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DoloZest® News

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Functional Fertiliser Ltd



Growing more - naturally

With dairy and lamb prices continuing to slide it is increasingly clear that genuine profit can only be generated from low cost, efficiently harvested, permanent pastures.

Increasing total pasture production without extra costs has the added benefit of increased efficiency, due to faster growing pasture also containing more protein and energy, with less total intake required to produce a kilogram of meat or milk.

Pasture growth rates for the two Functional Fertiliser monitor properties were 80.3kgDM/ha and 101.3kgDM/ha for the 29 days to the 3rd February.

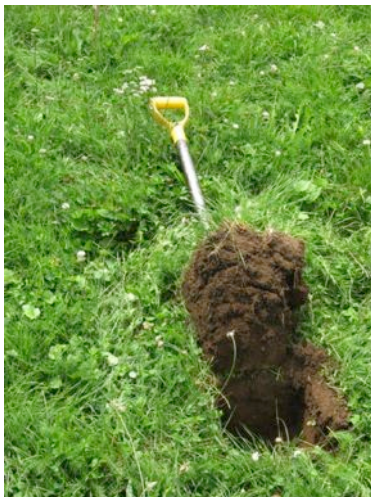
The non-irrigated Berryman property recorded the greatest growth, and only twice before, in December 2013 and January 2014 have rates in excess of 100kgDM/ha been recorded there.

The 80.3kgDM/ha from the Taylor property, an irrigated intensive dairy unit at Galatea, is 13% above the farm average for January over the last 3 years.

Rain has been regular, and sufficient has fallen each time for soils to be moist to the bottom of the spade (25cm). Below that, the soil on the Berryman property was noticeably drier.

Management plays a key role in high growth rates. With a dry summer predicted and a dryish December, residuals were a little above those normally left, and in hindsight a lower post grazing residual would have provided a more even cover of highly nutritious feed for the next grazing.

Both properties are now on target for near record pasture production for this season.



With plenty of moisture and soil temperatures close to 25^oC, paspalum and other summer grasses are flourishing.

Not only are brix levels of these species lower, but they also contain very little sodium, and seed more rapidly.

Stock will benefit from salt being made available and where topping is carried out to maintain quality, thought should be given to the potential for facial eczema.

Berryman, Edgecumbe, non-irrigated			
	'08-'14	'14-'15	'15-'16
May	34	25	29
June	22	23	29
July	23	23	24
Aug	35	24	24
Sept	43	62	49
Oct	60	80	98
Nov	67	53	78
Dec	77	80	68
Jan	62	35	101
Feb	61	74	
March	44	69	
April	40	70	

Taylor, Galatea, irrigated			
	'04-'14	'14-'15	'15-'16
Aug	29	25	17
Sept	51	46	46
Oct	58	56	81
Nov	61	38	60
Dec	75	82	63
Jan	57	71	80
Feb	61	68	
March	49	60	
April	36	32	
May	21	20	
June	10	20	
July	10	17	



Humus

The ability of the properties to steadily increase pasture production lies in the ability of the soils to store more carbon, which is then converted to glomalin and ultimately humus.

Humus is resistant to treading damage and is the result of complete digestion of dung, dead roots, old leaf, and urine. It has the ability to hold 4 to 20 times its own weight in water, also providing storage for nutrient, releasing both to plants on an as-required basis.

Not only is increased nutrient and moisture storage a reason for the outstanding production from farms applying DoloZest/CalciZest based programmes, but the effect of mycorrhizal fungi should be considered.

Mycorrhizal fungi

Christine Jones in the article *Mycorrhizal fungi – the powerhouse of the soil* states, “Plants colonised by mycorrhizal fungi can grow 10 – 20% faster than non-colonised plants, even though they are ‘giving away’ up to 40 – 50% of their photosynthate to support mycorrhizal networks (photosynthate is the soluble carbon the plant fixed from CO₂ and sunlight). One of the reasons for this apparent paradox is that plants colonised by mycorrhizae exhibit higher leaf chlorophyll contents and higher rates of photosynthesis than non-colonised plants.”

With more energy in the leaf of the plant, animal production, both weight gain and milk production, lifts. The Macintosh Report (2011-12) shows that cows on the Berryman property ate 21% less feed to produce a kilogram of milksolids, compared to district average.

Recent testing

Results from the testing of soil from two clients’ properties show large amounts of healthy mycorrhizae, as well as excellent overall biological activity.

With the absorptive area of mycorrhizal hyphae being approximately 10 times more efficient than that of root hairs the rate at which nutrient is cycled increases and more total growth results.

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Functional Fertiliser programmes provide a complete range of nutrients, which allows for a lower cost option this autumn without compromising production. These are best tailored to individual situations, so please phone on 0800 843 809 at any time, and we’re always delighted to receive emails. They can be sent to peter@dolomite.co.nz or coralie@esi.org.nz

Regards,



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In short Functional Fertiliser programmes steadily increase soil storage capacity, and mycorrhizal fungi along with a myriad of other introduced beneficial soil dwellers ensure more efficient use.

Physical soil structures

Where physical structures are characterised by large amounts of fine crumb, with no signs of long term compaction, the exchange of air and gasses ensures strong growth throughout the season without the requirement for applied nitrogen. The bacteria on clover nodules and other beneficial nitrogen fixers ensure sufficient nitrogen year on year for maximum pasture growth.

It’s important to remember that ideally soils are 25% moisture and 25% air.

The latest price reduction on Urea of \$50/tonne from Ravensdown is stated to provide a potential annual benefit to farmers of \$37.5m. This means that a staggering total of 750,000 tonne of urea is currently being sold annually, resulting in increased nitrate nitrogen being lost to groundwater each year.

The concentration of N in cow urine is directly related to the nitrate in the feed eaten, which in turn is influenced by the amount of fertiliser N applied. At best only 50% of applied fertiliser nitrogen is taken up by the plant, the remainder being lost to both the atmosphere and groundwater.

Although the pipes measuring nitrate-N losses have been removed from the property neighbouring Berryman’s, the pipes on the Berryman’s remain and are being regularly pumped.

Over the 35 months the pipes were in place on the two properties the Berryman property grew more pasture, with nitrate-N concentrations in their ground water measured at around 70% less than next door.

There doesn’t have to be a trade-off between production and the environment. A truly efficient well-managed pastoral property can be highly productive, profitable, and environmentally positive.

