

Trial #	14
Location	Te Piritā
Province	Mid Canterbury
Farm Type	Dairy
Product Trial	Granular Nitrogen v/s FPF Nitrogen
Date	2003

Introduction: To compare low rates of nitrogen applied in FPF form with granular nitrogen applications in terms of their respective influence on pasture production and nutrient levels. The site chosen was typical of many recent dairy conversions. The paddock used was older pasture. Fertiliser was applied on 19/4/2003 to 3m x 3m plots. There were 9 treatments which were replicated 4 times. The plot layout was a randomised complete block design.

Treatments:

1. Control
2. 10kg/ha of urea applied as FPF (4.6kgN/ha).
3. FPF – 100kg/ha (4.5kgN/ha).
4. FPF – 100kg/ha + 10 kg urea FPF (9.1kgN/ha).
5. FPF – 100kg/ha + 20 kg urea FPF (13.7kgN/ha).
6. FPF – 100kg/ha + 30 kg urea FPF (18.3kgN/ha).
7. Granular urea – 40kg/ha (18.4kgN/ha).
8. Granular urea – 80 kg/ha (36.8kgN/ha).
9. Cropmaster 20 – 200kg/ha (39 kg N/ha).

FPF treatments comprised: DAP 25kg/ha, RPR 25kg/ha, Elemental Sulphur 10 kg/ha, Limeflour 25kg/ha, Calcined Magnesite 5 kg/ha, salt 10kg/ha. They also included a fermentation biostimulant "PastureAid Plus". Dry matter was measured using a Grassmaster pasture probe 10,18,25,32 & 46 days after fertiliser application. Herbage samples were collected prior to application of fertiliser and 3 & 10 days after application and 32 days after application for treatments 1,3,6 & 7.

Results:

Dry Matter

There was no clear pattern with pasture growth. This was most likely due to the patchy nature of the pasture and inaccuracy of the probe.

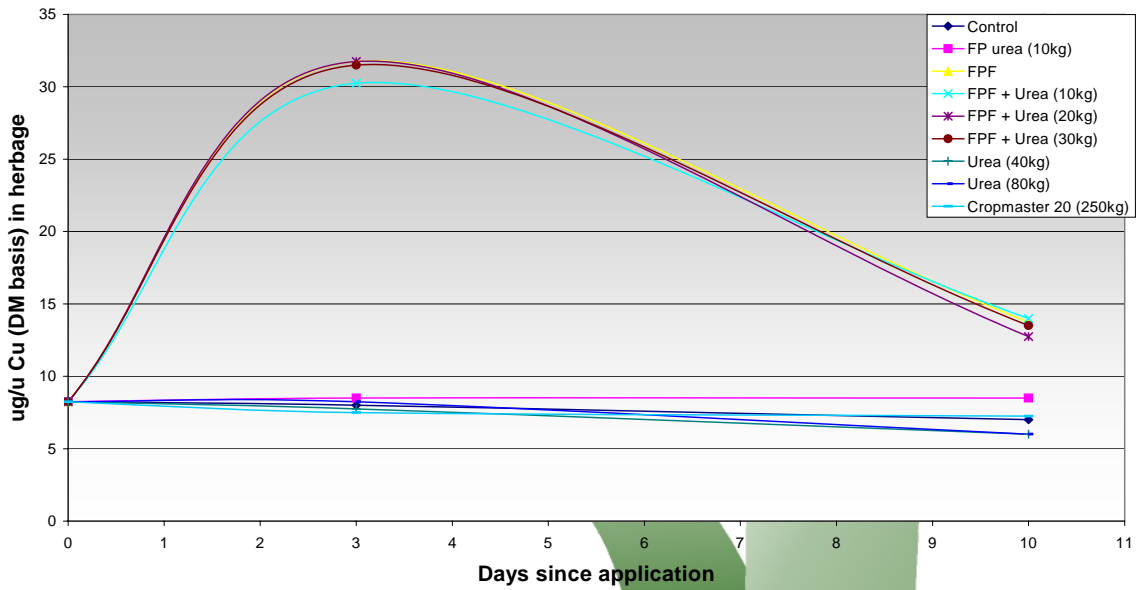
A consistent trend was the tendency for DM production to increase with increasing N content in FPF treatments. Each extra kg of N applied as FPF (up to 18.3kg) grew 19.5 kg of extra DM.

Herbage Analysis

Nutrient levels were analysed 3 & 10 days after fertiliser was applied. No significant changes were observed wrt to N, P or K. There were slight increases in dry matter production across all FPF treatments. There was an initial increase in S in the FPF treatments due to foliar uptake of elemental S. This difference was not present at day 10. The same observations were also recorded with Ca. No clear trends were observed with either Mg or Na.

Of the trace elements, Zn, Cu, B, Co, Se & I levels in the FPF treatments showed a large initial increase after day 3 but by day 10 levels had dropped back to be almost the same as the non-FPF treatments.

Copper levels of mixed pasture under different N applications and levels



No differences in the mineral composition of the FPF treatments with varying levels of extra N were evident. Thus, it is likely to be safe to incorporate 10-20kg of urea into FPF blends without adversely affecting trace element levels.