Waitaki

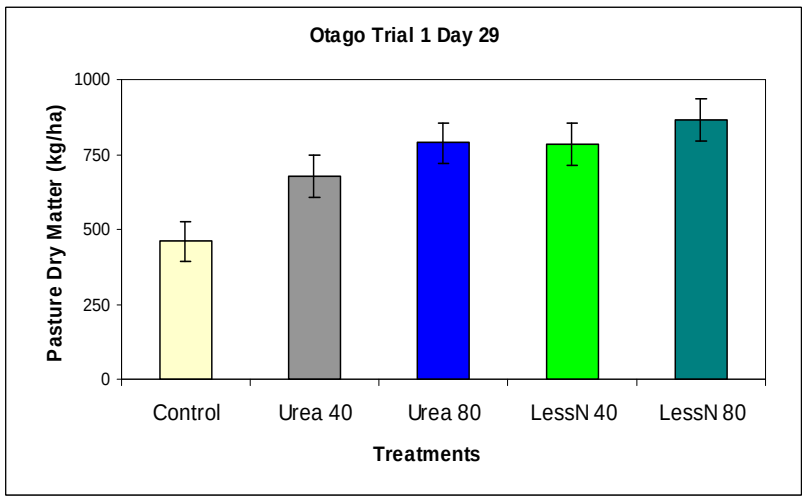
The trial was on Waitaki dairy farm. It was started on 5 March 2009 and finished on 3 April 2009. The trial area was irrigated ryegrass-white clover based pasture under normal dairying conditions. Treatments were applied to the selected paddock after 10 days of grazing by dairy cows. The soil temperature was 18^{0}C at baseline record day and 14^{o}C on post treatment pasture assessment day.

LessN 80 produced the highest dry matter compared to all the treatments. The dry matter yield in LessN80 was significantly higher compared to Urea 40 treatment and statistically similar to Urea 80 and LessN 40 treatments. LessN 40 and Urea 80 preformed similarly at Day 29 but did not cause statistically significantly greater pasture growth than Urea 40 treatment. Urea 40 in turn was statistically significantly better than Control. Pasture growth rates were reasonably slow likely due to falling soil temperature, low sunshine hours and possible soil nutrient limitations.

The pattern of results was encouraging as the addition of LessN tended to increase the nitrogen response at both the 40 and 80 kg urea rates. Clear statistical differences were not proven in these comparisons perhaps related to reasonably low growth rate of the pasture and low nitrogen response rates generally.

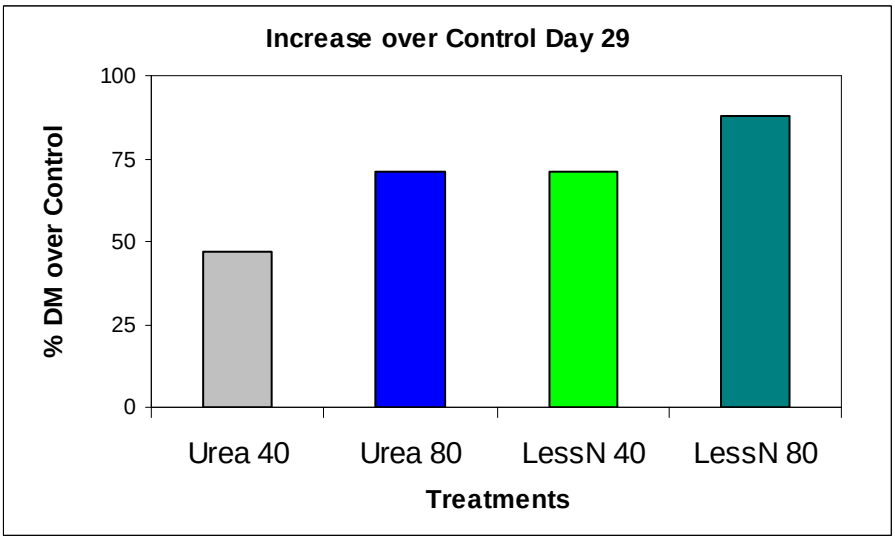
Table and Graph of Pasture Dry Matter Production (kg/ha) Day 29

Treatment	DM Rotation
Control	460^{a}
Urea 40	677^{b}
Urea 80	788^{bc}
LessN 40	786^{bc}
LessN 80	865^{c}



* Treatments that share the same letter are not statistically significantly different from each other (95% confidence level).

Graph of the Increase over Control (%) Day 29



Soil test report (pre treatment application)

The soil was a light Waitohi silt loam. Sulphur availability was not likely to be limiting and phosphorus availability not highly limiting. A low potassium level and moderately low magnesium level may have limited pasture response. The available N level was marginally low indicating strong potential to respond to nitrogen addition but judging from the results this response was limited by the cool conditions and other factors discussed.

Analysis		Level Found	Medium Range	Low / Medium / High
pH		6.1	5.8 - 6.3	
Olsen P	(mg/L)	20	20 - 30	
Potassium	(me/100g)	0.27	0.50 - 0.80	
Calcium	(me/100g)	7.8	6.0 - 12.0	
Magnesium	(me/100g)	0.80	1.00 - 3.00	
Sodium	(me/100g)	0.22	0.20 - 0.50	
CEC	(me/100g)	13	12 - 25	
Base Saturation	(%)	68	50 - 85	
Volume Weight	(g/mL)	0.93	0.60 - 1.00	
Sulphate-S	(mg/kg)	20	7 - 15	
Available N (15cm Depth)	(kg/ha)	145	150 - 250	
Base Saturation		K 2.0	Ca 58	Mg 6.0	Na 1.6
MAF Units		K 5	Ca 9	Mg 17	Na 9
Anaerobically Mineralisable N		103 ug/g			