

Faba bean time of sowing – Junee Reefs 2015

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Key findings

- » The optimum time to sow faba beans at Junee in 2015 was mid-April.
- » PBA Zahra, PBA Samira and PBA Nasma were the highest yielding varieties.
- » Commercial yields of 3 t/ha are achievable with appropriate variety selection and management.

Introduction

This experiment aimed to compare the growth, development and yield of current commercial faba bean varieties and advanced breeding lines at two sowing times at Junee Reefs in southern NSW. This information will be used to confirm and update current agronomic recommendations for faba bean in this region.

Site details

Location	'Carinya' Hart Bros Seeds, Junee Reefs
Experiment design	Randomised complete block design with sowing date as the main blocks and varieties as the sub-plots; three replications
Sowing	Direct-drilled using a six-row cone seeder with 300 mm row spacings, press wheels and GPS auto-steer
Inoculation	Group F peat inoculant was mixed directly into an on-board 100 L water tank then pumped through micro-tubes into each sowing furrow
Soil type	Red-brown earth; pH _{Ca} 4.6 (0–10 cm)
Stubble management	Stubble was lightly burnt before sowing
Fertiliser	80 kg/ha grain legume super (N:P:K:S; 0:13.8:0:6.1) placed 50 mm below the seed
Plant population	Target 30 plants/m ²
Weed management	Commercial practices were used with the aim of weed-free trials to eliminate both weed competition and weed seed set.

Incorporated by sowing: 2 L/ha glyphosate (450 g/L), 2 L/ha Stomp® (440 g/L pendimethalin), 1.6 L/ha Avadex® (400 g/L tri-allate) and 900 g/ha Terbyne® (750 g/kg terbuthylazine)
Post sowing: TOS 2 only for fumitory: 800 mL/ha Ecopar® (20 g/L Pyraflufen-ethyl), 1% BS1000 (26 June 2015)
Insect and disease management
Targeting <i>Helicoverpa</i> sp, lucerne flea and chocolate spot: Penncozeb 750 DF®(750 g/L Mancozeb) @ 1 kg/ha (4 June 2015)
Penncozeb 750 DF®(750 g/L Mancozeb) @ 1 kg/ha (7 August 2015)
Le-Mat® (290 g/L omethoate) @ 100 mL/ha (9 July 2015)

Pulse growth and rhizobia survival can be affected when soil pH falls below 5.0. This can lead to problems on the acidic red-brown soils that dominate the cropping zones of southern NSW. Growers need to be mindful of this and routinely monitor soil acidity aiming to maintain a base pH of approximately 5.0 through strategic lime incorporation.

Soil nitrogen (N) and phosphorus (P) in the top 10 cm of the profile were high at the time of sampling (Table 1).

Table 1. Site soil chemical characteristics for 0–10 cm depth at Junee Reefs in 2015.

Characteristic	Depth (0–10 cm)
pH (1:5 CaCl ₂)	4.6
Aluminium Exc. (meq/100 g)	0.243
Nitrate N (NO ₃) (mg/kg)	54
Ammonium N (mg/kg)	2
Sulfur (mg/kg)	9
Phosphorus (Colwell) (mg/kg)	79
Organic carbon (OC) (%)	1.47

The total rainfall received during 2015 was 520 mm. GSR was 297 mm (Figure 1).

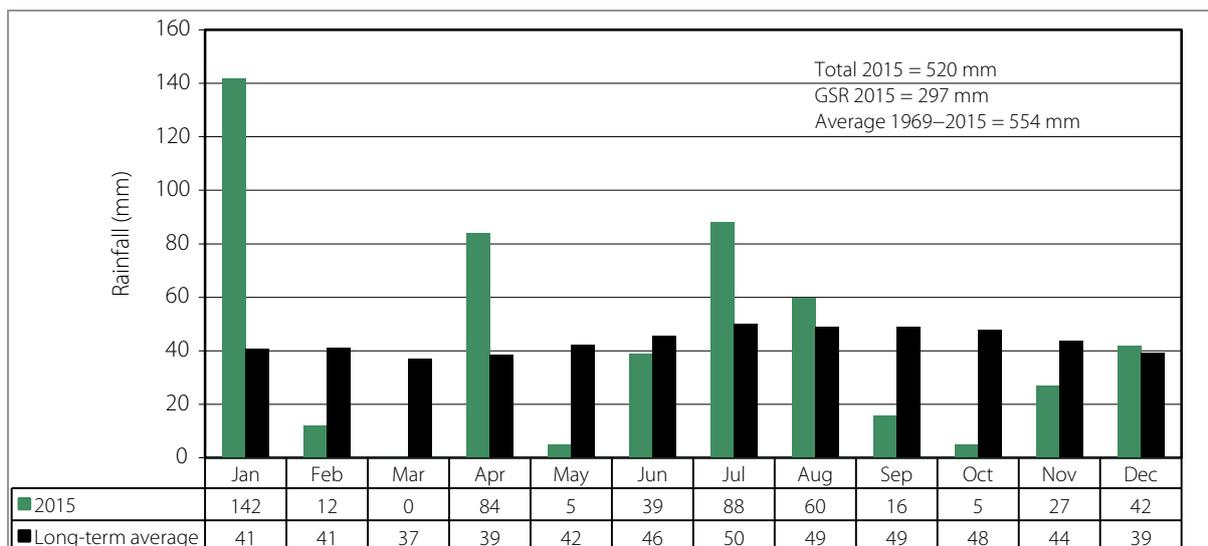


Figure 1. Total and growing season rainfall at Junee Reefs in 2015.

Treatments

Varieties (10)	PBA Zahra [Ⓛ] PBA Samira [Ⓛ] PBA Rana [Ⓛ] PBA Nasma [Ⓛ] Nura [Ⓛ]	Farah [Ⓛ] Fiesta VF AF08207 AF10089 Determinant type
Time of sowing (TOS)	TOS 1: 16 April TOS 2: 6 May	

Results

PBA Zahra, PBA Samira, PBA Nasma and Fiesta VF were the highest yielding varieties at Junee Reefs in 2015. These varieties are also the highest yielding across south-eastern NSW in long-term experiments (2008–16) (Figure 2). PBA Nasma is a northern NSW variety susceptible to ascochyta blight and also has a smaller seed size in southern NSW than PB Zahra or PBA Samira, which could have marketing implications.

In this experiment, PBA Nasma was the smallest seeded variety with a mean grain weight of 50.8 g/100 seeds (Figure 3).

The 16 April (TOS 1) sowing yielded an average of 3.16 t/ha, which is 46% higher than the 6 May sowing (TOS 2) (Figure 4). Due to a fumigatory infestation in the 6 May sowing, Ecopar[®] herbicide was applied, which caused some leaf burn on the faba beans. This could have had an effect on grain yield, but was unable to be measured.

The average commercial yield for faba beans across NSW is 1.83 t/ha compared with 1.46 t/ha, 1.35 t/ha and 1.28 t/ha for lupin, field pea and chickpea respectively. However, commercial faba bean yields have reached 4.0 t/ha and, in some instances, up to 6.0 t/ha. To achieve these yields, seasonal conditions (particularly moisture

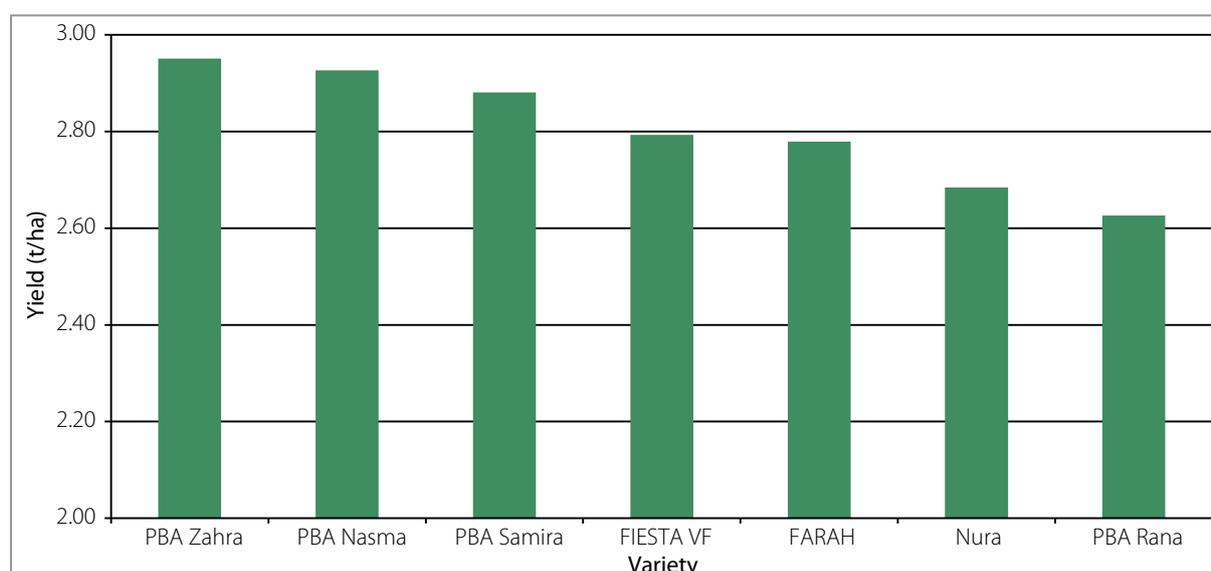


Figure 2. Long-term (2008–15) yield for faba bean varieties in south-eastern NSW.

and temperature) have to be ideal to reduce the high rates of flower abortion along the stems that was observed in this experiment.

These results are consistent with maximum faba bean yields from mid-April to early-May sowing in this region. Growers still need to consider the consequences of:

- » sowing too early (before 15 April) – excessive height, lodging and disease
- » sowing too late (after the middle of May) – short plants and restricted dry matter and grain yield.

Growers also need to be aware that in cool, moist extended springs, even late April sowings can be subject to greater disease pressure and require careful monitoring and foliar fungicide sprays.

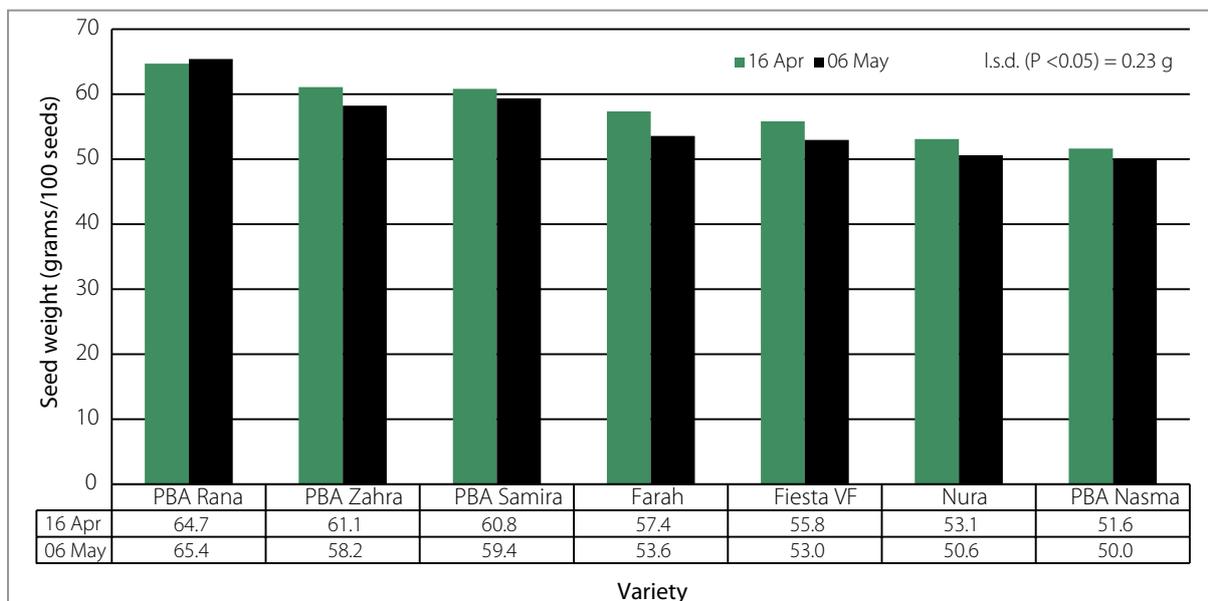


Figure 3. Variety and time of sowing effect on seed weight at Junee Reefs in 2015.

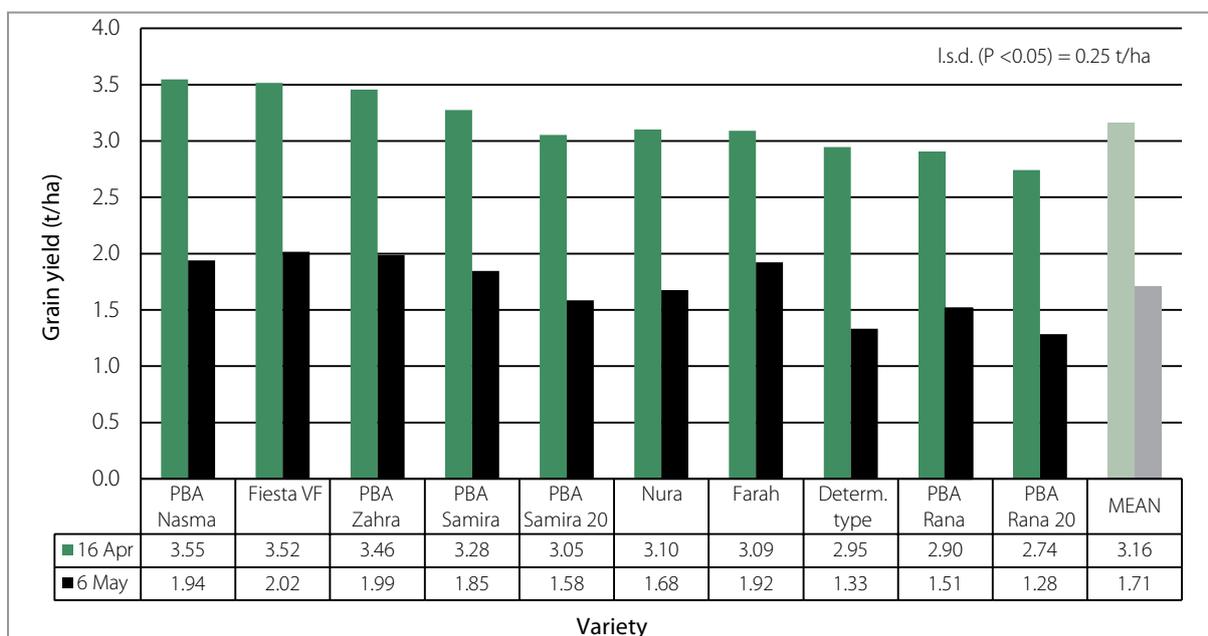


Figure 4. Grain yield of eight faba bean varieties sown at two dates at Junee Reefs in 2015.

Acknowledgements

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