

# CalciZest – the Nitrogen fixer

*A unique Soil Improver containing Calcium, Bio-Carbon and Selected Microbes for Plant Growth & Soil Health*



## Environmentally friendly nitrogen

Permanent pastures of clover and ryegrass remain the foundation of New Zealand’s pastoral farming systems. Clover as “kingmaker” provides the bulk of nitrogen required for high quality farm production levels. CalciZest unlocks that biological potential.

### **Nitrogen**

Nitrogen (N) is a key limiting nutrient in our farming systems. Over the past 20 years increasing volumes of synthetic nitrogen fertiliser have been applied to New Zealand pastures and many farms have now developed a dependence on regular applications to maintain growth.

The cost of synthetic nitrogen fertiliser continues to rise with its use increasingly regulated. At the same time global customers are demanding premium quality food from traceable clean freshwater environments. Use of synthetic nitrogen fertiliser for high pasture yield is no longer good practice management. We offer an alternative.

### **CalciZest takes clover to a higher level**

CalciZest applied in spring stimulates clover growth over summer. Clover thrives with increased direct sunlight and warm soil temperatures.

Our on-going research programme compared twelve farms – half using CalciZest/DoloZest and half not (traditionally fertilised). Pasture clover levels were compared as reported in Table 1.0.

**Table 1.0 Clover % groundcover in pasture – CalciZest/DoloZest cf. traditionally fertilised [6 properties each]**

Month	Clover % in pasture	
	DoloZest/CalciZest	Traditional Fert.
<b>September</b>	20	11
<b>October</b>	24	12
<b>November</b>	31	12
<b>December</b>	35	18



The clover content in DoloZest/CalciZest pastures steadily increases throughout spring and early summer, providing a range of benefits.

### **High performing clover**

Functional Fertiliser nutrient programmes drive soil fertility and pasture quality through clover’s natural features:

- Fixing Nitrogen, free of charge from the atmosphere.
- More efficient use of P which means lower inputs, better matching actual losses.
- Eliminates the requirement for synthetic nitrogen applications
- Provides ground cover and highly digestible feed from November, when grasses go to seed, until autumn.

Clover contains significantly higher levels of Ca than grass. Whether the focus is milk production, or the growth of animal frame and meat production, Ca provides the base. Clover is also more digestible than grasses, which means that animals can eat more, grow at a faster rate and produce more milk solids.

Monitoring work on properties where CalciZest is applied shows that clovers nearly always contain more soluble sugars, i.e. the energy content is higher than grasses. The physical structure of clover allows for efficient utilisation of sunlight with a strong clover sward able to protect the soil during hot weather reducing soil moisture loss.

Well-structured pastoral soils in New Zealand normally contain between 5,000 and 14,000kg/ha of organically held nitrogen in the top 25cm. Nitrogen uptake by pasture plants is usually around 450kg/ha/yr. The N fixed by clover is provided as required for growth, with surplus held in the organic matter of the soil and available for plant uptake at a later time. It is a highly efficient and effective natural biological system.

CalciZest is the basis of total nutrient programmes. It supplies the extra plant available calcium required for long-stemmed, large-leafed

### Benefits

- More total dry matter with steady annual increases.
- Markedly improved weight gains and total animal performance.
- Cleaner animals, fewer dags and dirty tails.
- Improved soil drainage with better drought resistance.
- More rapid recovery after a dry spell.

The result is sustainable systems with lower costs and higher income levels. The supporting science is proven and verified by long-term data from commercial farms.

### Application

Typically 400kg/ha provides outstanding performance. CalciZest is recommended as part of a comprehensive nutrient programme informed by a whole-of-farm context and analysis, e.g. soil types/soil tests, visual soil assessment, paddock history/husbandry programmes, etc.

As CalciZest 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. This is supported by our on-farm data covering twenty years of active field research.

Calcium – Ca – 21%  
Bio-carbon, min. 25%.

clover while providing the conditions for increased numbers of beneficial earthworms.

Healthy plants with sufficient of all nutrients necessary for optimum growth are mostly unaffected by pests or diseases. Since the start of measuring and monitoring work in 2003 it is noticeable there is little, if any, flea or weevil damage to CalciZest-fed clovers.

Bloat is not necessarily a consequence of clover. When clover growth is calcium rather than potassium driven, at the ideal time for grazing the stem of the clover will be solid and the likelihood of bloat is minimised.

Clovers in pastures growing under near ideal conditions can fix in excess of 240kg N/ha/yr. The balance of N required comes from the atmosphere [e.g. diazotroph soil bacteria], urine, the breakdown of dung, plant roots and uneaten herbage, providing the soil is well structured and strongly biologically active.

The process of making CalciZest involves the culturing of selected fungi and bacteria onto bio-carbon. Sufficient food is added to ensure rapid colonisation of the soil after application. Even when the soil becomes dry soon after application, beneficial biological activity is achieved when rain arrives.



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