Nutrient Management on Dairy Farms

Volume 2, Issue 1 Newsletter Date: Oct 2012

Special points of interest:

- Soil Testing saving dollars
- Soil Acidity reducing pasture production
- Wet winters and Drainage Management
- Trace elements boosting animal health and milk production
- Trace elements in the effluent pond

Inside this issue:

Whole farm Testing saves thousands

Imagine if you didn't need fertilizer, what would that do for your profitability?

Well keep dreaming, it probably isn't going to happen. But find a way to reduce the amount needed and that will increase profitability.

One important thing to remember is soil grows grass not fertilizer. We use fertiliser to correct deficiencies in soil fertility. What if some paddocks are already fertile enough. Then why not just target the paddocks that need it and even then target the nutrient that's needed.

There can be enormous variability between paddocks based on use, soil types, cow time, history and nutrient sources. Nutrient sources include soil reserves, commercial fertilizer, animal manure and other organic waste products, hay, silage and grain use, irrigation water, the wind, and plant types.

Nutrient churn is the term we use to describe the way nutrients move around farms. Nutrients are mobile in hay and silage, effluent, water and of course cows. If they didn't move we would never need fertiliser. So how do you track them. Well, you can't really so we test to find where they end up. Test the effluent, test the soil and test the plants. And then we can create a nutrient plan to create balance and that will create better soil, better production, better animal health and lower fertilizer bills.

Healthy happy cows depend on optimum soil conditions

Hidden soil acidity: your biggest pastoral problem?

Soil acidity is emerging as the biggest problem in managing our soils.

The major problem is the variation in acidity range in individual paddocks. One paddock had a range of 3.8 to 6.1 and the lab test showed a reasonable 5.6.

The roots in this paddock were very restricted and some pasture barely had roots.

At this level phosphorus and nitrogen lock up becomes a major problem.

Additionally aluminium can be released as the clay dissolves.

This problem seems to be made worse by the prolonged wet last year.

We can now do spot tests in the paddock to determine if this is a problem, contact us if you think it is slowing your production.

You are what you eat:
Poor soil makes poor grass makes poor cows makes poor milk.

How important are trace elements in soil?

If we compare pasture production to a tractor the nitrogen, potassium and phosphorus are like the fuel to the engine, trace elements are like the oil. The oil consumption is a lot less, but try running without it.

If all the major soil conditions are in order, then trace elements will give only minor but noticeable improvement.

Adding trace elements to the soil is immediately noticeable in plant tests. We also observe increased trace element presence in effluent tests meaning the trace elements are being consumed.

Factors such as tillering, clover content, colour, soil nitrogen levels, phosphorus utilisation and better protein content are also obvious.

Probably the most noticeable difference is the improvement in animal health. Trace elements in plant is more digestible to cows than added minerals.

Ultimately the best measure is increased milk volumes in the vat from higher quality pasture feeding and healthy cows.

"Modern farming requires better information for better decision making"

Trial agronomy and test strips

With the lack of government and dairy industry research being conducted for on-farm issues we are getting more requests to design and monitor private on farm trials.

These trials may be to determine the effectiveness of new "systems" or identify deficiencies leading to production losses or just to compensate different soil types.

Trace elements, fertiliser doses, effluent, gypsum and grass type are some of the trials conducted recently.

For some strips it is as simple as observation, for others soil and plant tissue tests need to be conducted to determine the results.

One thing that is usually obvious, the cows make a bee line for the treated areas proving the old adage "doing something is better than doing nothing".

Effluent application: critical to nutrient management and soil health

Legacy of mould board plowing and clay scarring

We recently soil tested a farm at Glenormiston and noticed there was a lot of variation in the physical hardness of ground when trying to get the soil sampler in. Some samples were easy to take and others were almost impossible. The variation was evident across the entire farm and was making pasture establishment very patchy. Additionally the harder areas had a very high orange clay content and when we asked if mouldboarding had been used he told us it had been common practice by the previous owner.

The clay content after 7 years is still hindering pasture establishment.

We also found a similar situation on a pipeline put in a few years ago. The clay content is hindering grass establishment.

We have developed strategies to address this and should see some improvement over the next few years. Contact us if you need help on this issue.

Potassium Management

Surely the most poorly managed macro-nutrient on dairy farms and causing lots of problems.

There can be large variability across the farm and only testing shows it.

Typically night paddocks, effluent areas and feed out areas are very high and out paddocks and fodder paddocks can be low.

Sandy areas also can be low. Black soils are usually very high.

Low potassium levels cause loss of production and grass can loose palatability.

Pasture can uptake higher amounts of potassium than needed (called luxury uptake). This high potassium level may cause animal metabolic disorders like tetany and milk fever.

Additionally excess potassium can cause salinity issues and damage soil structure causing increased pugging and cracking.

Potassium increases pH so high potassium can hide the requirement for calcium from lime or gypsum.

Dung beetles at work

Effluent Testing and Analysis

Getting the effluent tested and analysed can help with a number of thing.

Effluent is very high in potassium and that is usually the limiting value to the application rate. Testing lets you know this value and determine a suitable application rate. This year the highest value was 4 Tonnes of potassium per megalitre. Unfortunately the results were determined after application and some milk fever occurred.

The test provides a nitrogen value and can be used for nitrogen fertiliser. It shows organic or non-organic nitrogen (slow or fast nitrogen).

Trace elements such as copper and zinc are also tested. This can be used to indicate whether these trace elements may be deficient in your farming system.

The test also gives you a fertiliser equivalent table so you can work out exactly how much to apply.

"Good farming is about good soil"

Drainage Management

Are winters wet again?

One of the observations made this season was that many drains have been filled in, ploughed in or become overgrown.

Many culverts and pipes have become blocked or plugged and simply don't carry water efficiently anymore.

If water can't get away it sits and all of those waterlogged soil issues come into play.

Drainage doesn't end at your boundary fence. If the neighbours or councils don't have their drainage in order your excess water will have nowhere to go and can back up on to property anyway.

It may be important to create a drainage plan.

This should include all the usable waterways and a determination of the ground heights using a laser level to assist in linking drains and assuring the levels are correct..

Planning is best when you can see the pooling.

What is in your soil?

EnProve
Ag & Environment

PO Box 817

Warrnambool

Phone: 03 5565 4430
Mob: 0448 866 205

E-mail: enprove
@enprove.com.au

enprove.com.au

Don't guess, test

EnProve is a local independent agricultural testing, analysis and advisory service in South Western Victoria. We have tested over 3000 dairy paddocks in the south west and worked with 100 dairy farmers. We can help you improve your production, profitability and long term performance.

Our services:

- Soil Testing
- Effluent Testing and Application Rates
- Plant Testing
- Farm Mapping
- Nutrient Mapping
- Independent Agronomy
- Effluent System Design
- EPA Effluent Management Plans

Laminated and Magnetic Farm Map

$900 + GST

Conditions apply

For more information Call Dean Suckling 0448 866 205.

What's holding your production back?

EnProve