Wheat sulphur and zinc experiment

WRITTEN BY

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Location: Balldale

Growing season rainfall:
Annual: 355mm (avg 504mm)
GSR: 135mm (avg 319mm)
Stored moisture: 72 mm

Soil:
Type: Red chromosol
pH ($CaCl_2$): 5.1
Colwell P: 82mg/kg
Deep soil nitrogen: 73kg/ha
Sulphur (KCl): 10.2mg/kg (0-10 cm)
8.6mg/kg (0-60 cm)
Zinc (EDTA): 0.5mg/kg

Sowing information:
Sowing date: 23 May 2008
Fertiliser: 90kg/ha MAP
Variety: Ventura

Row spacing: 18cm

Paddock history:
2007 — wheat
2006 — canola (gypsum applied)

Plot size: 1.5 x 16m

Replicates: 3

KEY POINTS

- **Wheat did not respond significantly to additional sulphur (S).**
- **Wheat did not respond significantly to additional zinc (Zn).**

Aim

To determine if wheat would respond to post-emergent applications of zinc and different products containing sulphur and nitrogen.

Method

A replicated experiment was established using zinc and different products containing sulphur and nitrogen. These were applied post emergent at growth stage Z17 (early August). Based on the soil test, the site was considered to be marginal for sulphur (critical potassium chloride level is 7 milligrams per kilogram) and zinc.

Results

See Table 1.

Observations and comments

The addition of 20kg/ha of nitrogen resulted in a significant increase in yield and gross margin over nil nitrogen, regardless of the product used.

The addition of sulphur in any form (gypsum or sulphate of ammonia) did not increase yield. This was most likely because wheat has a low sulphur requirement and the site was not critically low in sulphur.

Addition of zinc did not increase yield.

Protein and screenings were not affected by the amount of nutrient applied or the product used.

Sponsors

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TABLE 1 Summary of yield, protein, screenings and gross margin for 2008

Treatment description	Yield (t/ha)	Protein [6] (%)	Screenings [6] (%)	Gross margin [7] ($/ha)
0N [1]	0.9	14	1.6	55
20N	1.5	14	1.5	158
20N + Zn [2]	1.4	15	1.8	137
25N	1.3	15	1.9	108
Gypsum [4]/urea 15/20 [3]	1.4	14	1.4	136
Gypsum/urea 22/25	1.4	14	1.2	128
SOA [5] 22/25	1.4	15	1.9	101
SOA/urea 15/20	1.4	14	1.1	107
LSD	0.3			
CV	14.8%			

[1] Nitrogen — all treatments applied at Z17 (7 leaf stage) during early August. [2] Zinc as 5kg/ha of zinc sulphate. [3] Sulphur rate applied/nitrogen rate. [4] Gypsum assuming 18% sulphur. [5] Sulphate of ammonia (SOA) fertiliser containing 22% sulphur and 25% nitrogen. [6] Protein and screenings based on one sample from Rep 1. [7] Gross Margin (whole $/ha) based on $280/t (delivered local silo), urea @ $800/t and sulphate of ammonia at $650/t delivered. All treatments received one application of 500ml/ha of 125g/L Triademefon at growth stages Z33.