samples must be securely packaged in a polystyrene box and kept cool (e.g. with ice packs). The polystyrene box should be taped up securely and sent to the laboratory as soon as possible via overnight courier. Samples should be sent early in the working week (i.e. Monday or Tuesday) to ensure they arrive in suitable condition for analysis. All documentation should be placed in an addressed envelope and securely taped to the outside of the polystyrene box. A log of samples dispatched, and a copy of all documentation should be kept until all samples are accounted for and diagnostic testing has been completed.

In the case of a major regional smoke event it is often more efficient to have a coordinated drop-off point for a region's samples to consolidate shipping and paperwork. The affected state or regional association would work with relevant analytical laboratories to coordinate sample collection and transport in such a situation.

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Further reading

National Phylloxera Management Protocol: <https://planthealthaustralia.com.au/wp-content/uploads/2013/03/Phylloxera-management-protocol-2009-draft.pdf>

Contact

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