How to take a soil sample for chemical analysis

Fact sheet 2025



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Why take a soil sample?

Soil testing helps you make informed decisions about fertiliser inputs, soil amendments, and sustainable land management. Chemical soil analysis identifies nutrient levels, pH, and other properties vital for productive farming.

When to sample?

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Timing: Ideally in late summer or early autumn (before fertiliser application), or pre-sowing.

Consistency: Sample the same time of year each cycle for comparison.

Avoid: Sampling after recent fertiliser, compost, or manure application.

What you'll need

- Clean plastic buckets
- Soil corer or auger (ideally 0–10 cm for standard tests)
- Sample bags (use those provided by the lab, or clean ziplock bags)
- Permanent marker
- GPS or farm map (for recording sample locations)
- Submission form (from Environmental Analysis Laboratory (EAL) or Australian Precision Ag Laboratory (APAL))

Step-by-step sampling guide

1. Divide paddocks into zones

- Sample separately by soil type, crop history, yield, or problem areas.
- Avoid mixing areas with different management.

2. Collect multiple cores per sample

- Take 15–20 cores in a zigzag pattern across each sampling zone.
- Use a consistent depth: Option 1: 0–5 cm or 0–10 cm across all sites. Option 2: According to soil horizons (e.g., 0–10, 10–30, 30–60 cm), especially if investigating subsoil constraints like acidity, salinity, or sodicity.
- Avoid fence lines, headlands, animal camps, or urine spots.

3. Mix and subsample

- Combine cores in a clean plastic bucket. If sampling sus soil layers use multiple buckets and keep layers samples separate.
- Mix samples thoroughly to form a composite sample. Do not mix samples from multiple layers. Each layer will have a composite sample.
- Fill lab bag with ~500 g of soil.

4. Label clearly

- Include paddock name, depth, date, and sample ID.
- Use permanent marker to avoid smudging.

5. Keep cool and send promptly

- Store samples in a cool esky or fridge if there's a delay.
- Post or deliver to lab as soon as possible (use express where available).

Which lab?

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- EAL (Environmental Analysis Laboratory (https://www.scu.edu.au/environmental-analysis-laboratory---eal/analytical-services/agricultural-soil-testing/))
- APAL (Australian Precision Ag Laboratory (https://www.apal.com.au/Home.aspx))

It is best to consistently use the same lab that has analyzed your properties soil samples in the past. If you are unsure what tests to include in your analysis, talk to your local Soil Extension Officer.

Tip: keep records

Record GPS location, sample depth, date, and observations (soil colour, structure, crop condition). This helps with interpretation over time. Where possible conduct a Visual Soil Assessment to compliment your soil chemistry analysis. See *Knowing your soils South Australia: Ute Guide (https://drive.google.com/file/d/1NXqdWaFavjtHcj6Dot_frKDFm8vaWu6a/view)* for details.

Maintain a sampling log to track changes and ensure consistency over the years.

Extra tips from Soil Science Australia

- **Stratify sampling areas**: Divide paddocks into homogeneous zones based on soil type, topography, and management history.
- **Increase sampling intensity** in variable areas to get more accurate results.
- **Avoid contamination**: Clean all tools and containers thoroughly between sites.
- **Store samples properly**: Keep samples cool and avoid direct sunlight to maintain integrity.
- **Timely dispatch**: Send samples to the lab promptly to prevent chemical changes.
- **Use accredited labs**: Choose labs with reliable, standardised testing methods.
- **Provide full information**: Include sampling details and clearly request the analyses you want.

For more information, see Soil Science Australia's guide: A Guide for 'Fit for Purpose' Soil Sampling (https://fertilizer.org.au/Portals/0/Documents/Fertcare/Fertcare%20Soil%20Sampling%20Guide.pdf?ver=206-17-095413-863)

More information

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