

Don't waste time and nutrients



Given the growth of the vineyard, the potential crop load and the stress of disease last season, I am worried that the grapevines may not have enough nutrients to grow and ripen a crop successfully this year. Should I be fertilising my grapevines?

With any fertiliser application, be it a major rebalancing of the soil or a fine adjustment to zinc and boron levels, knowing what the grapevines have and what they need is the key to ensuring that additions are not made without need, and that money is not wasted on nutrients that may not be warranted.

Periodic analysis is best undertaken on a regular basis to determine changes in nutrient levels before they become a limiting factor in grapevine growth or before they impact on yields and quality.

Symptomatic analysis should be carried out on a specific block or part of a block when problems arise.

This may be when foliage symptoms of nutrient deficiency become obvious, when grapevine growth is poor, or when other factors in the block change. However, once these nutrient deficiencies become obvious, damage has already occurred to grapevine health and, possibly, to productivity and grape quality. Therefore it is not recommended to wait until symptoms appear before some testing is undertaken.

Sampling procedure

Periodic samples for both soil and tissue are best undertaken using management blocks and grape variety, as corrections can then be made on a block-by-block basis. Symptomatic samples should be taken of the area where the problem is occurring and, often, a sample of unproblematic material may be worthwhile as a comparison.

Soil testing

Soil analysis is important for maintaining the health of the soil, and allows correction of both physical and chemical issues to provide a good growing environment for the grapevine to thrive. Correct soil balance will produce a healthy grapevine, with reduced susceptibility to disease.

Periodic testing for soil should be undertaken on a three to four-year cycle per block. Blocks should be staggered so that over the three- to four-year period the entire vineyard is sampled. That is, one quarter of the vineyard should be sampled every year.

To sample soil:

- top soil (0-15cm)
- determine a sampling pathway through the block.

In an established vineyard, it is best to combine samples of as many different rows as possible in each block, but often this is impractical, especially if the block is large.

1. Stop at each collection point and remove the grass layer from the soil surface (for a surface sample)
2. Using a soil corer, auger or blade (small straight-sided shovel or trowel) remove a sample of soil down to 15cm.
3. Place the soil in a bucket combining with other soil samples from this block

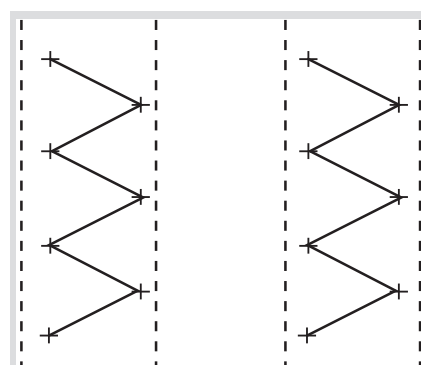


Figure 1. Example of a pathway used for sampling a vineyard (dotted lines are grapevine rows; + marks a sampling point).

4. Move to next collection point and repeat steps 1-4 until 20-30 individual samples have been collected.

Thoroughly mix the soil sample. It is suggested that the composite sample is tipped out of the bucket onto a clean sheet of plastic, where clods are broken, rocks removed, and the sample is thoroughly mixed.

Generally, the sample required by the laboratory will be 500g or so, but find out how much soil the laboratory requires prior to sampling. Remove the required amount from the larger sample.

Place your sample in a plastic bag, and clearly label it. The label should be written in indelible pen, and contain your name and phone number, a block name or number, the depth at which the sample was taken (for example 0-15cm), and the date.

In cases where the sub-soil is being sampled, the procedure is the same, but fewer samples are generally used (5-10 rather than 20-30).

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To sample plant tissue

Periodic testing for plant tissue can be yearly as for petiole testing at flowering, or can be three or four times annually for leaf blade or tissue testing.

The levels of each nutrient in the plant tissue, depends on the plant part (both type and position) sampled and the timing of the sample in the grapevines seasonal cycle. In Australia, the most popular method of grapevine tissue analysis is petiole analysis.

A petiole is the leaf stalk and, for petiole analysis, it is taken opposite a bunch cluster (as shown in Figure 2). The leaf and petiole are picked, the leaf blade removed and discarded and the petiole retained. The timing of the sample will depend on the laboratory doing the analysis, but the most common is when the cluster is flowering.

The sample size is normally 100-200 petioles and samples should not represent more than four hectares, even in uniform vineyards.

A sampling pathway similar to that shown in Figure 1 is advised.

Ideally, samples should be taken immediately prior to spray applications, to minimise chemical residues on the leaves (as many fungicides contain nutrients that may give erroneous results). Some laboratories will wash the petioles prior to analysis, but not all.

Samples should be put into clean paper bags, labelled with the name, date, variety, location, foliar sprays applied and condition of vineyard, and sent to the laboratory without delay.

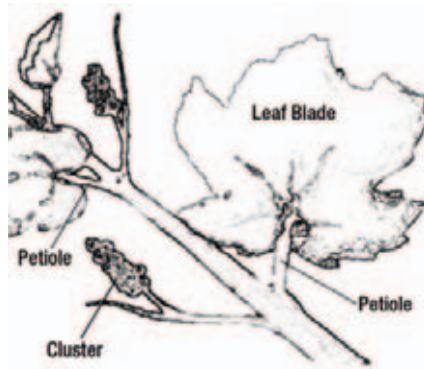


Figure 2. Diagram of leaves and clusters showing petioles.

I have a neglected/abandoned vineyard neighbouring my vineyard and I am concerned about the spread of disease. What can I do about this?

There is no doubt that a vineyard that is neglected/abandoned has the potential to increase the disease risk to neighbouring vineyards.

The best advice in this situation is to first contact the owner of the property and discuss your concerns with him or her – it may only be a short period before the grapevines are killed or the vineyard is removed (these are the best options).

Once you have raised your concerns and gathered information on what the owner is going to do for the season, an assessment of the risk posed can be undertaken.

In some cases, the owner's response may not be adequate (i.e. they are just going to let the vineyard continue to grow), and alternate options should be discussed with the owner – such as cutting the grapevines off at knee height to stop foliage growth and spraying any sucker growth with herbicide during the season. Obviously, there is a cost associated with these operations and it should be determined if the owner has the ability to pay for these works.

If these discussions fail, then the matter should be referred to the Plant Standards Office of the State Department of Primary Industries for the state that you are in. Each state has its own procedure for dealing with these matters but some states require evidence that a disease infection has spread into adjoining vineyards before they are in a position to act.

Ben Rose is the principal advisor of Performance Viticulture. Ben has always been involved in wine and viticulture, growing up on the family's Rising Vineyard in the Yarra Valley, outside Melbourne. Ben established Performance Viticulture in 1997. He is also a certified practicing valuer specialising in the wine industry assets. Vitalk is a regular question and answer column, and written exclusively for *Grapegrower & Winemaker*. Ben can be contacted on phone: 0418 836 773 or email: ben@performanceviticulture.com.au

Disclaimer

Information in this article is general in nature and should not be construed as provision of comprehensive advice. Each vineyard site and management situation is different and qualified, specific advice should be sought prior to implementation of any of the ideas discussed in this column.



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