

Rates of Flexi-N applied late on Gairdner barley – Neridup

Summary of results

- ◆ High rates of nitrogen fertiliser are required to capture the potential of an above average season.
- ◆ Low nitrogen status leads to low grain protein and reduced returns, not only from lower yields but low protein levels.
- ◆ High rates of nitrogen even applied late in the season can lead to high screenings in Gairdner barley

Site Information	
Group	Neridup Soil Conservation Group.
Trial location	Neridup, 40 km NE from Esperance
Farmer	Knox family
Soil Type	Sand over gravel over clay at 40 cm
Organic Carbon	0.9% OC
Available N ppm	5 nitrate 3 ammonium
Actual annual rainfall	482 mm (Jan-Oct)
Ave annual	480 mm
Growing Season	346 mm
Rainfall (GSR)	(May-Oct)
Ave GSR	310 mm
Yield Potential (t/ha)	5.0 t/ha
Yield Actual (t/ha)	2.3 - 3.8 t/ha
Paddock History	
2002	wheat
2001	canola
2000	lupins
Seeding Date	19 May 2003
Variety	Gairdner
& Sowing Rate	80 kg/ha
Base Fertiliser	Allstar 100 kg/ha and Amsul 150 kg/ha topdressed before sowing

Aim

To demonstrate the importance of adequate nitrogen for achieving target protein for malt. To evaluate the Rite Nitrogen for barley slide rule.

Design

Strips of nil, paddock rate and double paddock rate of Flexi-N were applied by driving the boomspray wide of the first run and overlapping the third run over the second. this was repeated to make two sets of treatments. The plots were half a boom width (15 metres) and 200 m long.

What happened

The Flexi-N treatments were applied on 30 July, 10 weeks after sowing. The paddock rate of 100 L/ha applied 42 kg/ha of nitrogen, in addition to the 44 kg/ha from the sowing fertilisers. This is within the range of Nitrogen Calculator rates of 60-90 kg/ha of N for a 3 t/ha crop with 10.5% protein.

The crop was showing some yellowing from nitrogen deficiency prior to the Flexi-N application but no loss of tillers. The crop greened up immediately following application but showed severe leaf scorching 3 days after spraying. New leaf growth replaced the burnt leaves within 4 weeks.

The three rates of fertiliser application were readily distinguishable near crop maturity. Crop density increased with increasing fertiliser rate.

Grain yield increased with increasing nitrogen rate. Similarly, grain protein increased with increasing nitrogen rate but screenings increased beyond malt specifications, reducing the grain for both rates of Flexi-N to feed grade. Despite the lower paying grade, the returns from additional nitrogen as Flexi-N were profitable due to the much higher yields.

Table 1: Results from Flexi-N applied to Gairdner barley 10 weeks after sowing.

treatment	extra N applied kg/ha	grain yield t/ha	protein %	screen's %	grade	nitrogen efficiency #	return to fertiliser over nil*
nil	0	2.3	9.2	13	malt -		
119 L/ha Flexi-N	50	3.6	9.8	28	feed	43%	\$68
238 L/ha Flexi-N	100	3.8	10.5	37	feed	30%	\$48

proportion of applied nitrogen in grain.

* change in return per hectare net of fertiliser and application costs.

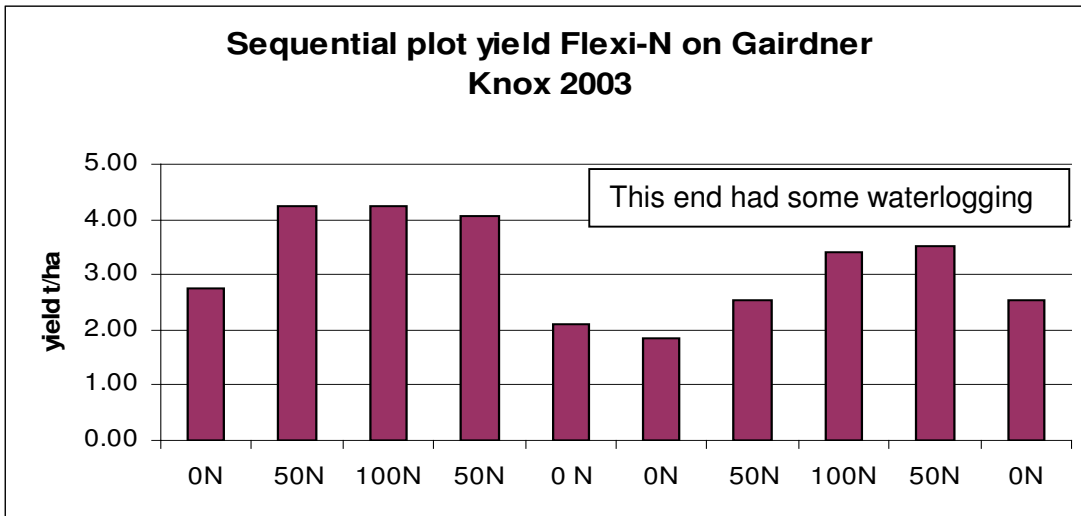
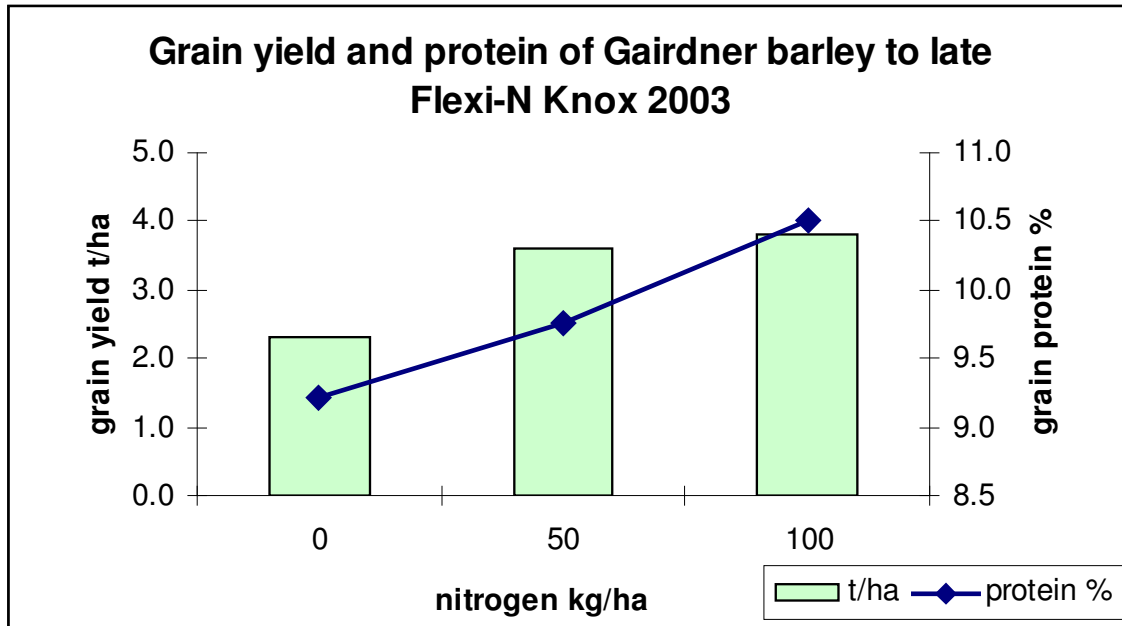


Table 2: Grain yield from another trial conducted in a similar manner in the same paddock.

treatment	extra N applied kg/ha	grain yield t/ha
nil	0	2.1
50 L/ha Flexi-N	21	3.1
100 L/ha Flexi-N	42	3.7
50 L/ha Flexi-N	21	2.8