

21st February 2020

DoloZest® News

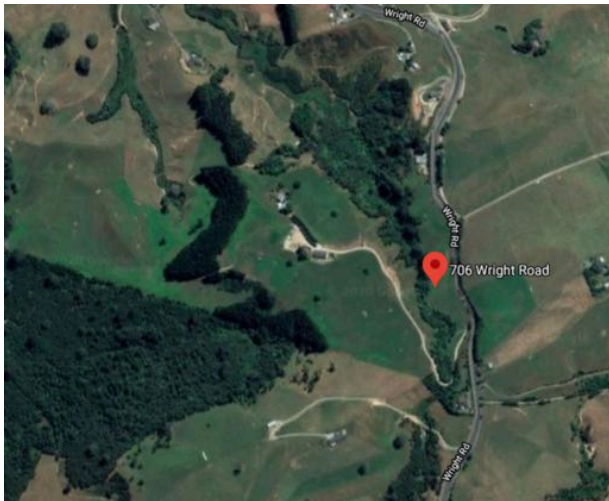
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Functional Fertiliser Ltd



Paint the farm green

The satellite image below was from February 2019 just as the Aongatete (north of Tauranga) region started to dry out.



The 30ha grazing property belongs to Jason and Claire Hill. An annual CalciZest/DoloZest total nutrient mix has been applied starting September 2011.

The image endorses the comments of improved summer performance by numerous clients over the last 15 years.

Growing longer into a dry spell is an easy claim to dismiss, and from the ground it's not always as obvious as it is in this image.

And it gets better, not only is there an extra 7 – 10 days growth leading into a period of moisture deficit, recovery afterwards is also more rapid. Seldom does a dry spell last more than 8 weeks and an extra 10 days growth at the beginning and a similar advantage at the back end means significantly fewer days growing less than demand.

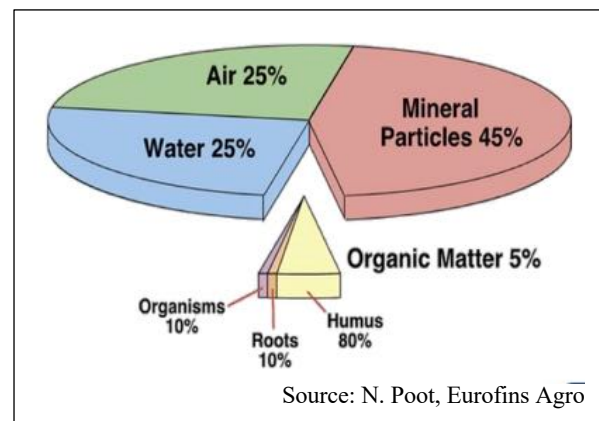
Management, as always, is a key factor in the degree to which the extra growing time is maximised, the reason for the 30-day grazing interval by the end of December.

When that is achieved and maintained paddocks are grazed a maximum of 3 times before autumn rain arrives. With a decent reserve of

supplement, all but an exceptionally long dry period is manageable.

How does it work?

Both CalciZest and DoloZest markedly improve physical soil structures. Soils in an ideal state contain 25% air and 25% moisture.



It was clear to us during our farming career that the paddocks that grew the most were those that felt the softest underfoot and the easiest to push electric fence standards into.

They didn't necessarily provide the highest soil test numbers, they were however the paddocks that could be relied on to have enough cover to fully feed animals at each grazing.

The amount of fine crumb in the soil largely determines softness and where there is sufficient crumb for the optimum 25% air content, there's also room for plant roots to delve more deeply accessing moisture from a greater depth.

Crumb is formed by the activity of beneficial soil life. Earthworms, fungi, bacteria, actinomycetes, yeasts, and others all play a part.

The amount of carbon in the soil also is a determinant of soil moisture and biologically active well-structured soils contain carbon in the form that ensures more moisture within the root zone of pasture plants.

It's estimated that for every 1% increase in the carbon content of the soil means as much as an extra 144,000 litres/ha of water can be stored.

The recent Agmart funded soil carbon project showed that the soil of properties under a Functional Farming programme contained significantly more carbon than properties using conventional fertiliser programmes, in a form that indicates steady sequestration is taking place.

To sequester carbon, soil must be able to breathe.

All beneficial soil organisms require a steady supply of air for best performance. Oxygen into the soil results in CO₂ being released which in turn feeds plant growth.

CO₂ (carbon dioxide) is an essential plant food and higher concentrations increase pasture growth.

Pasture growth on compacted soils is limited by ability of air to enter the soil and CO₂ to be released.

A comment in an independent report on a long-term client's property contained the following, "The AMN (a measure of soil respiration) was the highest in our samples so far apart from a native forest site."

The tests undertaken at Landcare Research also measured organic matter levels which were "alongside samples from ex-peat soils and the best managed allophanic soils."

In short, Functional Fertiliser full nutrient programmes ensure excellence in all respects resulting in soil, plant, and animal performance of unsurpassed quality.

Soils are living breathing entities

The weight of livestock above ground is determined by the weight of livestock beneath the ground, which is why regulation limiting animal numbers will not provide the environmental benefits being sought.

To maximise animal production it is essential to provide soil conditions that favour the activity of soil dwellers; fungi, bacteria, earthworms, and the myriad of other beneficial soil life.

CalciZest and DoloZest were designed to create the conditions that favour both macrobes and microbes, and to further enhance performance a

wide range of selected soil friendly fungi and bacteria are also introduced.

The value of mycorrhizal fungi

Most plants have a symbiotic relationship with mycorrhizae. They extend root zone by up to 30 times extracting both nutrient and moisture from areas in the soil plant roots cannot access.

They are particularly adept at extracting phosphorus from tightly held 'reserves' and transporting it to plants for uptake.

In return some of the extra energy created by plant leaves photosynthesising more efficiently is fed back to fuel increased fungal activity.

Mycorrhizae also exude a sticky substance known as glomalin, a protein essential for the development and maintenance of aggregate that is resistant to treading pressure. Soils naturally contain mycorrhizae, however species bred specifically to enhance pasture performance are part of the microbe mix that make the Zest component of DoloZest and CalciZest.

It is widely accepted that these essential fungi do not flourish in compacted soils low in calcium, a characteristic of pastoral soils where excess synthetic-N is applied.

Recovery after rain arrives

The first rain event after a prolonged dry spell creates a greening of pasture as plants recover and seeds germinate. It is not until the second rain has arrived, often 10 – 14 days later that rapid growth takes place.

The speed at which plants enter the rapid growth phase is dependent on the speed of recovery of soil life.

Fungi and bacteria have first call on nutrient and it is only when populations are fully restored that nutrient becomes available for rapid plant growth.

The application of CalciZest or DoloZest just prior to, or soon after autumn rain arriving will speed the recovery of pastures prior to cooler temperatures limiting growth.

Due to the unique formulation of these products there is minimal loss of efficacy should they be applied prior to rain arriving.

Benefits

- **More rapid grass, clover, and herb recovery when rain arrives**
- **Increased total growth prior to winter**
- **Reduced animal weight loss due to higher energy content of pasture**
- **Lessened likelihood of a severe facial eczema outbreak**