

Soil sampling

Introduction

Soil sampling provides useful information about the chemical and nutrient properties of soil within a particular block. It will therefore assist in determining fertiliser type and rate. Soil sampling also identifies any actual or potential nutrient imbalances or deficiencies.

Benefits of soil sampling:

- Establishing crop nutritional requirements.
- Diagnosing nutritional problems.
- Monitoring and forecasting possible future nutritional or other issues (acidity, sodicity, salinity, etc).
- Saving dollars on fertiliser cost by only delivering what the plant needs.
- Maintaining water quality and healthy soil properties.

The best time to sample is straight after harvest of the last ratoon crop before soil is cultivated, as it gives the best results for assessing the current nutrient status of the soil. This will enable you to interpret soil test data and establish the nutrient requirement for the next crop cycle. Sampling after cultivation has taken place may affect the nutrient analysis making it difficult to determine the appropriate nutrient inputs. There are four important steps in the soil testing process. Each of these steps needs to be carried out with care to ensure meaningful results.



Step 1: Sample collection

Collect soil samples according to either a grid or zig-zag pattern. It is extremely important that a soil sample is representative of the area from which it is collected.

Step 2: Sample analysis

Submit samples to a reputable laboratory for analysis. Make sure that the laboratory conducts tests that are compatible with the Six Easy Steps guidelines and have a Certificate of Proficiency issued by the Australasian Soil and Plant Analysis Council (ASPAC).

Step 3: Interpretation of results and calculation of nutrient inputs

Ensure sound interpretation of the results and appropriate fertiliser recommendations by having an understanding of the basic process of determining nutrient requirements, and obtain advice from capable advisors or extension officers.

Step 4: Fertiliser application

Apply fertilisers at the appropriate rates and keep records of the nutrient inputs.

How do I take a soil sample?

It is important to remove the trash and any weeds or vegetation from the soil surface before taking the sample. This will avoid contaminating the sample, which may affect the results of the soil analysis.

The sampling depth should be 20 cm. Ensure the sample is free of plant material, including leaves, pieces of stool and roots. It is preferable to use an auger or probe to collect the sample. A regular shovel is an alternative. Ensure all equipment is clean and has no galvanised parts.

We recommend that all samples be taken from the shoulder of the cane row, approximately mid-way between the centre of

the cane row and the centre of the inter-row. You should also avoid sampling areas that are not representative of the major soil type/s within the block. This includes areas where large amounts of mill mud or other amendments have been applied.

The number of sub-samples will vary from block to block. If the block size is less than 15 ha, a minimum of 20 sub-samples are required. If the block size is greater than 15 ha, a minimum of 40 sub-samples are required. These sub-samples should be placed in a clean plastic bucket. Once all sub-samples have been taken, mix them together within the bucket and then take a 500 g - 1 kg portion out and place it in a clean plastic bag with your name, farm number and block number written on the outside. This portion of soil will be your actual soil sample to be tested.

Samples may be submitted to commercial laboratories or via agribusiness agents. Interpretation of soil test reports using the Six Easy Steps nutrient management guidelines and subsequent fertiliser recommendations can be obtained from local advisors.

Contact your nearest local advisor for further information on soil sampling.

Below left and centre: Some suggested sampling patterns within blocks of cane.

Below right: Soil sampling using a turning auger.

