Charra and Goode fertiliser trial

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RESEARCH

Location:
Charra
Locky and Paul Brown
Charra Ag Bureau
Rainfall
Av. Annual: 303 mm
Av. GSR: 229 mm
2014 Total: 312 mm
2014 GSR: 211 mm
Yield
Potential: 2.15 t/ha (W)
Actual: 1.16 t/ha (W)
Paddock History
2013: Wheat
2012: Spray-topped pasture
2011: Pasture
Soil Type
Brown sandy clay loam
Plot Size
1.5 m x 10 m x 3 reps
Yield Limiting Factors
Sharp finish

Key message

There were very little differences between fertiliser treatments and methods of application at Penong in 2014.

Why do the trial?

Originally this trial was initiated by the local Ag Bureau groups at Charra and Goode to test if there were potential yield responses to be gained by increasing fertiliser rates, testing new products and other sowing techniques like fluid fertilisers. Bryan Smith applied for money through the Eyre Peninsula Natural Resources Management Board (EPNRM) Sustainable Agriculture fund on behalf of the two Ag Bureau groups and a grant was secured to undertake the trial. A further grant was gained to test if there were residual effects on grain production from the treatments applied in 2013.

How was it done?

Mace is the most commonly grown wheat variety in the district, so was selected to sow over the twenty four treatments applied in 2013. Mace was sown on 14 May 2014 at 50 kg/ha with a standard fertiliser rate of 40 kg/ha of DAP (18:20:0:0), apart from the nil treatment which received no fertiliser in 2013 and 2014. Chemicals used were 1.5 L/ha glyphosate + 1.5 L/ha trifluralin + 1.6 L/ha Avadex Xtra + 60 ml/ha Hammer + 500 ml/100L LI700 applied at sowing on 14 May and 650 ml/ha Agritone 750 was applied to control broad-leaved weeds.

What happened?

Mace wheat oversown showed very small yield differences, with a 0.20 t/ha difference between the highest and lowest yield (Table 1). When comparing the yield from 2013 (EPFS Summary 2013, Charra and Goode district fertiliser trial, p 135) the top three yielding treatments last season were the same in 2014.

What does this mean?

Overall there was little effect of the residual fertiliser from the previous year's treatments on grain yield and quality in this trial. This trial has shown that phosphorus or nitrogen are not a limiting factor at this site and could explain why there were little differences in the treatments.

Acknowledgements

Thanks to Paul Brown for the use of his land.

Table 1 Grain yield and quality of Mace wheat oversown on 2013 nutrition treatments at Penong in 2014

Treatment	Yield (t/ha)	Protein (%)	Test weight (kg/hL)	Screenings (%)
8 kg P/ha EverGol Prime seed treat + 11.5 N urea	1.78 a	10.6	79.2	2.3
Tristan fluid brew (1) @ 41 L/ha 14 N, 14 P, 1.17 Zn, 1.17 Mn, 0.47 Cu	1.77 ab	10.6	79.4	2.3
8 kg P/ha + 11.5 N urea	1.76 abc	10.9	79.7	2.3
0 kg P/ha + 11.5 N urea	1.75 abc	10.4	80.0	2.0
8 kg/ha P Fungicide fluidinfurrow + 11.5 N urea	1.75 abc	10.7	78.0	2.5
8 kg/ha P Vibrance fluidinfurrow + 11.5 N urea	1.73 abcd	10.6	80.1	2.3
40 kg/ha DAP (Control)	1.72 abcd	10.5	79.0	2.3
8 kg P/ha + 11.5 N eNtrench N in furrow	1.71 abcd	10.7	79.0	2.1
36.4 kg/ha MAP	1.71 abcd	10.3	80.1	2.5
8 kg P/ha + 23 N	1.68 abcd	10.5	77.9	2.6
8 kg P/ha 11.5 N N-Pact applied foliar	1.68 abcd	10.8	76.0	3.0
8 kg P/ha +11.5 N urea + Zn foliar	1.68 abcd	10.4	79.8	2.2
14 kg P/ha + 11.5 N urea	1.68 abcd	10.8	78.8	2.3
8 kg P/ha as triple super	1.67 abcd	10.6	78.4	2.4
Phos acid + nitrogen = 8 kg P/ha + 11.5 N	1.67 abcd	10.7	80.5	2.3
8 kg P/ha 11.5 N UAN foliar	1.66 abcd	10.8	78.2	2.3
14 kg P/ha as triple super	1.65 abcd	10.6	79.3	2.4
14 kg P/ha + 23 N	1.65 abcd	10.8	74.4	3.6
Tristan fluid brew (2) @ 50 L/ha 21 N, 7 P, 0.87 Zn, 0.87 Mn, 0.35 Cu	1.62 abcd	10.9	78.3	2.5
Nil fertiliser	1.61 bcd	10.3	78.6	2.6
40 kg/ha DAP + Impact @ 200 ml/ha + 11.5 N urea	1.61 bcd	10.6	77.3	2.6
60 kg/ha DAP	1.60 cd	10.9	76.5	2.6
0 kg P/ha + 23 N	1.58 d	11.0	79.5	2.3
8 kg P/ha Vibrance seed treat + 11.5 N urea	1.58 d	10.6	76.3	2.9
Mean	**1.68**			
LSD (P=0.05)	*0.16*			
CV (%)	6			

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