

## Soil tests for a new vineyard site

Often soil surveyors do not provide sufficient chemical soil test data to help us decide if basal fertiliser applications and amendments are needed prior to development of a new vineyard site.

These decisions should be based on laboratory analysis of good composite samples that represent logical areas within the site such as:

- soil types,
- paddocks known to have been treated differently, and
- difficult areas (scalds, wet patches etc).

At least two samples should be taken from any specified area:

- A surface composite.
- A sub-surface composite.

### Surface Sample

This sample will help decide the following:

- Is a basal dressing of superphosphate needed?
- Is lime needed?
- Can we expect trace element deficiencies?
- Should the planting line receive a dressing of organic matter?
- Is surface soil salinity a problem?
- Could the topsoil respond to an application of gypsum?

### Sub-surface Sample

This sample will help decide the following:

- How acid is the subsoil and should special measures be taken to try to ameliorate it with ripped in lime?
- Is the subsoil sodic, and should special measures be taken to place gypsum at depth?
- Is leaching or drainage needed to cope with salinity, or given the presence of water tables (defined by the soil surveyor) is the site too risky to develop?

### Collecting a Surface Composite Sample

You will need a core sampler, soil auger, trowel etc. You will also need a bucket to put the sub-samples into, a plastic sheet to mix the sub-samples together and a plastic bag in which to send the sample to us or the laboratory of your choice.

- Along a diagonal or zigzag course across the area, stop and sample at least twenty times. The more cores in the composite the better will be the data.

---

### SCHOLEFIELD ROBINSON HORTICULTURAL SERVICES PTY LTD

- At each stop use a shovel to take off the grass and thatch on the surface of the soil.
- Use the corer to collect a core about 2.5cm in diameter from the soil surface down to 15cm. Be careful if you are using a shovel or trowel that the sample is not biased to the top or the bottom (i.e. has even dimensions from top to bottom).
- Place the core in the bucket and move on to the next spot.
- When you have at least 20 cores in the bucket, spread the soil out on a plastic sheet and break up the clods, pick out the major pebbles etc and mix the composite well (sides to middle, end to end etc) using the plastic sheet to move the soil around.
- The sample that is sent to the laboratory should be about 3-4 cupfuls of this mixed soil. Either discard half, remix, etc until this amount of soil is left, or take grab samples on a grid across the mixed soil after it has been spread evenly across the sheet.
- Label the bag carefully with your name and the name of the paddock and the depth interval over which the soil was collected.

### Collecting a Subsoil Composite

In the case of subsoil a soil auger or spear is needed. All the other equipment is the same.

- Collect cores from the top of the subsoil clay if it is present, or from a depth of 45-60cm.
- In this case stop six (rather than 20 times) across the paddock.
- If necessary, mix and sub-sample as before. Do not crush the soil aggregates too much during this process as aggregates the size of a pea are used for slaking and dispersion tests.
- Label the bag as above.

### Specifying the Type of Test Required

There are two sorts of tests offered by soil laboratories.

- Basic (usually includes pH, organic carbon, extractable phosphorus, potassium, and sulfur and salinity based on a 1:5 soil:water extract).
- Extended (all the above, plus exchangeable cations, and extractable trace elements and toxic elements like boron and chloride).

Cost can be one consideration, but we usually recommend a basic soil test for the surface soil in areas that we and others understand well. In new areas, we will specify the extended test. For the subsoil test it is sometimes sufficient to know pH, salinity and whether the soil aggregates disperse in pure water. We do the dispersion tests (dry aggregates) in our own laboratory.