

Barley Maximum Yield Experiment

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Key messages:

- Barley requires the same amount of nitrogen input as wheat to yield near its potential.
- 80-92 kg/ha of Nitrogen (N) is required to maximise yield.
- Barley responds strongly to extra N when fungicide is used to control disease.
- A preliminary program for growing barley is ready for farmers. Anyone interested should contact John Sykes.

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.

Results:

Table 4: Summary of Yield (t/ha), Protein (%), Screening and Retention (%) and Gross Margin (\$/ha over Zero N) Results

Treatment Description	Yield (t/ha)	Screenings (%)	Protein (%)	Retention (%)	Gross Margin (\$/ha)
Nil 0 N	2.8	2.2	9.1	67.3	\$0
Nil 20 N ¹	3.4	1.5	8.7	69.8	\$66
Nil 40 N	3.7	1.2	10.2	71.3	\$79
Nil 80 N	4.2	1.8	11.4	68.8	\$115
Nil 120 N	4.3	4.7	12.9	62.3	\$86
SD ² , Fung Z31 + Z39 ³ , 0 N	3.3	1.2	8.7	71.0	\$61
SD Fung Z31 + Z39, 20 N	3.8	1.5	9.6	71.8	\$112
SD, Fung Z31+ Z39, 40 N	4.6	1.2	10.5	72.5	\$164
SD, Fung Z31+ Z39, 80 N	5.6	1.1	11.1	73.0	\$302
SD, Fung Z31+ Z39, 120 N	4.8	3.9	12.7	63.8	\$147
SD, Fung Z31, 40 N	4.0	1.2	10.5	70.0	\$120
SD, Fung Z39, 40 N	3.9	1.5	10.5	68.5	\$102
SD, Fung Z45 ⁴ , 40 N	3.9	1.5	10.5	67.8	\$112
SD, Fung Z31, 80 N	5.3	1.4	11.2	70.3	\$263
SD, Z39 80 N	4.4	1.2	11.9	71.5	\$140
SD, Z45 80 N	4.1	1.9	11.0	66.5	\$88

1- Rate of post emergent N applied at Z15. 2 – SD – Seed Dressing as 1.5 L/t of Baytan. 3 – Fungicide as two applications of 500 ml/ha of 125 g/L Triadimefon at growth stages Z30 and Z39. 4- One application of 1 L/ha of 125 g/L Triadimefon fungicide at Z30, Z39 or Z45. Gross Margin – Over the Nil Zero N treatment. **Yield LSD (5%) – 0.24 t/ha.**

Location: Balldale
Growing Season Rainfall:
 Annual: 505 mm
 GSR: 342 mm
Soil:
 Type: Red Brown Earth
 pH (H₂O): 4.8
 P (Colwell): 32 mg/kg
 Deep Soil N: 84 kg/ha
Sowing Information:
 Sowing date: 18/6/2005
 Fertiliser: 110 kg/ha MAP
Row Spacing: 180 mm
Paddock History:
 2005 – Mixed Crop
 2004 – Wheat
 2003 – Canola
Plot Size: 1.5 x16
Replicates: 4

Observations and comments:

- Addition of N increased the yield with the optimum rate being 80 kg/ha of N.
- Addition of fungicide increased yield by 17-30%. The highest response to fungicide came after the application of 80 kg/ha of N.
- The addition of the optimum rate of N and fungicide decreased the screenings of barley and increased the retention of barley.
- Two applications of fungicide at about Z31 and Z39 were better than a single application.
- Using 80 kg/ha of N and two sprays of fungicide gave the highest gross margin.

Sponsors:

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