

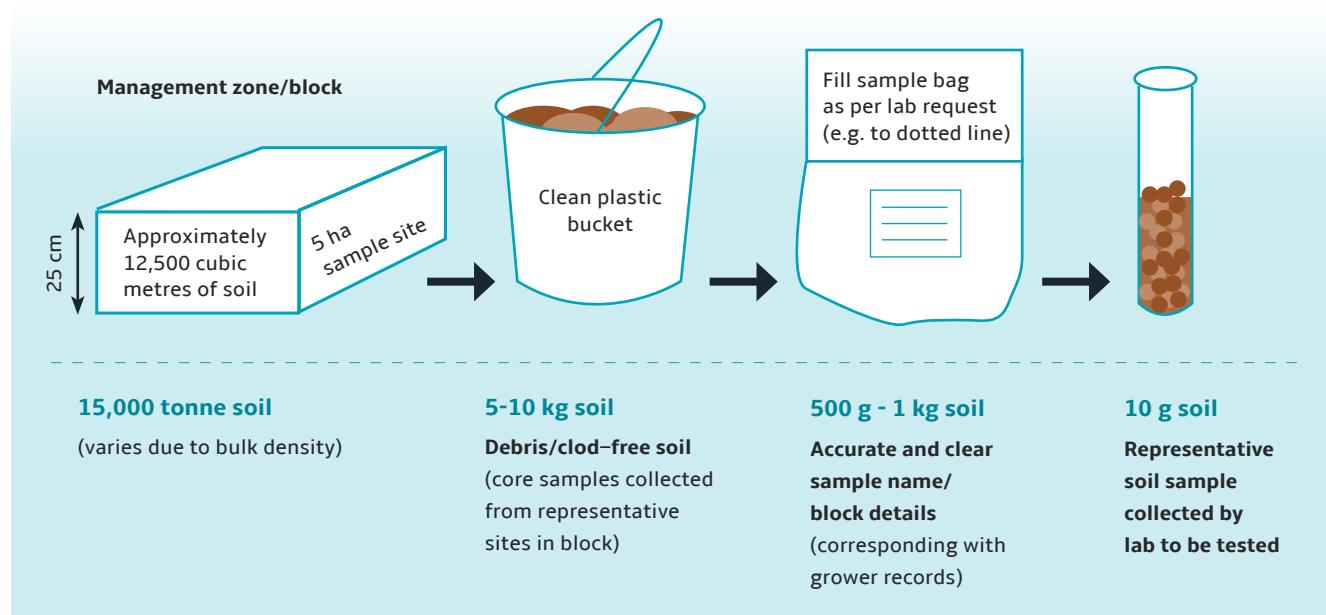
# Why the right soil sample can make all the difference

*Soil sampling and analysis should be the foundation of all fertiliser programs. The way in which the samples are collected will have a significant influence on the results of the analysis. By Kate Daly*

Soil samples are used to establish nutrient requirements and provide recommendations, to assess crop production issues, to monitor soil fertility trends and, in recent years, to fulfil legislative requirements. Soil analysis is only one management tool but the results can greatly influence many decisions and practices which affect farm profitability.

The four critical steps in soil testing are:

1. sample collection
2. sample analysis
3. interpretation/recommendation
4. nutrient application.



While all four steps are very important, if the initial sample collection is not representative, then the following steps will be affected. Another important part of sample collection is the discussions that should be happening before the sample is collected. No farm or management practices are the same so an element of sampling is to understand the type of analyses that's required and how the results will be used in decision making.

After discussions have taken place, it may be necessary to make adjustments to site selection due to controlled traffic, soil type, fence lines and poor growth. Less obvious influences may also affect the area to be sampled. Sample areas are usually blocks or management zones with the same soil type and with the assumption they have been and will be "treated the same". It is important that the soil sample is representative of the area to be analysed. Samples are typically collected after harvest and prior to planting.

A soil collection protocol should involve discussions and appreciation of the management intentions and expectations to maximise the benefits of farm nutrient inputs. When the samples collected are representative of the whole management area, you are far more likely to apply appropriate soil inputs at the right time, increase yield potential and ensure production costs are suitable. Ultimately, soil analyses results are only as good as the sample collected.

**Here are just a few examples of questions a farmer should ask themselves, or discuss with a contractor, before collecting soil for analysis:**

- **What depth do I want to sample to and why?**
- **Are there old dump sites of lime or mill mud etc.?**
- **Are there areas of compaction (old headlands, fence lines etc.) which should be avoided?**
- **What is the recent fertiliser application timing and history?**
- **Is the equipment used for collection suitable or likely to contaminate the sample (such as painted or galvanised shovels/buckets/auger)?**
- **What sampling pattern will be used to ensure a representative sample is collected?**
- **Does the farming system (e.g. burnt/green) affect the sample collection?**
- **Is the collection area mapped and aligned with reference or historical data?**
- **Would using GPS reference points to collect from the same area each year be appropriate?**
- **Where will the sample be sent for analysis?**

## Fallow management worth considering in dry years

*After harvesting a final ratoon it can be tempting to plough the field out and go directly into another cycle of sugarcane. By Belinda Billing*

This is not recommended, with the negative effects of continual cropping of sugarcane recognised as early as 1935, when the loss of fertility in some Australian sugarcane growing districts was first noted.

With the Bureau of Meteorology indicating we are in the early stages of a hot, dry El Niño weather event, the importance of careful fallow management is heightened.

In an irrigated farming system, fallowing 15-20 percent of your farm will allow for better use of your water allocation along with the benefit of improving the fertility of the land.

The yield from the reduced area may be no lower than what you would have achieved from 100 percent production due to better soil health from fallowing and more strategic use of irrigation water.

Plough-out-replant requires heavy tillage to remove old cane stool and compaction, allows for the build-up of pests and disease, and has been shown to result in an average reduction in yield of 20 tonnes to the hectare when compared to fallowing land.

The benefits of breaking the sugarcane cropping cycle are well documented and numerous. Fallow management options include:

### Fallow (bare or weed)

Harvest the final ratoon and remove stool through cultivation or herbicide. The paddock is left bare or allowed to become weedy.

### Fallow plant

After the removal of the final ratoon a crop is grown, this is typically a legume crop, however other crops can be successfully grown (such as corn or rice).

The recognised benefits of either fallow management system are many.