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DoloZest® News

0800 843 809 Functional Fertiliser Ltd
peter@functionalfertiliser.co.nz
or coralie@esi.org.nz www.functionalfertiliser.co.nz

Building resilience

Amongst all the uncertainty there is one indisputable fact, carbon is at the heart of sustainable farming and growing. Where carbon is being continuously sequestered the ability to steadily increase production is assured.

The ability to do this is a cornerstone of the success of Functional Fertiliser programmes dating back to 2003. We're now putting together the measures that will provide farmers and growers with the data necessary to show that in the future they are due credits.

Just as with the nitrate-N measures from 2011/'12 there has never been any doubt that properties using CalciZest/DoloZest based nutrient programmes are environmentally positive **in all respects**.

We knew this from the steadily increasing per hectare pasture production underpinned by higher total farm production. **Higher levels of animal production result from plants containing more soluble sugars.**

Quantity and quality go together, as with the strongest healthiest trees producing the best quality fruit.

Pasture cuts from the Berryman property near Edgecumbe in the Bay of Plenty show pasture production lifting from 16,000 to 20,000kgDM/ha in 5 years.

The initial rate of increase has slowed however what we perceive is a steady improvement in resilience. Performance is less affected by periods of dry, cold, or excessive wet.

Just as importantly the cost per unit of production comes down. New technology only persists if costs reduce and more is provided for less.

Recovery from stress periods is increasingly rapid due to carbon being the storage centre for both nutrient and moisture. However, it's not just carbon that's essential for continued production. Beneficial biology is also necessary as soils rich in carbon without rapid cycling of nutrient grow very little.

Deep peat soils are a case in point. We grew up with peat soils close to home and they were regarded of little value until drained, planted in pasture, and grazed with livestock.

Soils containing excess moisture (the ideal is 25%) for extended periods become increasingly anaerobic. The microbes that thrive in those situations are not those that are beneficial for pasture plants, fruit trees, or any other food production enterprise.

Lack of moisture

Drains on peat properties were sometimes deepened below the depth that allowed moisture to permeate from below during summer, resulting in the soil repelling moisture and staying dry regardless of the amount of rainfall.

That's not a condition exclusive to peat soils. Sandy soils are prone to the same issue and the soil under pasture on a property visited recently that had suffered through a very wet winter was dusty dry below 20cm.

It wasn't uniform across the paddock however a sufficiently large enough area was affected that unless remedied would result in poor growth over summer. The solution was to apply CalciZest, introducing a high concentration of selected beneficial biology, as soil tests showed near ideal levels of all required nutrients.

Biology in conjunction with nutrient was identified as beneficial as far back as 1950 by DSIR and remains equally as important now as then.

Dry summer conditions reduce the activity of beneficial biology, the reason it takes time for pasture growth to recover after autumn rain.

The first decent rain turns pastures green however strong growth arrives only after the second rainfall, usually 10 – 14 days later. Energy and nutrient required for growth results from the death of microbial populations releasing nutrient for plant growth.

Initial slow growth after the first rain is the time required for microbial populations to fully recover. That period is shortened in soils rich in biology.

Olsen P

We've just received the soil tests from a client's now highly productive 34ha block. It has Olsen P levels of 7, a tick up from the Olsen P of 4 in 2012 prior to the commencement of a Functional Fertiliser programme.

A subsoil test was also conducted at that time which provided an Olsen of 2.

The land, being badly affected by water coming up from underneath during periods of wet weather, was regarded poorly and little phosphorus had been applied.

Our goal was to ensure optimum growing conditions and each year higher than maintenance phosphorus inputs, along with CalciZest and elemental sulphur have been applied.

Creating perfect soil test results was never part of the aim. Long-term MAF data shows that near maximum levels of pasture production are obtainable with Olsen P levels of 10 or less, and this situation supports the science.

The speed at which nutrient is cycled is more important that actual soil held levels. The robustness of beneficial biology determines the rate of nutrient cycling, all other things being equal.

Multi species pastures
Increasingly we're observing exceptional multi species swards containing red and white clovers in a total of up to a dozen different grasses.

Rye grass is often either a minor part of the mix or not included at all. In the case of the above mentioned 34ha the mixes contain no rye grass, and when that was discussed at a Lincoln University presentation there was almost warm approval from the lecturers and others in attendance.

Species in mixes will necessarily differ from plains to high country, irrigated and dryland, with the best performing species for each situation identified over time.

Role of pasture management
Grazing management plays a pivotal role in the total growth of pastures. Set stocking results in rapidly declining clover percentage, nitrogen fixation is thereby limited, and total annual production may decline to as little as 50%.

Well managed rotationally grazed permanent pastures seldom if ever require renewal and over time reflect climate, nutrient inputs, and grazing management.

Carbon a necessary victim of urea use
The application of urea or any synthetic form of nitrogen stimulates bacterial growth and as populations build, soil organic matter (carbon) is consumed releasing nitrogen for plant uptake.

This is supported by recent trial work conducted by staff at Lincoln showing a loss of carbon under irrigated lucerne. What is not shown is the nutrient inputs, particularly nitrogen.

Time out viewing
When there is the inevitable quiet period over the next few weeks there are some short youtube clips by eminent scientists that contain fascinating insights into our current climate situation and the concern with current CO_2 levels.

If nothing else, they provide contentious concepts best discussed with friends and relatives when other subjects have been exhausted.
A dearth of Carbon, Dr Patrick Moore.
https://www.youtube.com/watch?v=sXxktLAsBPo
World in midst of carbon drought, Professor William Happer.
https://www.youtube.com/watch?v=U-9UlF8hkhs
Carbon dioxide is making the world greener, Freeman Dyson.
https://www.youtube.com/watch?v=BQHhDxRuTkI

They should make all farmers and growers feel increasingly positive about current farming practises and the sustainability of their enterprises.

A question we've been regularly asked of late is whether there's an increase in business as the demand for sustainably grown quality produce increases. The answer is that although business is steadily growing there has been no sudden surge in demand.

There's a Jeff Booth you tube clip,
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https://www.youtube.com/watch?v=1nw7lHXuzKo
that helps explain that conundrum, as well as shedding light on the world's future financial system.

Most people predict the future by projecting forward the current situation. Very few see what the future may look like due to evolving technology, and so we very much appreciate the support from all our clients, particularly those that hang on in when friends and peers question their judgement.

All the very best for the festive season,