Charra and Goode district 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
2013 Total: 285 mm
2013 GSR: 217 mm
Yield
Potential: (W) 2.15 t/ha
Actual: (W) 1.16 t/ha
Paddock History
2012: Spray-topped pasture
2011: Pasture
2010: Pasture
Soil Type
Brown sandy clay loam
Plot Size
1.5 m x 10 m x 3 reps
Yield Limiting Factors
Dry finish

Key messages

- **CL Kord seed treated with EverGol Prime and 40 kg/ha DAP out-yields standard 40 kg/ha DAP and untreated CL Kord seed.**
- **Very little differences between other treatments at Penong in 2013.**

Why do the trial?

This trial was initiated by the local Ag Bureau groups at Charra and Goode to test if there were potential yield responses and possible money to be gained by increasing fertiliser rates, testing new products and other seeding 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.

How was it done?

Twenty four treatments replicated 3 times were sown on 9 May 2013 using CL Kord wheat sown at 50 kg/ha. 40 kg/ha DAP was used as the control rate of fertiliser, this equals 8 units of phosphorus and 7.2 units of nitrogen (8P, 7.2N) The treatments are listed in Table 1. The trial site received 1.5 L/ha Gramoxone, 1 L/ha trifluralin and 60 ml/ha Striker at sowing, then 2 L/ha Sprayseed, 1 L/ha Alpha Cypermethrin just before the trial emerged. On 1 July 2013 the trial was sprayed for broadleaved weed control using 750 ml/ha Intervix, 400 ml/ha Agritone750 and 500 ml/100L SuperCharge.

What does this mean?

The paddock selected for the district fertiliser trial in 2013 was a brown sandy clay loam, not a grey highly calcareous soil type which explains why fluid fertilisers didn't perform as well as expected (EPFS Summary 2003 '*Fluid Fertilisers - After six years, where the heck are we? Where are we going?'* p 77). The trial showed very little differences between most treatments in 2013.

One of the interesting small but statistically significant responses was CL Kord seed treated with EverGol Prime fungicide sown with 40 kg/ha DAP out-yielded the control untreated CL Kord seed with 40 kg/ha DAP by 0.13 t/ha, which is an 11% increase in yield. At a seeding rate of 50 kg/ha the approximate cost of EverGol Prime @ 0.8 L/t is $5.80/ha. EverGol Prime is registered for the suppression of the fungal pathogen Rhizoctonia on wheat and barley. This flowable seed treatment can be used at rates between 400-800 ml/t and also controls smuts and bunts, eliminating the need for another standard seed treatment which costs around $3/ha.

In this case, money was gained through using EverGol Prime as a seed treatment, with a 0.13 t/ha increase in yield above the control treatment. H2 grade wheat at $260/t calculates to an increase of $34/ha, minus $5.80/ha product cost, making this treatment financially attractive at $28/ha above that of the control treatment.

All the other treatments with added nitrogen, application of zinc and fluid fertilisers were not significantly different to 40 kg/ha DAP.

Visual symptoms of rhizoctonia were not observed.

Acknowledgements

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Table 1 Grain yield and quality of wheat sown at Penong in 2013

Treatment	Yield (t/ha)	Protein (%)	Test weight (kg/hL)	Screenings (%)
8 kg P/ha EverGol Prime seed treat + 11.5N urea	1.29	12.4	81.1	1.2
Tristan fluid brew (1) @ 41 L/ha 14N, 14P, 1.17Zn, 1.17Mn, 0.47Cu	1.24	12.6	80.7	1.1
8 kg P/ha + 11.5N UAN foliar	1.20	12.9	80.4	1.3
Tristan fluid brew (2) @ 50 L/ha 21N, 7P, 0.87Zn, 0.87Mn, 0.35Cu	1.20	12.6	80.7	1.1
8 kg P/ha + 23N	1.19	13.0	80.0	1.1
8 kg P/ha Vibrance seed treat + 11.5N urea	1.19	12.7	80.6	1.2
8 kg P/ha + 11.5N eNtrench N in furrow	1.19	13.0	80.5	1.0
8 kg P/ha +11.5N urea + Zn foliar	1.17	12.6	80.6	1.2
14 kg P/ha + 23N	1.16	13.4	80.4	1.1
40 kg/ha DAP (Control)	1.16	12.2	81.0	1.3
14 kg P/ha + 11.5N urea	1.16	13.2	79.9	1.2
0 kg P/ha + 23N	1.15	13.0	80.9	1.2
8 kg P/ha + 11.5N N-Pact applied foliar	1.15	12.9	80.3	1.1
8 kg P/ha + 11.5N urea	1.14	12.7	80.4	1.2
14 kg P/ha as triple super	1.13	12.4	80.7	1.2
0 kg P/ha + 11.5N urea	1.13	12.6	80.6	1.4
36.4 kg/ha MAP	1.13	12.5	80.9	1.1
40 kg/ha DAP + Impact @ 200 ml/ha + 11.5N urea	1.12	12.6	80.5	1.3
60 kg/ha DAP	1.11	13.0	79.7	1.4
0 fertiliser	1.10	12.3	81.0	1.2
Phos acid + nitrogen = 8 kg P/ha + 11.5N	1.09	12.2	81.4	1.5
8 kg P/ha as triple super	1.06	12.5	79.9	1.7
Mean	**1.16**			
LSD (P=0.05)	*0.09*			
CV%	4.9			