

Barley maximum yield experiment

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Key messages:

- Barley responded to inputs of nitrogen, but responded variably to fungicide in 2006.
- 20-40 kg/ha of N was required to maximise yield.
- Where there was a N response, fungicide gave an additional yield response.

Aim:

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

Method:

A replicated experiment was established using differing levels of post emergent N and fungicide to assess yield. Baudin was the variety sown.

Results:

Table 3: Summary of 2006 Yield (t/ha), Protein (%), Screening and Retention (%) and Gross Margin (\$/ha)

Treatment	Yield (t/ha)	Protein (%)	Retention (%)	GM (\$/ha)
Nil 0N	0.8	12.40	94	168
Nil 20N ¹	1.0	12.20	91	232
Nil 40N ¹	1.3	12.80	76	283
Nil 60 N ¹	1.2	16.80	61	243
Nil 80N ¹	1.1	17.20	55	203
Nil 100N ¹	1.1	16.40	42	175
Nil 120N ¹	1.0	15.60	53	125
SD, Z31 + Z39 ² 0 N	0.8	12.60	96	160
SD, Z31 + Z39 ² 20 N	1.4	12.80	91	322
SD, Z31+ Z39 ² 40 N	1.5	11.40	83	350
SD, Z31+ Z39 ² 60 N	1.3	14.60	72	279
SD, Z31+ Z39 ² 80 N	1.3	15.20	68	234
SD, Z31+ Z39 ² 100 N	0.8	16.20	61	82
SD, Z31+ Z39 ² 120 N	1.1	16.70	55	139
SD, Z31 ³ 40 N	1.5	12.90	76	351
SD, Z39 ³ 40 N	1.2	12.60	73	254
SD, Z45 ³ 40 N	1.2	12.40	81	207
SD, Z31 ³ 80 N	1.2	16.80	61	226
SD, Z39 ³ 80 N	1.0	15.70	66	173
SD, Z45 ³ 80 N	1.0	14.90	67	145
SD, FolZ31 80 N	1.5	14.60	68	286
SD, FolZ31+ Z39, 40N	1.5	12.30	74	329
SD, FolZ31+ FolZ39, 80N	1.3	15.40	64	241
SD, FolZ39, 80N	1.1	16.30	68	164
SD, OpusZ31+ Z39, 40N	1.6	12.40	77	334
SD, OpusZ31+ OpusZ39, 80N	1.3	16.40	63	206
SD, OpusZ39, 80N	1.1	14.90	71	166
SD, OpusZ31, 80N	1.3	15.20	66	243
LSD (0.05)	0.24	1.20	12	

1 – Rate of post emergent N applied at Z15. 2 – Two applications of 500 ml/ha of 125 g/L Triadimefon fungicide at Z30 and Z39.

3 – One application of 1 L/ha of 125 g/L Triadimefon fungicide at Z30, Z39 or Z45.

SD – Seed Dressing as 1.5L/t of Baytan. Fol – Folicur. Z – Zadock growth stage.

Location: Balldale
Growing Season Rainfall:
 Annual: 232 mm
 GSR: 166 mm
Soil:
 Type: Red Chromosol
 pH (H₂O): 4.9
 P (Colwell): 42 mg/kg
 Deep Soil N: 82 kg/ha
Sowing Information:
 Sowing date: 28/6/2006
 Fertiliser: 90 kg/ha MAP
Row Spacing: 180 mm
Paddock History:
 2006 – Wheat
 2005 – Wheat
 2004 – Canola
Plot Size: 1.5 m x 16 m
Replicates: 4

Observations and comments:

- N increased the yield to 40 kg/ha then yield decreased with additional applications.
- Fungicides did not increase yield in the absence of additional N. Then the response was relatively uniform to 40 kg/ha of N at 15%. Above 40 kg/ha of N there was no response to either N or fungicide.
- Not adding N resulted in the best protein and retention for the production of malting barley. 40 kg/ha resulted in protein that was too high for malting.
- Single application of fungicide at about Z31 gave the best results.
- Using 40 kg/ha of N and one fungicide spray by ground gave the highest gross margin.
- A preliminary extension program for improved growing barley was used by 10 farmers but no results were obtained, as N or fungicide was not used by the farmers. It will be run again in 2007.

Sponsors:

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