

CalciZest – the Nitrogen fixer

A unique Soil Improver containing Calcium (lime), Soft Carbon and Microbes for Plant Growth & Soil Health



Environmentally friendly nitrogen.

Permanent pastures of clover and rye grass will remain the foundation of New Zealand’s intensive pastoral farming with clover providing the bulk of the nitrogen required for high production.

Over the last twenty years increasing quantities of nitrogen fertiliser has been applied to New Zealand pastures and many farms have developed a dependence on regular applications to maintain growth.

A reliance on fertiliser nitrogen for high pasture yield is no longer acceptable.

In our view, it is only through non-reliance on urea that lower NO₂ and the required 47% reduction in methane emissions can be achieved. The maintenance of our clean fresh water is now essential for the production of premium quality food for international markets.

CalciZest applied in spring stimulates clover growth over summer when soil temperatures encourage the seeding of grasses. Clovers thrive with increased direct sunlight and higher temperatures.

In the 2006 spring, 6 properties applying CalciZest and/or DoloZest had the following percentage of clover in the sward compared to 6 traditionally fertilised properties.

Well managed pastures using CalciZest as part of a sound nutrient programme are able to grow more than 20 tonne of DM annually without reliance on fertiliser nitrogen.

	Clover % in pasture	
	properties (6) with DoloZest &/or CalciZest	properties (6) without DoloZest &/or CalciZest
September	20%	11%
October	24%	12%
November	31%	12%
December	35%	18%

*Visual Soil Assessment work by Graham Shepherd indicated that properties using CalciZest based programmes have **low potential for greenhouse gas emissions and are sequestering carbon.***



Early in November rye grass, usually the dominant grass in pastures, changes from strong vegetative growth to developing a seed head.

From the table above it can be seen that the clover content in well-managed pastures steadily increases throughout spring and early summer, providing a range of benefits.

Clover contains significantly higher levels of calcium than grass. Whether the focus is milk production, or the growth of animal frame and meat production, calcium provides the base.

Clover is also more digestible than grasses, which means that animals can eat more, grow more rapidly, and produce more milk solids.

Monitoring work on properties where CalciZest is applied shows that clovers nearly always contain more and never less 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 loss of moisture.

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 annually.

The nitrogen 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's a highly efficient and effective natural system.

CalciZest, as the basis of total nutrient programmes, supplies the extra plant available calcium required for long stemmed, large leafed clover while providing the environment for increased numbers of beneficial earthworms.

Since the start of measuring and monitoring work in 2003 it is noticeable that there is little, if

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Benefits

- ✓ More total dry matter with steady annual increases
- ✓ A higher percentage of clover in sward
- ✓ **Reduction in the need for fertiliser nitrogen**
- ✓ Markedly improved weight gains and total animal performance
- ✓ Cleaner animals, fewer dags and dirty tails
- ✓ Improved drainage with better drought resistance due to increasing humus levels
- ✓ Rapid recovery of pasture after periods of stress
- ✓ **Higher income and lower costs**

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Application rate. Typically 400kg/ha provides outstanding performance. CalciZest is recommended as part of a comprehensive nutrient input programme.

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.

Calcium Ca 21%
Bio-carbon, minimum of 25%

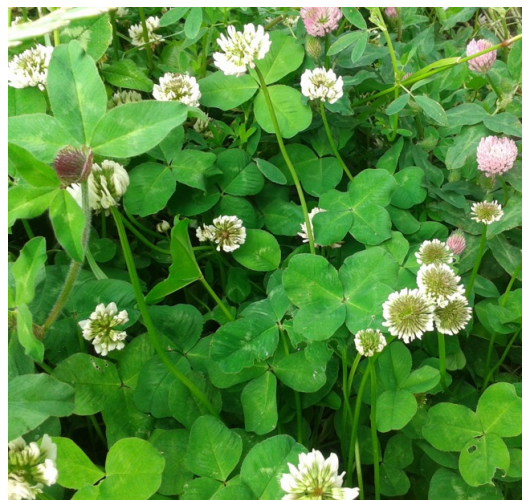
any, flea or weevil damage to CalciZest-fed clovers.

Healthy plants with sufficient of all nutrients necessary for optimum growth are largely unaffected by pest or disease.

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 240 kg of nitrogen per ha per year. The balance of the N required comes from soil microbes able to fix N directly from the atmosphere, urine, and the breakdown of dung, plant roots and uneaten herbage, provided 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 obtained when rain arrives.



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