

2b. MFMG Wheat Nutrition Trial

Katrina Copping, walteela410@gmail.com

Trial Manager: Amanda Pearce, SARDI, Amanda.pearce@sa.gov.au

KEY MESSAGES

- MFMG funded a wheat nutrition trial at Millicent to evaluate different application rates of N and S.
- No grain yield or quality differences for the dual purpose wheat Manning were observed at Millicent with additional N and S treatments.

Background

In 2017 MFMG funded a wheat nutrition trial at Millicent following on from SARDI funded wheat nutrition trials at Keith, Frances and Conmurra in 2016. The Millicent trial evaluated different nitrogen (N) rates and application timings with and without sulphur (S).

Trial Design

The Millicent trial was sown on 1 May. Manning wheat, a dual-purpose long season variety, was used in the trials (seeding rate 225 2). Fertiliser applied at sowing was 50kg/ha 18:13:0:10. Farmer practice was an application of 70 kg/ha urea at GS31 followed with an additional later application of 150 kg/ha urea at GS39.

Additional Nitrogen (N) was applied at three different rates at GS31 in combination with and without additional sulphur. Further N was applied at GS39 at two different rates. GS 31 was reached on 31 July and GS 39 on 18 October.

Table 1: The seven treatments evaluated at the Millicent wheat nutrition trial and rates applied at different growth stages.

Treatment	Farmer Practice	GS 31	GS 39
	PLUS	Applied 31 July	Applied 18 October
Treatment 1	Farmer Practice	NIL	NIL
Treatment 2	Farmer Practice	S20 + N90	N90
Treatment 3	Farmer Practice	N90	N90
Treatment 4	Farmer Practice	S20 + N40	N40
Treatment 5	Farmer Practice	N40	N40
Treatment 6	Farmer Practice	S20 + N20	NIL
Treatment 7	Farmer Practice	N20	NIL

Trial Results

The grain yield ranged from 9.53 to 10.23 t/ha with a site mean grain yield of 9.67 t/ha. There were no significant differences between the different nutrition treatments (Table 3). Grain quality was similar and adequate for the dual purpose feed variety used.

Table 2: Trial site soil test results.

Depth	Colour	Gravel	Texture	Ammonium Nitrogen	Nitrate Nitrogen	Phosphorus Colwell	Potassium Colwell	Sulphur	Organic Carbon	Conductivity	pH Level (CaCl2)	pH Level (H2O)
		%		mg/Kg	mg/KG	mg/Kg	mg/KG	mg/Kg	%	dS/m	pH	pH
0-10	GRBK	0	3.0	4	105	37	197	36.6	6.86	0.451	7.1	7.5

*Soil testing by CSBP

Table 3: Millicent Manning wheat grain yield and quality.

Treatment	Yield t/ha	% Yield (Farmer Practice)	1000 grain weight (g/1000 seeds)	Test Weight (kg/hl)	Protein (%)	Screenings (% < 2.00mm)
Treatment 1	10.23	100	39.5	73	12.0	1.8
Treatment 2	9.24	90	38.7	73	12.7	1.7
Treatment 3	9.62	94	39.6	73	12.7	1.2
Treatment 4	9.62	94	38.7	72	12.5	1.6
Treatment 5	9.67	95	41.6	74	12.4	1.5
Treatment 6	9.78	96	38.9	74	12.2	1.4
Treatment 7	9.53	93	40.9	73	12.1	1.7
Site Mean	9.67					
P Value (0.05)	0.288					
I.s.d	NS					
CV%	4.33					

NS= not significant



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