

12th September 2019

DoloZest® News

0800 843 809
peter@dolomite.co.nz
or coralie@esi.org.nz

www.esi.org.nz
Functional Fertiliser Ltd



The Government's Action Plan for Healthy Waterways, released Thursday last week, starts with the statement, *The Government is taking action to stop the degradation of our waterways and clean up our rivers and lakes within a generation.*

Farming organisations have responded predictably, and everyone has a different perspective depending on experience and how they perceive the proposed National Environmental Standards for Freshwater will impact on them.

There is likely to be less debate over David Parker, the Minister for the Environment's statement that, "Clean water is crucial to our economy and to our brand as a country. Our primary exports and tourism rely on our clean green image."

Here at Functional fertiliser we are apolitical. Our only interest is to provide farmers with the most efficient and environmentally friendly soil fertility systems we can.

What our work, based on years of continuous measuring, shows is that high levels of production and environmental sustainability are entirely compatible.

Any farming activity reliant on soil performs best when soil health is optimised, and anything that compromises the activity of earthworms, fungi, and bacteria, has a negative impact on plant growth.

There's a view that profitable farming is a trade-off between financial returns and the environment. Nature will always have the final say and any farming activity that degrades the environment has an expiry date attached.

People love to attach labels to farming practises and Functional Farming Systems fall into the Regenerative Farming basket. Defining Regenerative Farming in our view is therefore important and the key component is the ongoing

sequestration of carbon, which allows past generations of NZ farmers to claim that status.

It is under grazed permanent pasture that carbon in the form of humus is most readily sequestered and that is evident in soil profiles. Farmers have genuinely been the back-bone of the country and held in great respect within the community.

A change took place 30 years ago with the introduction of urea from the Think Big plant in Taranaki. Urea had been available prior and its use was seen as anti-good farming practise, OK as a quick fix but not acceptable long term.

Those initially promoting the use of urea did so responsibly, however what started as a little occasionally grew to be larger amounts more regularly until there is now a generation of farmers reliant on it.

There is a further essential aspect for farming practises and fertiliser programmes to be able to claim the 'regenerative' tag. The systems must be synergistic with every component building on the one before resulting in output that is greater than the sum of the parts.

Too frequently soil fertility has been viewed under a reductionist lens, with a determination there must be single factor that when optimised will result in greater growth and profitability.

Olsen P figures spring to mind. Plant available phosphorus is only one of many factors and no more nor less important than other essential nutrients. A soil with an Olsen P of 50 is not necessarily more productive than one with 15.

Over time the acceptable Olsen P figures have steadily increased, perhaps in part due to ongoing soil degradation. An Olsen P of 10 was the figure required for clover survival, based on historic MAF work.

Although internationally there is sufficient phosphorus to supply farming requirements for decades to come it is essential that it is used wisely.

Clover as Kingmaker

The theme of Functional Fertiliser's four venue South Island road trip last year was Clover as Kingmaker, and the awareness of the role clover plays is now more important than ever.

Clover fixes nitrogen in response to declining soil levels. This is never more evident than in a new grass paddock when the only nitrogen received is some at time of establishment.

Initially grasses, or whatever else is planted, will dominate and grow strongly until the pool of plant available N declines.

The decline in vigour of those plants provides the opportunity for clover plants to access direct sunlight and they steadily gain in strength, fixing nitrogen for the more upright plants to again dominate.

Grazing management and seasonal conditions will impact on all species, however well managed paddocks will be moving from clover dominance and back again on a regular basis.

Nitrogen fixed by clover is then taken up by other plants and a highly efficient system evolves with only a very small portion of the total N pool available for plant uptake at any time.

As carbon is being steadily sequestered under a FFS programme excess N is held rather than leached to groundwater.

A question often asked is how much clover should there be in a permanent grazed paddock? The highest recorded in the years that Tom Gee was carrying out the pasture cut dissection work was 35% by weight, in the December cuts.

There are times when clovers, when at their best, appear to dominate. Large leafed long strong-stemmed clover dominating pastures during summer is a common site, and we regularly receive photos from cell phones, which we greatly appreciate, and save.



FF soil fertility programmes rely on calcium as the driver of the process, supported by all other essential elements. This is particularly important for clover plants as they often contain around 2.5% calcium compared to grasses 0.6%.

Clover with this calcium content will have a solid stem and a brix reading of up to 17 at time of grazing. Not only does it contain more energy and calcium than other pasture species, it is also more digestible providing extraordinary weight gain and milk production.

As soils dry during the heat of summer plant growth may be limited by potassium, however the real issue is lack of moisture, not potassium. Applying potassium in early summer to boost clover growth results in a temporary reduction in calcium availability resulting in hollow stemmed clover.

As moisture enters the stem of the plant it takes with it potassium and it is this that is the primary reason for bloat. The work by Dr Max Turner in the 1980s' showed that there was a strong relationship between bloat and excess potassium. Summer growing plants, including clover, tend to be lower in sodium than grasses that thrive during cooler times. Hence the recommendation for salt to be available to animals at all times over summer.

We've received numerous reports of healthy well-performing animals this spring, even where pasture covers are a little lower than ideal. Extra energy in the form of direct sunshine is the key to contented animals. Hay, and balage from mature grass, are the next best sources of energy.

We've often mentioned, somewhat tongue-in-cheek, that the break-even date for pasture growth to exceed demand is the 20th September. It varies, but it's a worthwhile date to have in mind at this time of the year.

