

NYNGAN BARLEY VARIETY TRIAL

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Introduction

This variety trial was sown on 5 June 2008 which was later than desirable. The presence of both fast and slow maturing varieties meant however that no matter when the trial was sown some varieties would be favoured more than others. Seed was sown at 50kg/ha and fertiliser was applied (6.6kg/ha N & 14.5kg/ha P) with the seed. Weed control was sufficient involving the application of diclofop-methyl and MCPA LVE. A well managed long fallow period provided good subsoil moisture. Treatments were applied to plots (12m*1.5m) and replicated three times.

Results

Variety	Yield (t/ha)	No	Protein (%)	No	Screening (%)	No	Retention (%)	No	Test Wgt (kg/hL)	No
HINDMARSH	3.55	1	14.0	10	8.2	9	64.6	6	57.3	5
BAUDIN	2.79	2	13.5	14	5.6	11	68.0	5	56.1	9
FLAGSHIP	2.75	3	15.4	3	14.6	1	40.2	12	56.1	7
WI3416	2.72	4	14.0	11	6.0	10	72.0	3	58.5	3
TILGA	2.61	5	15.6	2	13.7	2	38.0	13	58.5	4
GROUT	2.57	6	14.1	9	10.5	6	54.8	10	56.1	8
FLEET	2.44	7	14.4	8	5.5	12	80.0	1	52.0	14
SCHOONER	2.42	8	15.2	4	4.3	13	68.0	4	59.8	1
BULOKE	2.40	9	13.9	12	11.0	5	56.5	8	54.0	11
VLAMINGH	2.34	10	15.0	5	3.7	14	76.3	2	58.6	2
FITZROY	2.26	11	13.7	13	10.2	7	59.4	7	53.9	12
TANTANGARA	2.21	12	16.1	1	12.6	3	28.2	14	52.8	13
OXFORD	2.19	13	14.4	7	11.2	4	54.8	11	55.9	10
GAIRDNER	1.77	14	14.6	6	9.2	8	55.3	9	56.7	6
	LSD = 0.79		LSD = 1.4		LSD = 4.4		LSD = 11.0			
	P = 0.041		P = 0.031		P < 0.001		P < 0.001		P = 0.19	
	Significant		Significant		Significant		Significant		NSS	

NSS = Not statistically significant **Significant** = statistically significant

*Varieties that vary by less than the LSD are not statistically different.

*Many factors affect the relative performance of varieties in a trial. Varietal decisions should therefore not be based solely on a varieties performance in a limited number of trials.

Comments

The main issue that needs to be kept in mind when interpreting the results is the relative maturity of varieties. The 5 June sowing date means that faster maturing varieties like Grout, Hindmarsh, Tilga and Schooner have an advantage over slower varieties like Gairdner and Tantangara and the results need to be interpreted in this context.

The relatively high protein range (14.0% -16.1%) means that this trial has fallen outside the range suitable for delivery as "malt" quality barley. The most likely reason for high protein in this trial was dry conditions during grain filling and comparatively late sowing. Although the long fallow may have been positive in terms of increased water storage it may have also increased mineralisation of nitrogen.

For further information

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ROW SPACING IN BARLEY – RANKINS SPRINGS

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There has been a trend to wider row spacings in recent years. Likely benefits include:

- an ability to sow into higher levels of retained stubble
- a reduction in fuel costs during sowing and/or increased sowing speed
- ability to inter-row sow subsequent crops
- reduced soil disturbance, and
- lower cost of sowing equipment per unit of width.

However, potential costs from wider spacings include:

- lower yields with wider row spacing, particularly under higher yielding conditions,
- greater weed competition, and
- lodging or ear loss in some crops such as barley.

At six sites in 2008, barley varieties differing in plant architecture were sown at a range of row spacings (Figure 1). All trials included the varieties Buloke (tall, rapid early growth), Gairdner (medium height, prostrate early), Baudin (short) and Hindmarsh (moderately short, very erect). At

all sites, Hindmarsh was the standout variety for yield. There were some variety by row spacing interactions, but these were relatively minor and so the results for each site, averaged over the varieties, are shown in Figure 1. At the higher yielding sites, Parkes and Temora, yield was maintained up to a spacing of 300 mm then declined as spacing increased to 380 mm. At the lower yielding Condobolin sites, a spacing of 430 mm gave yields equivalent to narrower values. These latter crops were sown into high stored moisture but received little in-crop rainfall, and it is likely that wider rows limited early biomass production and retained more soil moisture for use at flowering and grain-filling. This response was particularly evident at the Rankins Springs site, where yield was maintained at a 660 mm row spacing. The heavy reliance on stored moisture at this site was combined with a relatively early sowing date.

Eight barley varieties were sown at five seeding rates (from 40 to 200 seed/m²) on 22nd May 2008. While sowing conditions were favourable, the establishment percentages were lower than expected, resulting in 30-120 plants/m². The yield response to plant density, averaged over the varieties, is shown in Figure 2.

With low in-crop rainfall but good stored water, yields were acceptable over a range of plant densities, with the optimum being about 80 plants/m². The effects on grain quality will be interesting but tests have not been completed at the time of writing.

There were some differences among varieties in this response and the results for three new varieties are shown in Figure 2. Hindmarsh was higher yielding at all plant densities but also responded to higher densities, with an optimum of 100 plants/m² compared to about 80 for Buloke and Commander. This is in line with other experiments in 2008 in which Hindmarsh was more responsive to a range of inputs such as phosphorus and seeding rate.

Figure 1. Yield response to row-spacing at six sites in 2008. Values are the mean of between four and eight barley varieties at each site.

