



Agri-Doo

Nutrient Management on Dairy Farms

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Special points of interest:

- Soil Testing saving dollars
- Effluent Testing and using less fertilizer
- Time to look at trace elements?
- Good dung beetle populations
- Care using wood chips

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Nutrient management 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



Dairy cows at work

create a nutrient management plan to create balance and that will create better soil, better production, better animal health and lower fertilizer bills.

Soil Testing Accuracy

Is soil testing accurate?

The answer in general is yes. To be totally confident get your analysis completed by a lab that has NATA accreditation. NATA is the authority that oversees the quality standards of all the different

testing types like drinking water, aircraft manufacture, drug manufacture, and every other testing standard in the country.

If the testing service isn't NATA accredited they may still be accurate but don't have to apply the

same quality standards.

Getting accurate soil tests is one thing, getting sensible advice on how to use them is all together another.



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

What's wrong with the grass

The plant tissue tests conducted this year show that some pasture grasses are way out of balance to the optimum.

In many cases these tests were conducted because cows would turn around and walk out of what appeared to be lush delicious pasture.

Most common findings were poor calcium levels (is that important for milk

production), poor trace element levels and in the case of constant inundation very high manganese levels.

Low potassium and high potassium paddocks were also a turn off with cows having to be locked in.

Even though our soil iron levels are high across the district iron was poorly represented in the grass

(that won't help cold cows).

Zinc and copper also represented very poorly.

Definitely time to start thinking about trace elements.

Newer pastures showed poorest balance indicating that older pastures may be better for animal health.

“Modern farming requires better information for better decision making”

Making Dairy Effluent Pay

Still one of the biggest problem across the district. Systems simply can't cope. Constant rainfall hasn't helped but in the main systems are too small and irrigation too slow.

So is it worth investing big bucks?

Our work shows the aver-

age farm is producing 6-8 megalitres of effluent. Testing this shows that each megalitre has a fertilizer equivalent value of \$1250 dollars. That's \$7500.

Add to that the boost in production and savings on emptying costs and the benefit could quickly reach \$20000. All invest-

ment is 100% tax deductible and depreciation of equipment can be claimed.

Most farms we test could meet 20% of their fertilizer requirement with effluent.

And a proper system will save you time, time, time.



Effluent application: critical to nutrient management and soil health

Trace Elements in Soil

One of the quickest ways and easiest ways to improve animal health and fertility and pasture production is to get trace elements back into the soil.

This important part of soil health has often been overlooked for many years and now deficiencies and imbalance is

becoming common.

Trace elements processed through the soil are more bio available to cows than supplementing and it's cheaper.

Typically zinc, copper, boron and molybdenum are lower than optimum and this is made worse by high levels of potas-

sium, phosphorus and nitrogen.

Liming can release some of these trace elements but trace elements should be replaced if they are low.

This is backed up by the low levels of trace elements we find in effluent tests.

Dung Beetles and Earthworms

Dung beetles and earthworms (and some other insects) are the big boys in soil biology.

Introduced dung beetles are now widely spread across the district but as yet only summer active species seem to have established in significant numbers. When its warm these beetles will breakdown and bury cow pats in hours deep into the soil

both working the soil and redistributing nutrients.

Winter active species don't seem to have established as well but it is still quite early to make this assessment.

Earthworms have long been an indicator of quality soil. They turn mineral nutrients into plant available forms, break up soil releasing locked nutrients and their casts are as

good as any fertilizer.

They are active in moist conditions but seem to reject excessively high phosphorus environments. Excessively working the ground also seems to discourage their establishment. Good soil conditions definitely encourage them.



Dung beetles at work

Special K

Potassium is the one macro nutrient that always seems to be out of whack.

Areas closest to the dairy (night paddocks and effluent areas) are commonly very high. Hay making areas and out paddocks are very often low.

Effluent areas are high, sandy ground leaches it, river flats are naturally high and irrigation uses a lot of it.

Too high and it grows weeds and stuffs up calcium and magnesium in the grass, too low and it grows poor grass and the cows don't eat it.

One hundred tonnes of grain – 800 kilograms of potassium. One hundred tonnes of hay can contain 3 or 4 times that much.

A typical 250 cow dairy farm can import 5 tonnes of potassium (10 tonne potash equivalent) a year in feed alone.

“Good farming is about good soil”

Arsenic and Old Wood Chips

A dairy farmer recently asked us to analyse the nutrient value of the material he scrapes from the yard/track area and the calf shed to determine if the material was suitable for pasture spreading and to determine suitable application rates.

The pile of material was largely composed of ma-

nures, some sand and gravel and significant amounts of wood chips from the calf shed.

Testing showed the arsenic and chromium levels were detrimentally high. The conclusion we drew was that the treated pine wood chips were the by-product of a timber manufacturing plant.

High arsenic has been linked to animal death, nervous system failure and low fertility rates.

Take care that any pine chips used are untreated or avoid them.



What is in your soil?

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Loving the Land

AgriDoo is a local independent agricultural testing and analysis service in South Western Victoria. We have tested over 2500 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
- Farm Mapping
- Independent Agronomy
- Effluent System Design
- EPA Effluent Management Plans
- Soil Health Assessments

For more information contact Dean Suckling 0448 866 205.

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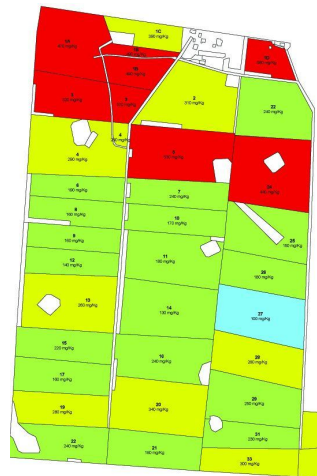
Nutrient Mapping

Creating soil fertility balance is essential for best pasture production, animal health and ultimately milk production. But with so many variables effecting soil balance which is the best tool to make the best decisions.

We use nutrient mapping as that tool. It is the dairy farmers equivalent of precision agriculture.

Nutrient mapping allows our farmers to understand fertility levels and adjust paddock management and fertilizing decisions.

A nutrient map is a farm paddock map with the major nutrients overlaid to allow at a glance un-



Nutrient maps: the easiest way to show the high and low fertility at a glance

derstanding of what is happening in those paddocks.

It makes sense of soil tests, identifies problem areas and allows more

accurate fertilizer decisions. It is also beneficial for planning into the future and allows smarter effluent application .

Nutrient mapping has saved many farmers thousands of dollars and it puts them back in control of their farms.

No more guessing, just smart informed decision making.

And farmers start to see savings and production benefits.

Creating a nutrient map and basic soil testing 30 paddocks starts from \$2500 and will save many times that in the first year.