Barley 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 ($CaCl_2$):** 5.1
- **Colwell P:** 82mg/kg
- **Deep soil N:** 73kg/ha

Sowing information:
- **Sowing date:** 23 May 2008
- **Sowing fertiliser:** 90kg/ha MAP
- **Variety:** Baudin

Row spacing: 18cm

Paddock history:
- **2007** — wheat
- **2006** — canola

Plot size: 1.5 x 16m

Replicates: 3

KEY POINTS

- **Barley responded to inputs of nitrogen (N) and fungicide during 2008.**
- **50 kilograms per hectare of seed was the optimum sowing rate.**
- **40kg/ha of nitrogen was required to maximise yield.**
- **Fungicide response was independent of nitrogen application.**

Aim

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

Method

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

Results

See Table 1.

Observations and comments

The optimum sowing rate was 50kg/ha of seed in this trial.

Applications of up to 40kg/ha of nitrogen significantly increased the yield of barley. Yield decreased with additional nitrogen applications.

At the 50kg/ha sowing rate, fungicide increased yield significantly up to 40kg/ha nitrogen. Above 40kg/ha of nitrogen there was no response to either nitrogen or fungicide.

Using 50kg/ha of seed, 40kg/ha of nitrogen and fungicide gave the highest gross margin.

Sponsors

GRDC, Mr C Cay, Mrs S Cay.

CONTACT

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TABLE 1 Summary of yield and gross margin for barley for 2008

Treatment description	Yield (t/ha)	Gross Margin ($/ha)
50kg/ha 0N	0.9	106
50kg/ha 20N [1]	1.7	323
50kg/ha 40N	2.1	428
50kg/ha 80N	1.8	294
50kg/ha 120N	1.9	307
50kg/ha 0N+ fungicide [2]	1.4	121
50kg/ha 20N+ fungicide	2.1	318
50kg/ha 40N+ fungicide	2.4	542
50kg/ha 80N+ fungicide	1.5	244
50kg/ha 120N+ fungicide	1.9	344
100kg/ha 0N	1.0	46
100kg/ha 20N	1.9	299
100kg/ha 40N	2.0	287
100kg/ha 80N	1.5	117
100kg/ha 120N	1.9	344
100kg/ha 0N+ fungicide	1.2	145
100kg/ha 20N+ fungicide	2.0	374
100kg/ha 40N+ fungicide	2.1	375
100kg/ha 80N+ fungicide	1.9	299
100kg/ha 120N+ fungicide	1.8	263
20kg/ha 40N+ Fungicide	2.1	345
140kg/ha 40N+ fungicide	1.4	181
20kg/ha 80N+ fungicide	1.8	250
140kg/ha 80N+ fungicide	1.2	85
Average	1.7	268
LSD	0.35	
CV	11.7%	

[1] Rate of post-emergent nitrogen applied at Z23. [2] Fungicide — two applications of 500ml/ha of 125g/L Triademefon fungicide at Z30 and Z39.
GM based on delivered silo price of $200/t GST excl for F1 quality.