Know your soils

Fert$mart tips for soil testing

This fact sheet is part of the Profitable Dairying series - *Good business management reduces greenhouse gas emissions.*

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity (emissions per L milk produced) by 30% by 2020.

Fert$mart is the Australian dairy industry's national nutrient management framework. It has been developed to improve the efficiency and profitability of fertiliser and effluent use on Australian dairy farms.

Soil testing using the Fert$mart principles is an important strategy for reducing emissions intensity. Soil testing means you apply the right fertiliser at the right rate, time and place.

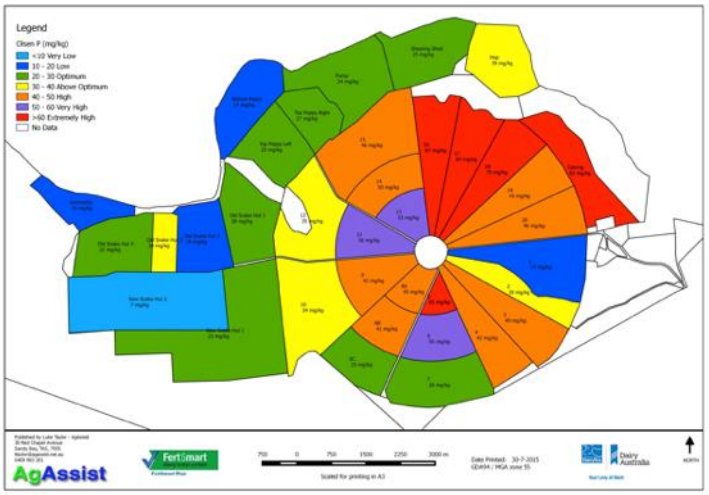
Fert$mart soil testing

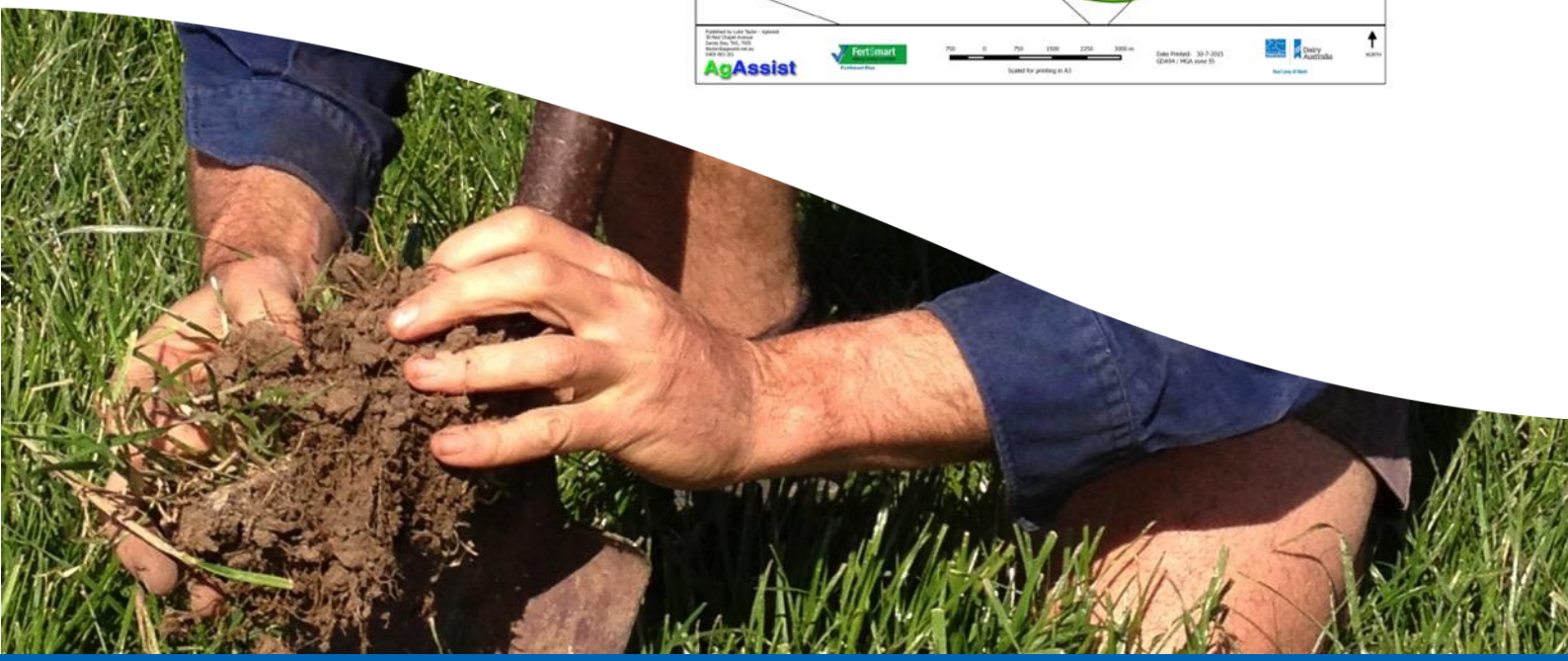
Regular observation and monitoring of soil chemical, physical and biological status is the cornerstone of Fert$mart.

Fert$mart uses the principle of soil testing Farm Management Zones (FMZ). These are areas of your farm which share similar physical characteristics and are managed in a similar way. It is best practice to soil test a representative paddock within each FMZ every 2-3 years.

Expect to pay around $100-$200 per soil sample, depending on number of samples, type of analysis and sampling costs. Money invested in soil testing can potentially save many thousands in fertiliser and grow more grass. Skimping on soil testing is false economy.

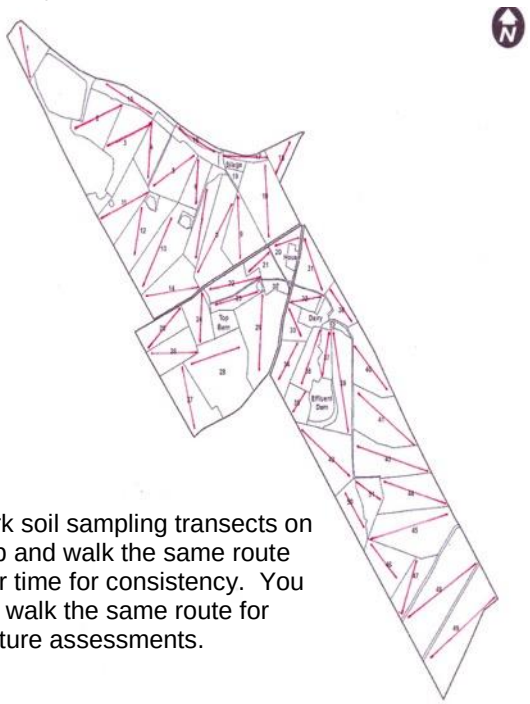
Plan your soil testing program with your agronomist and maintain over time, according to your plan.





Fert$mart soil testing

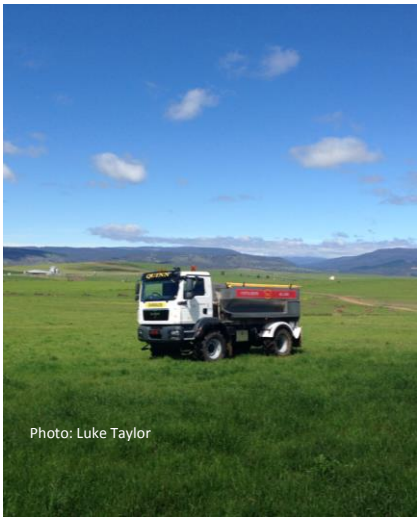
Draw soil sampling transect lines on the farm map or record with GPS. Avoid gateways, troughs, trees and pugged areas to get a representative transect across the paddock. Every person soil sampling over time should walk the same route for consistency.



Mark soil sampling transects on map and walk the same route over time for consistency. You can walk the same route for pasture assessments.

Best Practice Tips

- For consistency over time, sample at the same time of the year.
- Avoid sampling within 3 months of liming or 2 months of applying fertiliser.
- In cooler regions, soils are typically sampled from late spring to autumn. Warmer regions should be sampled to suit farming activities.
- Be organised and get your samples done well in time so that you can book in the fertiliser spreader.
- Dairy pastures are typically sampled to 10 cm depth, although some farms (especially in Tasmania) have historically been sampled to 7.5 cm.
- Take a minimum of 30 cores per paddock to form a composite sample, with the required amount for the lab being taken from the aggregated and mixed 30 core “bulk” sample.
- Complete sample information forms as required by laboratory, keep samples cool and Express Post to laboratory for soil analysis.
- Use a NATA or ASPAC accredited laboratory as these labs have procedures for quality assurance and cross checking analytical results. Click here for ASPAC accredited labs Click here for NATA accredited labs
- Ideally, use the same lab over time for consistency in analysis. Costs and turnaround time are important decisions in choosing which laboratory to use.
- Keeping track of your soil test results is important. Often a colour-coded map (*see previous page*) is a good way to visualise fertility across the farm.
- Keep your soil tests and use them to build a picture over time of how fertility is changing on different parts of the farm. Many agronomists now use commercial software packages to track soil test results for their clients.



Soil temperature observations are useful for timing fertiliser applications, particularly in colder areas. This is particularly important for nitrogen, which should only be applied when the grass is actively growing.

A penetrometer is useful for identifying compacted areas in the paddock. Penetrometer readings over time will be the most reliable gauge for monitoring impacts of different management practices to reduce compaction and pugging.

Take note of:

- Drainage - poorly drained areas are anaerobic and this will limit grass growth and increase the risk of nitrous oxide losses
- Pugging damage
- Rooting depth of pasture
- How soils change with depth. Is there are hard plan or heavy clay subsoil subsoil restricting root growth?
- Weed and pest impacts on the pasture.

Every observation will give you a better understanding of your farm, its potential and how to manage different parts of the farm.

Further reading:

Fert$mart soil sampling guidelines
Soil Quality website
Soil management for NSW dairy farms
Better Fertiliser Decisions for Livestock

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