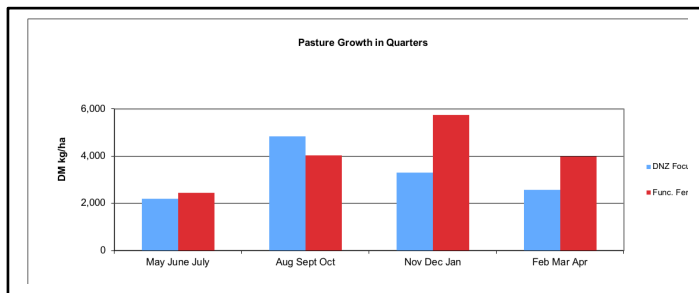




Why CalciZest this spring

The following graph from the 08/09 season clearly shows where the production advantage from CalciZest in spring lies.



The 08/09 season was the first season that pasture cut cages were sited at the Berryman property.

The figures from the DairyNZ Focus farm were taken from their published data.

The DairyNZ Focus Farm applied 235kgN/ha, the Berryman property 15kgN/ha. The properties are within a few kilometres of

each other, both flat non-irrigated intensive dairy enjoying the same rainfall.

The difference in the 3 months August, September and October of 810kgDM/ha (8.8kgDM/ha/day average) can be directly attributed to urea applied over winter.

During the time when soil temps are less than 10°C there is a minimal response to applied N. Long-term MAF trial data shows that the best response to applied N is in the period when pasture growth is naturally strongest, as that is the time when the draw on plant available nitrogen is at its greatest. However, it is also the time when, on well managed properties, extra growth is least required.

All the trial data on N applied to permanent pastures shows there is a lag effect following the extra growth, i.e. a reduction in growth occurs as the soil and plants recover from the stimulus.

In short, a little extra pasture was gained during Aug, Sept, and Oct, 810kgDM/ha, (8.8kgDM/ha/day), but 2,450kgDM/ha less grew during Nov, Dec, and January.

The period from the start of November to the end of January shows a **74% increase** to the **CalciZest** based total nutrient programme 2,450kgDM more (an extra 26.6kgDM/ha/day).

This is also the key production time when pasture, particularly clover rich pasture, is most valuable. Clover is more digestible than grass and therefore animals can consume more in their naturally allotted grazing time. It also contains more soluble sugars than grasses, which is particularly valuable at the time of peak production combined with the requirement to get back in calf.

The calcium content of clover is also several times higher than that of grass. Milk contains large amounts of calcium and is the main mineral requirement of rapidly growing animals. Lambs fatten more rapidly, and lactating animals produce most milk when fed a diet of clover rich pasture.

Clovers, thrive in the higher temperature and direct sunlight of summer. Applying nitrogen creates a soil & pasture environment that reduces their vigour, and ability to fix nitrogen.

Response to rain

Both the DairyNZ Focus farm and the Berryman property received similar amounts of rain in late November/early December. However, the response in pasture growth on the Berryman property was markedly superior to that of the Dairy NZ property.

	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%

One of the reasons is that as soon as soil temps reach 20°C, which occurs the first week in November each year in the BOP, grasses go to seed, and there's little that can be done to hold them in the vegetative phase. Clover rich pasture is able to utilise the moisture, resulting in extraordinary growth of 86kgDM/ha day during December.

Nitrogen fertiliser and its effect on soil moisture

What's often overlooked is the effect regular applications do to the soil's ability to hold moisture. The amount of moisture a soil can hold is directly related to the soil carbon content.

With every 1% increase in soil carbon an extra 144,000 litres of water can be stored.

The average nitrogen usage on intensive dairy farms is now 230kg/ha (500kg Urea) annually, at best reducing the rate of carbon sequestration and at worst steadily reducing total soil carbon.

There are many examples nationwide of carbon being lost from intensively farmed pastoral land. *"....recent research has shown that in intensive lowland livestock systems (e.g. dairying), soils have lost organic carbon by an average of 1.0 tonne carbon/ha/year over the last 20 – 30 years...."* BOP Regional Council 2011

This means pasture growth during summer may rapidly decline as soils warm more rapidly and lose moisture more quickly. The response when rain does arrive is also significantly slower.

With less carbon available, growth responses to applied N steadily decline over time. The usual response is to apply more N and the treadmill effect steadily increases.

Less carbon also means soils become leakier, as there are less sites for nitrogen and other nutrients to be stored. Nutrient not taken up by plants reaches groundwater more quickly - the reason for the increases of nitrate-N in groundwater in regions with the most dairy cows.

Agmardt funded carbon project

Work to date indicates properties using FF programmes are actively sequestering carbon. This is supported by the steady increase in pasture production over time.

The Berryman property grew 19,728kgDM/ha last season (2017/18) based on monthly cage cuts, an average of 54kgDM/ha/day, while the average annual pasture production of dairy properties in the Waikato/BOP is between 14,000 – 14,500 kgDM/ha, an average of 39.7kgDM/ha/day.

Show us the money

A fundamental of any commercial farming operation is the extra income generated from a change in farm practises.

An independent report by Mark Macintosh of AgFirst Whakatane for the 2011/12 season showed the advantage to the Berryman property to be \$1,621/ha.

The average NZ dairy farm of 144ha stood to benefit from an **extra \$233,424** based on those figures.

Creating soil conditions that favour clover

There is much work being done on the effect of different pasture species and there is already some really interesting information coming out. The Functional Fertiliser focus is on creating the **soil conditions that favour clover**. By doing that, sufficient nitrogen is fixed for annual pasture production of more than 20 tonne of dry matter per hectare, and high fertility grasses steadily crowd out lower fertility species such as browntop and poa.

The pasture species that best suit each farm situation are then determined by farmer preference and grazing management. It's also important to note that, as pasture growth increases the quality of the feed lifts, resulting in less feed eaten for animals to gain an extra kg of weight or produce an extra kg of milk solids.

CalciZest based nutrient mixes provide the following benefits:-

- ✓ **Higher % of clover in the sward**
- ✓ **Improved production/weight gains**
- ✓ **Cleaner, healthier animals**
- ✓ **Lower costs**
- ✓ **Higher income**



Please call us for more information.

Sulphur and the danger of excess

Soil tests from throughout the country often show low sulphur levels. Careful interpretation is required as applying large amounts of sulphur is seldom beneficial and can be harmful.

Excess sulphur will send plants into reproductive phase, with the effect lasting up to twelve months. During this time pasture growth is significantly lower than when the optimum amount of sulphur is applied.