

4. Faba Beans

B1 Sowing Date x Row Spacing, HRZ Mid North (Tarlee), South Australia

Aim

To determine optimum sowing dates, sowing densities and row spacings for maximising yield of new faba bean varieties.

Treatments

Varieties: Nura, Farah, Fiord and PBA Rana
Sowing dates: 29 April (Early), 26 May (Mid)
Row Spacing: Narrow = 22.5cm (9 inch), Wide = 45cm (18 inch)
Fertiliser: Map + Zn @ 90kg/ha at sowing

Results and Interpretation

- Disease – disease infection was generally low in 2011, and controlled using management practices representative of grower practice.
- Lodging – In contrast to previous seasons only low levels of lodging were observed in 2011. However differences in lodging were still apparent between varieties and treatments with Farah showing a higher incidence of lodging than other varieties, which all behaved similarly (Table B1.1). Wider row spacings were also shown to contribute to higher lodging levels in 2011 (Table B1.2).
- Necking – (where the top part of the stem collapses and bends over sharply, but does not break completely) was not observed in the 2011 trials.
- Grain Yield – Faba bean yields at Tarlee were high in 2011 due to favourable growing conditions and minimal disease and averaged 4.8t/ha. While only average growing season rainfall was achieved, yields were buoyed by the high 2010/11 summer rainfall events. Fiord was the highest yielding variety across both sowing dates (Table B1.3), but not significantly higher than Farah and Nura. PBA Rana showed lower yield than Fiord and Nura across both sowing dates.

Grain yield showed a significant interaction between sowing date and row spacing (Table B1.4). Wide row spacing (45cm) resulted in lower yield than narrow rows (22.5cm) at both sowing dates. The extent of this yield penalty was similar at both sowing dates (22% early and 18% late sown). There was also a 6% yield penalty from delayed sowing at the narrow row spacing, while wider rows showed no sowing date response.

Table B1.1. Plant lodging (1-9) at maturity of four faba bean varieties, Tarlee 2011. 1= prostrate, 9 = erect

Variety	PBARana	Farah	Fiord	Nura
Lodging Score (1-9)	7.75 ^a	6.8 ^b	7.3 ^a	7.6 ^a

Lsd (P<0.05) = 0.48

Table B1.2. Plant lodging (1-9) at maturity of faba beans at two sowing dates and two row spacings, Tarlee 2011. 1= prostrate, 9 = erect

Treatment	Narrow	Wide
Lodging Score (1-9)	7.5 ^a	7.25 ^b

Lsd (P<0.05) = 0.20

Table B1.3. Grain yield (t/ha) of four faba bean varieties, Tarlee 2011.

Variety	PBA Rana	Farah	Fiord	Nura
Yield (t/ha)	4.6 ^a	4.82 ^{ab}	5.03 ^b	4.89 ^b

Lsd (P<0.05) = 0.228

Table B1.4. Grain yield (t/ha) of faba beans at two sowing dates and two row spacings, Tarlee 2011.

Sowing Date	Narrow	Wide
Early	5.55 ^a	4.31 ^c
Late	5.21 ^b	4.27 ^c

lsd (P<0.05) SD x RS = 0.236 (0.211 same RS)

Key Findings and Comments

- Faba bean yields at Tarlee were again high in 2011 despite below average growing season rainfall, being buoyed by high summer rainfall and minimal disease.
- Disease levels were generally low in 2011, and there was very little disease pressure in this trial. Although rust outbreaks were observed across the state no rust was evident in this trial. The favourable season, together with minimal disease and minimal lower pod abortion, meant that yield was close to reaching maximum potential.
- Increasing row spacing from 22.5cm (9 inch) to 45cm (18 inch) has resulted in consistent yield losses over the last three years, from 10% average across all varieties in 2009 to 20% in 2011. However it must be noted that wider row spacings form part of a farming systems package that may generate other benefits.
- The 2011 released faba bean PBA Rana was slightly lower yielding than other varieties in these 2011 trials, but yielded similarly to Farah across all NVT sites in SA.
- The incidence of lower pod abortion, which was evident in the 2008 and 2010 seasons, was not noted in this trial in 2011. Work is ongoing to discover the cause of this issue and determine whether this can be minimised through variety choice or agronomic practice.