

B6. Sowing Date x Plant Density, HRZ South East (Moyhall), South Australia

Aim

To determine optimum sowing dates and sowing densities for maximising yield of new faba bean varieties in high rainfall areas.

Treatments

Varieties: Nura, Farah, Fiord, 974*(611*974)/15-1 (abbreviated in text to 974*)
Sowing dates: 14 May (Early), 3 June (Late)
Densities: 16, 24 and 32 plants/m²
Fertiliser: Map + Zn @ 100kg/ha at sowing

Results and Interpretation

Plant density had a significant effect on grain yield and plant height for all varieties at Moyhall in 2010 (see Table B6.1). Compared to a recommended sowing density of 24 plants/m², a 10% yield gain was observed by increasing sowing density to 32 plants/m², while reducing plant density to 16 plants/m² brought about a 9% yield penalty. This is a result of the favourable winter and spring conditions in 2010, so that plants were able to fill all grain and pods set even at the higher density.

Sowing date had a significant effect on yield, lodging and plant height for all bean varieties (see Table B6.2). All varieties except Farah showed a yield penalty from delayed sowing, with Fiord showing the largest yield reduction at 42%. This is likely due to its early maturity, so that it was unable to capitalise on the late spring and early summer rains.

All varieties displayed increased lodging when sown early. Farah was the most susceptible to lodging sown early, and Fiord the least. At the later sowing date Farah scored no differently to 974*, while Fiord and Nura scored similarly, and highest.

Table B6.1. effect of plant density on grain yield (t/ha), plant height and bottom pod height (cm) of faba bean, Moyhall 2010.

Plant Density	Yield (t/ha)	Plant Height (cm)
16 plants/m ²	4.43	106.5
24	4.87	110.6
32	5.36	111.7
LSD (P<0.05)	0.20	4.2

Table B6.2. effect of sowing date on grain yield (t/ha), lodging (1-9 score) and plant height (cm) of four faba bean varieties, Moyhall 2010.

TOS	Yield (t/ha)		Lodging (1-9 score)		Plant Height (cm)	
	Early	Late	Early	Late	Early	Late
974*(611*974)/15-1	5.60	4.98	7.11	8.00	137.8	110.0
Farah	5.08	4.71	4.78	7.33	142.2	101.1
Fiord	5.31	3.06	8.11	8.67	112.2	72.2
Nura	5.58	4.78	6.67	8.78	117.8	83.3
LSD (P<0.05)	0.53 (0.33 same TOS)		0.67 (0.76 same TOS)		6.1 (6.8 same TOS)	

Key Findings and Comments

- Winter and spring seasonal conditions favoured faba bean production in 2010, and as a consequence plants were able to maximise pod fill so that the highest sowing density yielded highest.
- Yield was maximised at the early sowing date by all varieties except Farah, whose later maturity meant it could capitalise on the rains in late spring and into summer.
- Fiord showed a relatively high yield penalty from delayed sowing in a favourable season, most likely due to its early maturity so that it could not make the most of the favourable season finish.
- Lodging was worse for earlier sown beans, particularly Farah, as observed at Conmurra this year.

- Farah showed the largest reduction in plant height by delayed sowing, which may be linked to its similar yields at both sowing dates.