

DoloZest® – the Humus builder

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While the scientific fraternity focus on animal genetics and different plant species as factors that influence nitrate leaching and greenhouse gas emissions, the role of soil is completely ignored. And yet soil is at the heart of this issue.

The ongoing project measuring carbon levels in soil where long-term DoloZest/CalciZest based programmes are in place, and comparing them with neighbouring properties receiving regular applications of fertiliser nitrogen (bag N), clearly indicates a marked advantage to the former.

The data reinforces the work carried out in recent years that shows a 70% reduction in Nitrate-N losses under intensive dairy (1,400kgMS/ha) using Functional Fertiliser products and programmes.

Extensive testing in 2012 provided a clear difference in carbon levels at all depths between the two properties monitored, and with each piece of fresh information the case for farming 'biologically' becomes more compelling.

Carbon is the focus of the present research because where carbon is being steadily sequestered there is increased storage for nitrogen, which is then released as required for plant uptake. It's a natural and highly efficient system based on biological activity in the soil.

As soils warm in spring bacterial and fungal activity increases, releasing nitrogen and other nutrients for plant growth. With somewhere between 5,000 – 15,000kgN held within the root zone of pasture plants there is more than sufficient to meet plant demands.



Carbon in the form of humus also provides storage for moisture with "a 1% increase in organic C in the top 300mm of soil increasing the soils capacity to hold water by 144,000litres/ha". [Graham Shepherd]

The extra nitrogen and moisture ensures greater total growth with a more even spread throughout the year. The variability caused by excessive wet and dry are lessened, allowing easier and more effective long-term pasture management.

Carbon also provides a highly effective filter, particularly where higher than usual levels of calcium are present. Calcium in the form of

lime is used in industrial furnaces to eliminate heavy metal loss to the atmosphere, and it's equally as effective in the soil.

The report "Synthetic nitrogen destroys soil carbon, undermines soil health" on the research work by Mulvaney, Khan & Ellsworth at the

University of Illinois (on the website www.esi.org.nz) shows a direct link between the loss of carbon from soil and the long-term use of fertiliser nitrogen, and that work is not alone.

Studies in both UK and NZ find the same trend as at University of Illinois even in pasture-based systems. *Modern farming practices of high nitrogen use have and continue to erode soil carbon and nitrogen levels in spite of purported conservation measures and contrary to what agricultural "experts" have espoused and continue to claim.* [Schipper, L.A., et al, Univ Waikato Global Change Biology (2007) 13, 1-7]

So why DoloZest in autumn?

Golden Bay dolomite is the most effective magnesium fertiliser available, anywhere, and it's the only magnesium input we've ever recommended.

When applied with carbon, carbohydrate and a wide range of selected beneficial microbes (Zest) it's incredibly effective in minimising magnesium deficient problems in both plants and animals, and the two are tightly linked.

Dolomite in its own right has a marked effect on physical soil structures, increasing pore space in compacted soil regardless of the chemical composition. Clay soils that have become excessively tight due to the pressure of animal feet rapidly become more permeable, and with more oxygen biological activity increases, nutrient cycles more rapidly and pasture growth increases.

In 'light' sandy soils dolomite has the effect of clumping soil particles together creating the crumb that is essential for optimum soil, plant, and animal health.

How quickly does it work? We've regularly received feed-back from farmers who claim there's a noticeable difference in animal behaviour and performance within 14 days of application.

And although it works quickly it's not prone to leaching. Being in a carbonate form it's not water soluble, so the release rate is based on the demand by plants, again, governed by sunlight hours, temperature, and biological activity in the soil.

In nearly thirty years of work with dolomite we're yet to find anything as effective in reducing and largely eliminating magnesium

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- ✓ Marked reduction in calcium/magnesium related metabolic disorders in spring.
 - ✓ Increased pasture production with more even growth throughout the season.
 - ✓ Reduction in the requirement for pasture renewal.
 - ✓ Improved animal performance.

Recommended application rates:-

Intensive Dairying 350 – 400 kg/ha annually
Sheep & Beef 150 – 175 kg/ha annually or 300 – 350 kg/ha every second year.

As DoloZest is a natural product, it is not possible to guarantee analysis to be absolute. Each mix produced will be such that there will be no significant difference in results obtained.

Calcium Ca 15%
Magnesium Mg 7%

Bio carbon, minimum of 25%

based animal metabolic disorders in spring – it simply works.

When something this effective is combined with Zest, Functional Fertiliser's **unique** Zest - the soft carbons with selected beneficial microbes along with a carbohydrate and food source - the basis of a farming system that requires **no added nitrogen** is created.

We are regularly asked what the secret is to the effectiveness of DoloZest and it's not a single thing. It's the combination of all the inputs that provides a result greater than the sum of the parts. It's about synergy, the way in which different components combine to produce a truly outstanding result.

*"Post-modern agriculture (biological agriculture) is not anti-science, ...it is **the** most modern agriculture because it builds carefully and creatively on advances in scientific knowledge particularly in the disciplines of biology, ecology, and microbiology."*

We should give more attention to the biological aspects of soil systems... and rediscover the potentials of synergy and symbiosis."

[Norman Uphoff, PhD. Professor of Government and International Agriculture; Cornell Institute for public Affairs (CIPA), Acting Director, Spring 2007.]

Autumn is the ideal time to apply DoloZest, although it may be applied at any time during the year. Autumn, because it's the time of the rejuvenation process of soils, plants and animals that have worked hard over the last 6 - 7 months.

It's the time when old root mass, accumulated dung and dead grasses are digested, the carbon sequestered, and humus formed, with nutrient made available for rapid plant growth in spring.

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