



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), the AWRI recommends the following approach to assessing the risk of smoke taint:

- Submit potentially affected grapes to an analytical laboratory for analysis of volatile phenols and non-volatile smoke taint precursors.
- At the same time conduct a small-scale ferment that can be used for sensory assessment (using the AWRI's [small-lot fermentation method](#)).

It is preferable to collect grapes for analysis when they have reached 9-11 Baume (16-20 Brix) and conduct the mini-ferment at the same time. Then, once the fermentation is complete (five to eight days), results from sensory assessment of the mini-ferment wine can be combined with the analytical results and interpretation for the grapes, giving maximum information to help support harvest or wine processing decisions.

This fact sheet provides detailed instructions on how to collect grape samples, package them and transport them to an analytical laboratory for smoke taint 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

If the grape sample is coming from a known Phylloxera Infested Zone (PIZ) or a Phylloxera Risk Zone (PRZ) and is bound for a laboratory in a Phylloxera Exclusion Zone (PEZ), then according to Procedure C in the National Phylloxera Management Protocol, the following treatments 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 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 South Australia, a [Plant Material Movement and Declaration Form](#) must be completed to ensure the laboratory complies with its CA12 certification granted by Primary Industries and Resources of South Australia (PIRSA).

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 South Australia, a [Plant Material Movement and Declaration Form](#) must be completed to ensure the laboratory complies with its CA12 certification.

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

For further information, please contact the AWRI helpdesk team.

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Smoke taint resources:

https://www.awri.com.au/industry_support/winemaking_resources/smoke-taint/

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