

4<sup>th</sup> July 2019

## DoloZest® News

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### The upside of a dry frosty winter

During the middle of June we recorded soil temperatures in various places throughout the North island of between 10 & 12°C, and as a result pasture growth had been noticeable, particularly after rain.

The last week in June has seen a shift in airflow from the north to the south with a subsequent dive in overnight temperatures. It's often been said that the coldest temperatures arrive soon after the shortest day so it's right on cue.

Pasture growth will now slow to a point where in some instances it may appear that covers are reducing. Galatea farmers have assured me that in their 'frosts to the tops of trees' winters, that covers do actually decline.

That's unlikely although there was a June/July period when the growth in the monitored cages was sufficiently modest that it wasn't cut, the cages were moved to a fresh site and 5kgDM/ha/day was recorded.

There are however some real advantages during these slow growth conditions.

#### Utilisation of pasture and crops is high.

Animals are able to eat close to the ground with little if any soil contamination. When conditions are wet as much as 30% of available feed is uneaten.

Because cold frosty overnight temperatures are normally followed by bright sunny days, pasture brix levels on ready-to-graze pasture are usually above 10 and often close to 15, as measured by a refractometer. Brix measures soluble sugars and is a valuable measure of the energy available for stock. Extra energy at any time of the year, particularly during winter is a valued input.



#### Soil moisture – 2<sup>nd</sup> July 2019

A sample of soil from the Fox property near Oamaru had a moisture content of 16.3%  
Well down on the ideal 25%

These two factors, high utilisation and extra energy mean that well-fed stock will come through the coldest periods in excellent order, primed to perform when there is an abundance of rapidly growing spring pasture.

There was a recent news article on the quality of the houses built in this country. In a nutshell it was claiming that until very recently homes were designed for a climate warmer than reality. Our climate is unique and largely dominated by the ocean surrounding us.

Average temperature for the last twelve months:-

June 8.6, July 8.9, Aug 9.7, **Sept 10.5, Oct 12.4,**  
Nov 14.2, Dec 17.0, Jan 18.8, Feb 17.8,  
March 17.6, April, 13.1, May 12.5.

What is interesting is that September is the first month with double figures. The magic figure for rapid pasture growth in spring is 10°C and it is not until the last week in September, for most districts, that soil temps rise sufficiently for rapid spring growth to kick-in.

Applying nitrogen when soil temperatures are less than 10°C will have little effect on growth at that time, however a small amount of N applied late July/early August will bring forward extra growth in the last half of September, the time when covers are usually at their lowest.

We favour sulphate of ammonia (SOA) as the N input as less N is lost to the atmosphere compared to urea, and it contains sulphur, an essential element for rapid plant growth.

The recommended rate of application is 15-25kgN/ha (70-120kg SOA). A take-home from Ardern Andersen's course is that nutrient is

best applied with a carbon and a carbohydrate. The response is always superior as carbon and carbohydrate provide the immediate energy necessary for rapid growth.

If you're planning an N application this winter give thought to WinterZest, a 50/50 mix of our specially prepared soft carbon and carbohydrate mix and SOA. Those that have previously used will vouch for its effectiveness.

The soft carbon content also ensures a wide range of beneficial fungi and bacteria is available to further assist growth as nutrient can only enter a plant through a biological process.

### **Grazing management**

We were delighted to visit a property recently where the area grazed daily was 1% of the total farm area. 1% is an arbitrary figure that will obviously change post lambing & calving, however it ensures that there will be sufficient time for pasture recovery prior to warmer temperatures and longer sunshine hours.

While little is happening above ground root growth will be underway and is easily seen by putting a spade in the ground. There will be a proliferation of fine white root ready to harvest nutrient necessary for optimum spring growth.

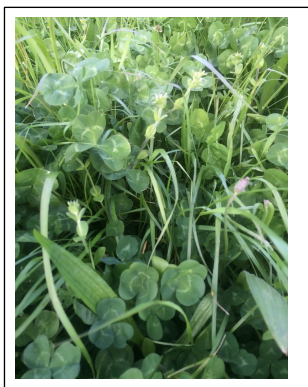
Each time plants are grazed there will be a loss of root mass as energy from the leaf is required to feed the root. When plants are grazed three times in quick succession the recovery of root and leaf is markedly slowed, the reason for back fencing being recommended.

### **Clover growth in spring**

Grasses compete more vigorously for nutrient, moisture, and sunlight than do clovers; the reason for nutrient inputs being based on clover requirements.

Sunlight in the early part of the season is often the factor that governs the strength of clover growth particularly when post grazing residuals are high. Clover stands a better chance when grazing residuals are sufficient for sunlight to enter the base. This means that initial re-growth will be slightly slower, and a longer grazing interval will be beneficial.

There is no formula that can be applied to all situations and where pastures and animals are



right now is a result of decisions made in autumn.

To maximise total farm performance daily observation is essential, even when things look much the same as they did the day before. Over time a picture builds in the subconscious and natural patterns become increasingly clear. We can't beat nature, however we can provide the resources and management that enhance the opportunities provided by our benevolent and ever-changing climate.

### **Soil carbon**

There's an argument that carbon in the soil is too hard to measure because it varies, however it is being measured and over time a picture of what is happening with soil carbon will become increasingly clear.

The recent Agmardt funded project undertaken by Rod Millan on behalf of Functional Farming Systems showed there was significantly more biologically active carbon in soils where CalciZest/DoloZest based nutrient programmes were being used compared to soil fertilised by conventional inputs.

The test used was the recently developed Hot Water Carbon(HWC) test. The amount of carbon in soil is an indicator of potential productivity and the HWC test is a measure of microbial biomass, an indicator of soil quality.

The importance of this work cannot be overstated. Research by Dr Louis Schipper of Waikato University shows that soil C levels in NZ have reduced significantly under intensive dairy, supported by declining pasture yields.

Research by Landcare Research has shown that all irrigated land is losing carbon, and hence pastoral farming in this country is now regarded as environmentally unsustainable.

Intensive pastoral farming under the FF System is carbon positive i.e. soil held carbon is steadily building. Under this system there is the ability to reduce atmospheric carbon dioxide, produce quality food, filter water and enhance the environment.

There is no limit to the amount of soil that can be built using the Functional Fertiliser based farming system.