

Trial #	3
Location	Winton
Province	Southland
Farm Type	Beef and Sheep
Product Trial	FPF v/s Granular v/s Control
Date	1993 - 1994

Winton Trials: Southland (1993/1994) – FPF V Granular Trial

Introduction: The objective was to assess dry matter responses to different application methods of fertiliser and different fertiliser mixes. Preliminary soil test results formed the basis of the fertiliser combinations trialed. Fertiliser was applied on 11/11/1993 in seven treatments to plots measuring 4m x 4m. The FPF treatments were applied by helicopter. The other treatments were applied by hand. There were **seven replications**/treatment. Over a 12 month period, dry matter production was assessed. Soil and pasture samples were also collected and assessed on a regular basis.

Treatments:

1. Control
2. SF SouthFert mix (250kg/ha SuperP + 375g/ha Cobalt sulphate)
3. FPF50 50kg/ha DAP blend
4. FPF100 100kg/ha DAP blend
5. GR50 Granular mix (50kg/ha DAP)
6. GR100 Granular mix (100kg/ha DAP)

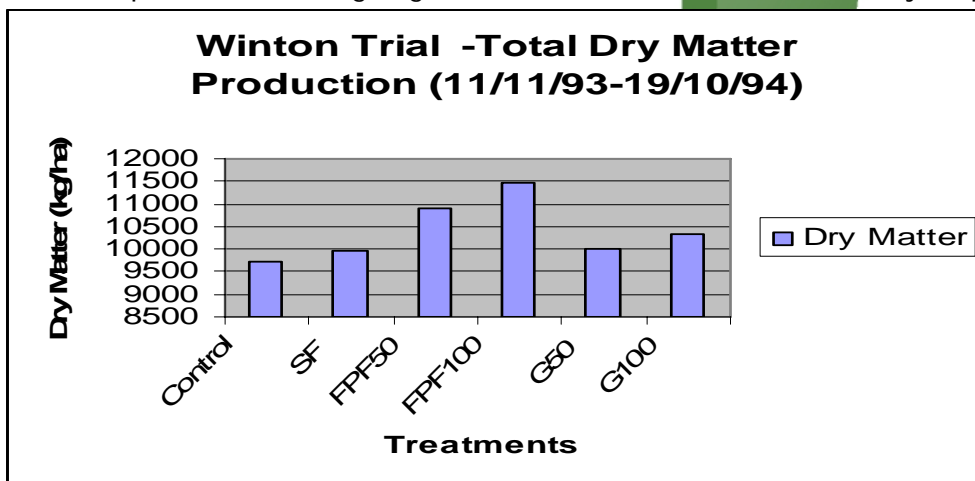
The Granular and FPF mixes comprised the following proportions for 100kg/ha. In the 50kg/ha mixes, the DAP figures were halved. Thus the actual mixes totalled 130kg/ha for the mixes labelled 100 and 65kg/ha for those labelled 50kg.

DAP	100kg/ha	Sulphate of Potash	5kg/ha	Limeflour	5kg/ha
ES	11kg/ha	Magnesium Sulphate	5kg/ha	Trace Elements	4kg/ha

Results:

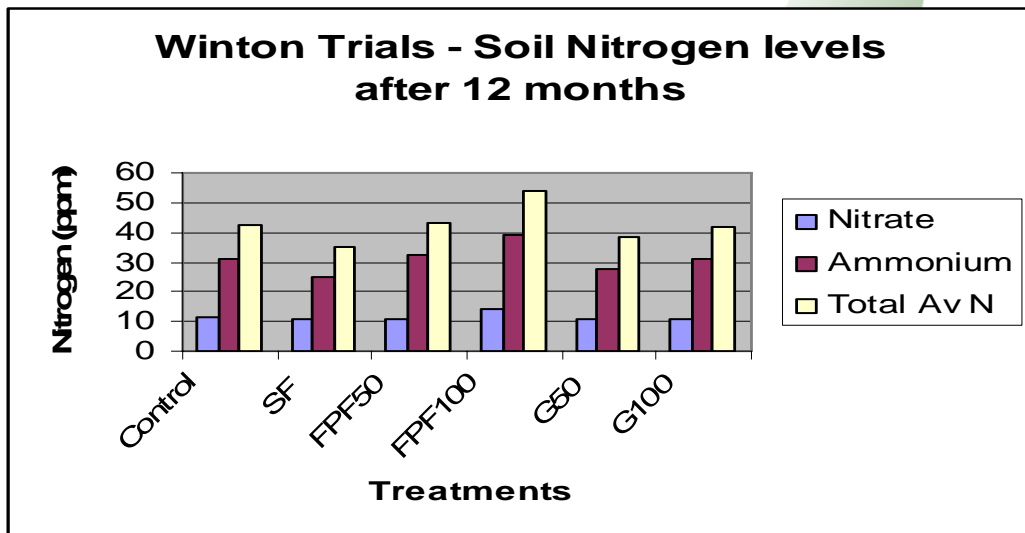
Dry Matter

Over a 12 month period, the plots were measured and mown 6 times. Total dry matter produced matched up well with average figures recorded for Winton over an 11 year period.



A lamb weight gain trial was also held currently with the trial. It showed weightgain responses of 20% for the FPF area compared with the Control. Whether this is the result of the extra dry matter produced, the increased pasture quality or both is unknown.

Soil and Pasture Analysis



The FPF 50 & GR50 both contained 9kg N/ha whilst the amount in the FPF 100 & GR100 was double this at 18kg/ha. No nitrogen was applied in the SF & Control treatments. One would expect a relatively clear relationship between the amount of N applied, the dry matter produced and the residual soil N level.

If pasture dry matter was assumed to be 3% nitrogen, then the application of 1kg of N should theoretically boost dry matter production by $1/0.03=33\text{kg/ha}$ of additional dry matter i.e. the FPF50 & G50 might be expected to grow 297kg/ha extra dry matter and the FPF100 & GR100 to yield 594kg/ha extra dry matter.

Treatments	N applied (kg/ha)	DM Expected kg/ha	Actual DM kg/ha
SF	0	0	128
FPF50	9	297	1185
FPF100	18	594	1728
G50	9	297	255
G100	18	594	595

Clearly, the FPF dry matter response to N applied was more than just a response to the applied nitrogen. This fact is enhanced further by the realisation that the FPF plots grew more dry matter and thus more nitrogen should have been uptaken by the pasture. This would seem to confirm that **FPF increases biological activity leading to either increased mineralisation and/or N fixation.**

The pasture composition of the plots was visually assessed throughout the first six month period. Results indicated a shift towards greater ryegrass content, particularly where nitrogen fertiliser was applied.