

Proper soil testing can ensure that farmers know precisely what their crop requirements will be.

Soil sampling pays dividends

*There's more to collecting a soil sample than just filling a bucket with dirt – getting a good result requires planning and a conversation with the people doing the test. **By Gavin Rodman***

What to test for

A soil analysis result is only as good as the sample collected. The first step in the collection of your soil sample is to understand the type of analysis required. Knowing what you want analysed before you take the sample allows for the sample to be taken correctly. Some soil analyses require different sampling methods to others, so check with your chosen laboratory for the correct way to sample for a particular test.

While soil testing is a major part of a farm's nutrient management plan, it is also important to test for other things within the soil. Pachymetra root rot is a major impediment to production within all regions except the Burdekin. In all regions, testing for nematodes should be conducted if yield loss is unexplained. Both pachymetra and nematode populations can be calculated from a soil sample.

When to test

With soil testing, planning ahead is very important to allow sound nutrient, ameliorant and variety decisions to be made. Taking your soil test early in the fallow allows for the recommended early application of ameliorants such as lime, magnesium or gypsum, and selecting pachymetra-resistant varieties if necessary.

Choosing a lab

Choosing the right lab for your soil testing is an important part of the process.

Australian Soil Plant Analysis Council (ASPAC) accredited labs meet quality assurance standards while National Association of Testing Authorities (NATA) accredited labs must meet the set high standards for the testing methodology of various tests.

Ensure the lab you choose is familiar with the sugarcane industry's approved nutrient recommendation guidelines (SIX EASY STEPS™) and includes the analyses mandated by the Queensland Government's sugarcane industry regulations (organic carbon, Phosphorus (BSES) and Phosphorus Buffer Index).

In choosing a credible and accredited lab for your soil testing, your local productivity services officer will be able to easily interpret the analyses and confidently provide an accurate recommendation.

Table: Results after interpretation of soil analysis on the same sample by four different labs. Example data thanks to TCPSSL's case study.

Recommended application rate (kg/ha)	LAB 1	LAB 2	LAB 3	LAB 4
pH (1:5 water)	5.5	5.5	5.5	5.45
N kg/ha	120	120	110	110
P kg/ha	20	20	30	20
K kg/ha	100	100	100	100
S kg/ha	0	0	–	10
Ca (lime) kg/ha	1000	1000	0	0
Mg kg/ha	0	0	–	0
Cu kg/ha	10	10	0	10
Zn kg/ha	0	0	–	10
Si kg/ha	0	0	–	–

Taking the soil sample

Taking a representative sample is important as you want to obtain as accurate an analysis of the area being tested as possible. The following steps describe a general method of soil sample collection.

1

Plan how you are going to sample the block – what sampling pattern will you use?

- 12–15 subsamples is the minimum that should be taken for a representative sample of 5 ha if testing an entire block. 20 subsamples are recommended. Take the subsamples in a regular pattern that accurately represents the whole area.
- For pachymetra or nematode testing, 8–10 subsamples is sufficient.

2

Remove trash, weeds and other plant material away from the sampling spots that will be subsampled.

3

Use a clean plastic bucket to collect the sample along with an auger or shovel that is not galvanised or painted.

4

It is recommended that all sample points be taken from the shoulder of the row, approximately halfway between the centre of the row and the inter-row and at a depth of 25 cm.

- In the case of pachymetra and nematode testing, the samples should be taken from the centre of the row within the root zone at a depth of 25 cm.

5

Once all subsamples have been taken, mix them thoroughly in the plastic bucket.

6

After mixing, place 500 g–1 kg into a clean plastic zip lock bag, fully label the bag with name, farm and block numbers and any other details that are requested (*sometimes the fertiliser applied to the previous crop is asked for*).

This is the soil sample that will be analysed by your selected laboratory.