TWINN CROP TRIAL

Dryland Wheat: West Cape, South Africa, 2010

INTRODUCTION

The trial was conducted independently for registration purposes and tested TwinN at half rate, standard rate and double rate, combined with 50% of the standard nitrogen (N) fertiliser application rate, versus the standard N application program.

KEY RESULTS

- Reduction of N by 50% (from 112 kgN/ha to 56 kgN/ha) without TwinN reduced yield by 50%.
- Reduction of N by 50%, plus 2 TwinN applications at standard rate, produced the highest yield in the trial and this was statistically equal to the yield from the 100% N program.
- Reduction of N by 50%, plus 2 TwinN applications at half rate, produced significantly lower yields than the 100% control, showing that application of TwinN at reduced rates is not effective.
- Reduction of N by 50%, plus 2 TwinN applications at double rate, produced equivalent yields to the 100% control and the standard rate TwinN treatment, showing that doubling the application rate did not increase the efficacy of TwinN.

TREATMENTS

Description	Basal Fertiliser	Topdress/TwinN Wk 4	Topdress/TwinN Wk 10	Synthetic N kg/ha
1. 0% fertiliser control	-	-	-	0
2. 50% fertiliser control	200 kg/Ha LAN	-	-	56
3. 100% std fertiliser ctrl	200 kg/Ha LAN	100 kg/ha LAN	100 kg/ha LAN	112
4. 50% synthetic fertiliser + TwinN half rate	200 kg/Ha LAN	TwinN half rate (½x)	TwinN half rate (½x)	56
5. 50% synthetic fertiliser + TwinN standard rate	200 kg/Ha LAN	TwinN std rate (1x)	TwinN std rate (1x)	56
6. 50% synthetic fertiliser + TwinN double rate	200 kg/Ha LAN	TwinN double rate (2x)	TwinN double rate (2x)	56

LAN is limestone ammonium nitrate (28% N)

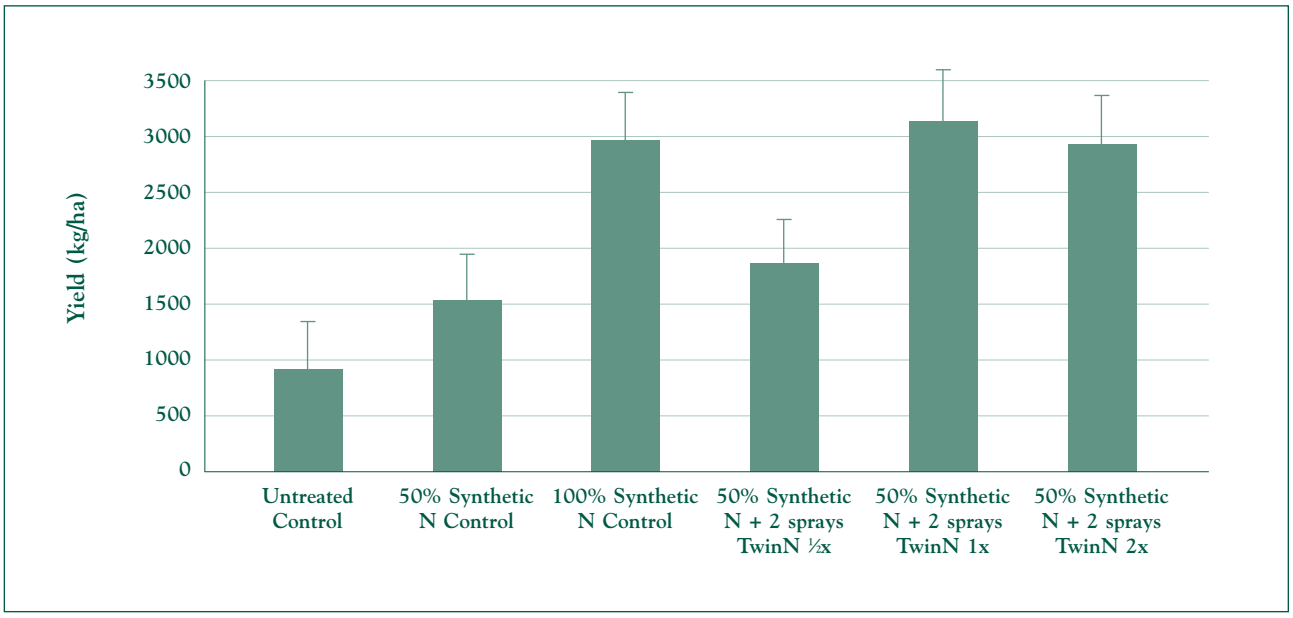
Mapleton Agri Biotec Pty Ltd

137 Obi Obi Road, Mapleton Qld 4560 Australia

Phone: +61 7 5445 7151
Email: TwinN@mabiotec.com
www.mabiotec.com

RESULTS

Figure 1: Grain Yield from Treatments 1-6



The site was strongly nitrogen responsive with the 50% N treatment reducing yields by approximately 50% and the untreated control producing very low yields. Two standard rate (1x) TwinN applications, plus 50%N (56 kgN), produced the highest yields in the trial (3150 kg/ha). These were statistically equal to the 100% standard fertiliser treatment (2980 kg/ha) and demonstrated that TwinN was able to substitute for 56 kgN/ha without loss of yield. In addition, reductions in synthetic N will help to maintain soil structure and increase pH and productivity in the medium-to-long term.

When TwinN was applied at half the recommended rate, plus 50% N, significant reductions in yield occurred compared to the standard TwinN plus 50% N program and the 100% N standard program. This indicates that TwinN must be applied at the recommended rate for it to be effective. Application of TwinN at double the recommended rate did not increase yields over TwinN at the standard rate, indicating that the standard rate is sufficient to maximise yields.

TRIAL SUMMARY

Trial performed and analysed by: Dr. Brendon Neumann, Neu-agri Consulting.

Trial site: The trial was conducted on Badgers Creek Farm, in Stanford, South Africa. The farm falls within the Overberg region of the Western Cape which is an extensive wheat producing region. Soils were of the sandy loam type with the following soil test results:

Acidity cmol/kg	pH KCl	P (citric) mg/kg	K mg/kg	Na mg/kg	Ca mg/kg	Mg mg/kg	Total N kg	Total Cations cmol/kg	Carbon %
1.21	4.8	41	183.5	60.3	403.6	130.4	74	5.06	1.84

Trial design:	Randomised blocks, 6 treatments, 4 replicates
Plot size:	5m x 3m
Plant spacing:	100 kg/ha seed
Buffer row:	Yield data taken from centre 1m swath of each plot
Lime:	1000 kg/ha
Cultivar:	SST027 seed treated with Ingwe (Tebuconazole)
Planting date:	12 April 2010
TwinN applications:	1: 11 May 2010 TwinN 2: 23 June 2010. Application was by backpack at 400 L/ha onto moist foliage and soil
Harvest:	26 August 2010
Irrigation:	Trial was planted early and was under irrigation for the first 3 weeks to allow planting of summer trials in September. Total was 80mm.
Rainfall:	On top of the 80mm of irrigation, the trial area received approximately 250mm of rainfall.
Crop protection measures:	Confidor for control of aphid applied 14 June 2010.

CONCLUSION

- TwinN applied at the standard rate enabled a reduction of 50% in synthetic nitrogen fertiliser with no loss of yield.