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# DoloZest® News

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## Why CalciZest, Why Now

The Report, **Major tool for managing farm pollution gets a fail from reviewers**, (Aug 11) states that Overseer in its present form is not capable of estimating nitrogen loss from farms, a result the Commissioner for the Environment Simon Upton called “devastating”.

Overseer was never intended for that purpose and in our view it is only when based on measured outcomes that it will be of value.

There is already a cap of 190kgN/ha/year applied to pastoral land and the Minister for the Environment has made it clear that a reduction in specific situations may be required.

Ultimately the use of urea on pasture will be heavily regulated. Horticulture will also be impacted however pasture is where the bulk of it is currently used, and a systems change is essential.

Regular applications of urea for pasture growth are unnecessary, and there is growing evidence of a link between high nitrate-N in water and colorectal cancer in people. Projecting out 5 years the use of urea will be severely curtailed, which doesn't necessarily mean less pasture growth with a corresponding drop in milk and meat production.

*These developments have been foreseen and we've steadily refined products and programmes to ensure a risk free and rapid transition to a cleaner more efficient future.*

### Increased growth

The use of CalciZest based total nutrient programmes using measures from several properties over the last twenty years show that an **increase in total pasture growth of 30%** is achievable, particularly where careful observation and astute pasture management is practiced.

Measures from the pipes on the Berryman and neighbouring property showed a **70% reduction in nitrate-N** levels entering groundwater.

No urea has been applied to the Berryman property in over twenty years with total fertiliser N inputs less than 20kgN/ha/year.

### Soil carbon

Carbon, in all its states, is the key to pasture performance, with higher carbon content soils having the potential to outperform those with less.

Carbon is also the filter in pastoral soils reducing the amount of nitrogen and other nutrients lost to groundwater. As the carbon content of soil is steadily increased as a result of biological activity more moisture and nutrient can be stored.

Graham Shepherd of the Visual Soil Assessment states that an extra 144,000 litres of water per hectare is capable of being stored with every 1% increase in soil carbon.

Research by Dr Louis Schipper at Waikato University has shown a reduction in soil carbon of 1.0 tonne/ha/year over the last thirty years. MAF pasture cut data from pre urea times in the Waikato indicates a 30% reduction in annual growth from permanent pasture has also occurred.

This 30-year period coincides with widespread use of urea as the nitrogen source for permanent pasture.

### Pastoral soils are essential

There is no dispute that it is under grazed permanent pasture that carbon can most quickly be sequestered.

As a rule of thumb for every tonne of dry matter produced above ground there is a corresponding amount of root and leaf matter incorporated into the soil.

Although there is a limit to the percentage of carbon in a healthy productive soil there is no limit to the amount of top soil that can be developed.

Essential to the long-term survival of pastoral soils are grazing animals. Regular and controlled grazing stimulates the next round of growth with dung and urine providing essential phosphorus, nitrogen and potassium.

The treading by feet speeds the mixing of organic matter close to the surface further accelerating the rapid organic cycle. The speed at which this cycle operates is equally important to total growth as the actual levels of soil held nutrient.

### **Optimum nutrient levels**

Functional Fertiliser programmes are based on providing the nutrient and stimulation required for optimum clover growth. Maximum clover growth requires a higher level of plant available nutrient than for grass only pastures.

Long term trial work from many sites in this country indicates that maximum pasture production can be achieved with an Olsen P figure as low as 10.

Shoulder production i.e. early spring and late autumn production is likely to be stronger where higher Olsen P levels exist.

Phosphate rock is close to 30% calcium and is therefore an important contributor of calcium for plant uptake.

In a strongly biological situation, there is an ongoing demand for calcium which releases phosphorus from phosphate rock for plant growth. This is primarily the reason for it to be equally effective as water soluble phosphorus in the ideal pH range of 6.1 – 6.2.

### **Calcium, the driver of growth**

Because clover is 3 to 4 times higher in calcium than grasses more than 'normal' plant available calcium inputs are recommended.

This also works well with the biological aspect of CalciZest and DoloZest as calcium is a fundamental driver of earthworm activity as well as that of the selected fungi and bacteria in the Zest component of both products.

Due to the ever-changing nature of soils, it is near impossible to identify and accurately count the many beneficial microbes, and therefore the impact that introduced ones have. By changing soil conditions to suit the introduced species, changes do take place.

### **Observational changes**

What can be measured is the outcome of introduced species. A key observational change is the rapid breakdown and reincorporation of dung.

A surprisingly rapid change in the physical structure of treated soil often takes place and is relatively easily measured with the use of a sharp spade or soil penetrometer.

With a little experience the change in structure can be felt simply from walking with treated soils noticeably softer underfoot.

Excess rain percolates downward more freely, however extra moisture is retained. Plant roots can access moisture and nutrient from lower depths due

to steadily increasing crumb providing more even growth throughout the season.

### **One big fertility patch**

On more than one occasion we've had reports from clients of their pastures becoming uniformly green and resembling an extensive fertility patch.

Nitrogen is an essential element and CalciZest was developed specifically to promote its availability through fixation by clover.

Early spring growth tends to be dominated by grasses, however as sunlight hours increase and soil temperatures rise clover in the pasture becomes more obvious.

From early November onwards, particularly in warmer areas, grasses will send up a seed head allowing sunlight to penetrate deeper into the sward sparking the growth of large leafed long-stemmed clover.

Clover in a well-managed permanent grass/clover sward is capable of fixing more than enough clover for 20+ tonne of dry matter in a twelve month period.

Because nitrogen is fixed in response to declining soil levels there is little if any lost to ground water. It's a highly effective and efficient natural system that will always outperform a synthetic based approach.

### **Clover as quality feed**

Lamb growth is fastest and milk production highest on clover dominant pasture due to a number of factors.

Calcium is a key component of bones and milk and with clover containing 3 – 4 times more than grasses the benefits are obvious.

Clover is more digestible than grasses particularly from November onwards, therefore more can be eaten in the animal's naturally allocated grazing time.

Clover nearly always contains more energy and during late spring and early summer extra energy results in more rapid growth of young animals, increased weight gain, and higher milk solid production.

CalciZest may be applied at any time, either as a stand-alone input to replace synthetic nitrogen or as part of a total nutrient programme.

For the best performing option for your property call us on 0800 843 809.

Regards,

