

Wheat maximum yield experiment

WRITTEN BY

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Location: Balldale

Growing season rainfall:

Annual: 355mm (avg 504mm)

GSR: 135mm (avg 319mm)

Stored moisture: 72mm

Soil:

Type: Red chromosol

pH (CaCl₂): 5.1

Colwell P: 82mg/kg

Deep soil nitrogen: 73kg/ha

Sowing information:

Sowing date: 23 May 2008

Fertiliser: 90kg/ha MAP

Variety: Ventura

Row spacing: 18cm

Paddock history:

2007 — wheat

2006 — canola

Plot size: 1.5 x 16m

Replicates: 3

KEY POINTS

- Wheat responded to up to 20 kilograms per hectare of nitrogen (N) during 2008.
- Wheat has not significantly responded to fungicides in 2008 or the other dry years.
- Over the full term of the experiment (2005-2008), wheat responded significantly to both fungicide and an average of 40kg/ha/yr of nitrogen (range 20-80kg/ha/yr).

Aim

To assess the level of input required to maximise the yields of wheat grown after wheat.

Method

A replicated experiment was established using different levels of post-emergent nitrogen and fungicide to assess yield.

Results

See Table 1.

Observations and comments:

- The use of nitrogen increased wheat dry matter production. The addition of 20kg/ha of nitrogen resulted in a significant increase in grain yield and gross margin.
- Use of fertiliser and seed dressings (Jockey, Impact and Triad) significantly increased grain yield and gross margin.
- The addition of in-crop fungicide did not significantly increase grain yield.
- Screenings were not adversely affected until more than 40kg/ha of nitrogen was applied.

Sponsors

GRDC, Mr C Cay, Mrs S Cay. ✓

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TABLE 1 Summary of dry matter and grain yield, protein, screenings and gross margin results for 2008

Treatment description	Dry Matter ³ (t/ha)	Yield (t/ha)	Protein ⁴ (%)	Screenings ⁴ (%)	GM ⁵ (\$/ha)
0N	2.3	1.0	12	1.5	86
20N ¹	3.1	1.6	14	1.2	190
40N	3.1	1.4	13	1.6	107
80N	3.1	1.2	18	3.8	-10
120N	3.3	1.3	17	12.3	-51
0N Fung ²	3.0	1.2	13	0.8	124
20N Fung	3.1	1.6	14	1.2	195
40N Fung	3.1	1.5	14	1.2	117
80N Fung	3.2	1.5	16	6.5	52
120N Fung	3.4	1.2	16	18.7	-80
20N Opus	2.9	1.7	14	1.8	188
20N Tilt	2.8	1.5	14	2.1	147
20N Jockey	3.0	1.7	13	3.0	196
20N impact	3.1	1.9	13	2.4	261
20N Impact 1.5	2.8	1.9	13	3.2	240
20N Triad	2.8	1.9	13	2.1	271
LSD	0.4	0.2			
CV	16.2%	11.5%			

1. Nitrogen applied at Z31 2. Fungicide — two applications of 500ml/ha of 125g/L Triademefon (unless otherwise stated) at growth stages Z30 and Z39.
 3. Dry matter assessment during late October near full maturity. 4. Protein and screenings — one sample from rep 1 only. 5. Gross margin — GM (whole \$/ha) for grain yield based on \$280/t (delivered local silo) and nitrogen @ \$1.74/kg delivered.

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