B3 Sowing Date, HRZ South East (Conmurra), South Australia

Co-authored by Trent Potter, South Australian Research & Development Institute – Struan

Aim

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

Treatments

Varieties:	Nura, Farah, PBA Rana, PBA Kareema, Aquadulce and Aquadulce_Gilb (grower selection)
Sowing dates:	16 May (Early), 15 June (Late)
Fertiliser:	Map + Zn @ 100kg/ha at sowing

Results and Interpretation

- Plant lodging at maturity – Lodging scores showed that Farah and PBA Rana were the most prone to lodging, and Aquadulce was the least (Table B3.1). The broad beans generally showed less lodging than the faba bean varieties.
- Grain Weight – PBA Rana has larger seed size and grain weight than the other faba beans, Farah and Nura (Table B3.2). PBA Kareema had the highest grain weight of the three broad beans, while the grower selection Aquadulce_Gilb appears to be a larger seeded selection from Aquadulce.
- Grain Yield – Bean yields in 2011 were less than half of those achieved in 2010 at the same site, averaging only 2.8t/ha across all varieties compared to 6.4 t/ha in 2010. There was very little disease or weed pressure to cause this, but drier than average conditions and several frost events during September and October may have contributed to this result.
  A sowing time by variety response was observed for grain yield (Figure B3.1). All varieties performed similarly at both sowing dates except Nura and Aquadulce_Gilb. Nura showed 43% higher yield at the later sowing date, while Aquadulce_Gilb showed nearly 40% higher yield at the early sowing date. Aquadulce_Gilb outyielded all of the faba bean varieties at the early sowing date, but performed similarly to the other broad bean varieties PBA Kareema and Aquadulce. There was no difference between varieties at the later sowing date.

Table B3.1. Plant lodging (1-9) at maturity of three faba bean and three broad bean varieties, Conmurra 2011. 1= prostrate, 9 = erect

Variety	Farah	Nura	PBA Rana	Aquadulce	Aquadulce_Gilb	PBA Kareema
Lodging	3.33	5.33	2.33	7.23	5	5

lsd ($P<0.05$) = 1.86

Table B3.2. Grain weight (g/100 seeds) of three faba bean (left) and three broad bean varieties (right), Conmurra 2011.

Variety	Farah	Nura	PBA Rana	Aquadulce	Aquadulce_Gilb	PBA Kareema
100gwt	75.2	75.0	84.2	133.3	143.5	149.2

lsd ($P<0.05$) = 4.4

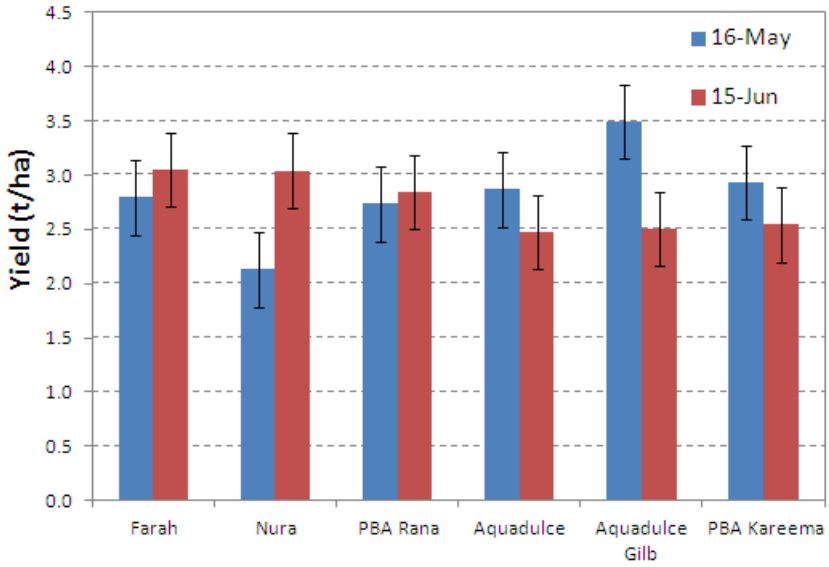

Figure B3.1. The effect of sowing date on the grain yield (t/ha) of three faba bean (left) and three broad bean varieties (right), Conmurra 2011.

Key Findings and Comments

- Bean yields at Conmurra were significantly lower in 2011 than in 2010. This trial was located in much shallower soil in 2011 than 2010, and yield was suppressed by dry conditions and several frost events during September and October.
- There was no difference in yield between the broad bean cultivars Aquadulce and PBA Kareema at Conmurra in 2011. PBA Kareema has improved resistance to ascochyta blight and rust compared to Aquadulce, although neither of these diseases were observed in this trial. The characteristics of the farmer selection Aquadulce_Gilb and reasons for its higher yield at the early sowing date are not known.
- Nura showed a penalty from early sowing, and was the only variety to show this response. Previous research has shown that it is generally better suited to early sowing than other varieties, due to its favourable disease resistance profile, mid flowering and short plant height. These characteristics favour this variety in shorter seasons with a dry finish.