

F7 Sowing Date, HRZ Mid North (Tarlee), South Australia

Aim

To identify the optimal sowing date for current and potential new faba bean varieties.

Treatments

Varieties: Nura, Farah, PBA Rana, PBA Samira, AF03001-1, AF05095-1, AF06125-2, AF07125, AF08108

Sowing Dates 2014: early - 28 April, mid - 12 May, late - 26 May

Other Details

Fertiliser: MAP + ZN 2% @ 90 kg/ha at sowing

Plant Density: 24 plants/m²

Fungicides: Carbendazim pre flowering/canopy closure and mid-September, 500 ml/ha
Procymidone early October

Measurements: Grain yield (t/ha), maturity, lodging (score) and necking (%)

Results and interpretation

Grain Yield

- Sowing date significantly affected grain yield. Early time of sowing (28 April) had a 7% increase in grain yield compared to mid time of sowing (12 May) and a 12% grain yield increase compared to late time of sowing (26 May).
- There was a significant difference in grain yields between varieties. AF05095-1 was the highest yielding variety (4.22 t/ha) and was significantly greater than all other lines, except for AF07125 (4.11 t/ha). PBA Samira (3.93 t/ha) and Farah (3.73 t/ha) had similar grain yields. PBA Samira had a 7% grain yield increase compared to Nura and an 11% increase compared to PBA Rana.
- Overall PBA Samira was the highest yielding commercial variety. It was the highest yielding commercial variety at the early time of sowing (4.33 t/ha) and the late time of sowing (3.68 t/ha) (Figure 9). Farah was the highest yielding commercial variety at the mid time of sowing (3.85 t/ha). Of the four commercial varieties PBA Samira had the greatest decrease in grain yield from the early to the mid time of sowing, 13%. The grain yield of PBA Rana decreased by 17% from the early time of sowing to the late time of sowing.

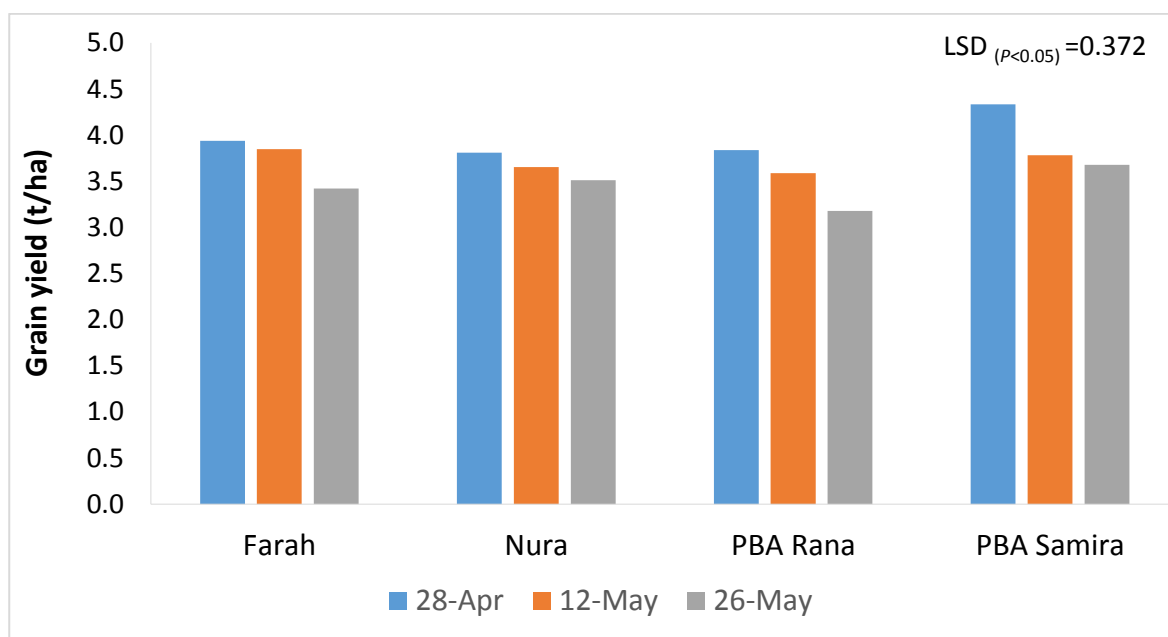


Figure 9: Grain yield (t/ha) of commercial faba bean varieties at three different sowing dates; early (28th April), mid (12th May) and late (26th May) at Tarlee, South Australia

Maturity

- There was a significant interaction between sowing date and variety maturity. The maturity of all varieties was delayed from the early time of sowing to the mid time of sowing and to the late time of sowing.
- AF08108 had significantly earlier maturity at all three times of sowing and AF07125 was significantly the latest maturing line at the mid and late times of sowing.
- PBA Samira, PBA Rana and Nura maturities were the same at the three different times of sowing, with Farah significantly earlier.

Lodging

- Lodging resistance was scored on a 1-9 scale, with 9 = erect plants and 1 = flat plants.
- There was a significant interaction between variety, time of sowing and lodging resistance. The early maturing line AF08108 had significantly reduced lodging resistance at the early time of sowing compared to all other varieties.
- Lodging resistance scores over the times of sowing remained consistent for the varieties AF03001-1, PBA Samira, AF07125, Farah, PBA Rana. The late time of sowing resulted in an increase in lodging resistance in AF05095-1 and AF06125-2.
- AF08108 and Nura lodging resistance increased significantly from the early time of sowing to the mid time of sowing.
- Apart from the early time of sowing, Nura, PBA Rana and PBA Samira had greater lodging resistance than Farah. This is consistent with the rating of Farah as moderately susceptible for lodging resistance compared to moderately resistant for the other varieties. Nura had decreased lodging resistance at the early sowing compared to PBA Rana and PBA Samira.

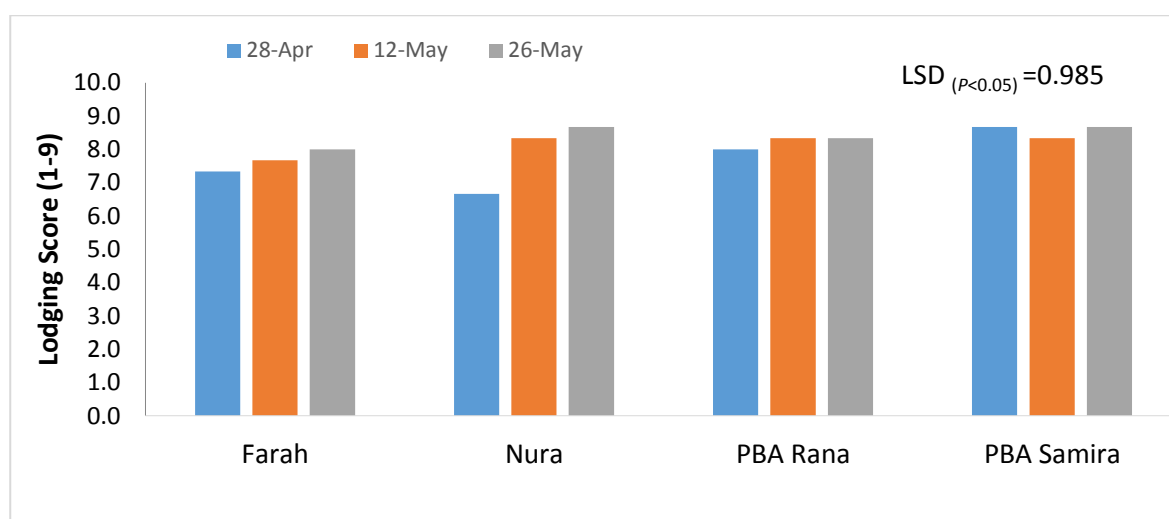


Figure 2: Lodging scores of faba bean varieties, Farah, Nura, PBA Rana and PBA Samira at three different times of sowing; Early (28th April), Mid (12th May) and Late (26th May) at Tarlee, South Australia. Lodging was scored on a 1-9 scale, with 9=erect plants and 1=flat plants.

Necking

- Necking was measured as % of plot affected.
- Necking, where the lower stem of the faba bean plant remains erect but a proportion of the stem 'necks' over between 90 and 180 degrees in the podding zone, was prevalent in research trials and commercial crops in 2014. This phenomenon is thought to be due to moisture stressed plants being subjected to heat and wind events during the reproductive phase. The effect of necking on grain yield and seed size is largely unknown although harvestability is often reduced.
- The results from this trial found no interaction between necking and time of sowing. Necking was greatest in varieties AF07125 (58.9%) and AF05095-1 (47.8%), which also had the highest grain yields; indicating necking had no impact on grain yields in this trial.
- PBA Samira (24.4%), PBA Nura (20.0%) and Farah (18.9%) all had significant levels of necking compared to RBA Rana (7.2%). AF03001-1 (1.7%) and AF08108 (7.2%) were relatively unaffected by necking.

Key findings and comments

- The trial results show that time of sowing has a significant impact on grain yields. Varieties need to be sown at the optimum time to maximize grain yield which in this experiment was at the early time of sowing (late April).
- PBA Samira was the highest yielding variety sown early and due to a good combination of disease and lodging resistance appears well suited to this practice when compared with other current faba bean options.
- Time of sowing also affects the maturity of varieties, with delayed sowings resulting in delayed maturities.
- There was an interaction between variety by time of sowing and lodging resistance. Overall lodging resistance tended to increase with later times of sowing, corresponding to a decrease in grain yields. Lodging results tended to be consistent with commercial guides for varieties.
- Previous work has suggested that necking may only be visual and not make harvest more difficult or reduce grain yields. This trial supports these findings as necking had no influence on grain yields. Time of sowing did not affect the occurrence of necking on varieties. PBA Rana had reduced necking compared to the other commercial varieties.