

## B18 Time of Sowing, HRZ Junee Reefs, New South Wales

### Aim

To compare growth, development and yield of current commercial faba bean varieties and promising advanced breeding lines at two sowing dates on a hard-setting, acidic, red-brown soil at Junee Reefs in southern NSW. This information will be used to confirm and update current agronomic recommendations for faba bean in this region.

### Key Findings

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

### Treatments

Varieties (10)	PBA Zahra, PBA Samira, PBA Rana, PBA Nasma, Nura, Farah, Fiesta VF, AF08207, AF10089 and Determinant type.
Time of sowing (2) (TOS)	TOS 1 - 16 <sup>th</sup> April TOS 2 - 6 <sup>th</sup> May

### Site details

Site	"Carinya" Hart Bros Seeds, Junee Reefs
Trial Design	Randomised complete block design with sowing date the main blocks and varieties the sub-plots; three replications.
Sowing	Direct –drilled using a six row cone seeder with 300mm row spacing and GPS auto-steer
Inoculation	Group F peat inoculant was mixed directly into an on board 100L water tank then pumped through micro-tubes into each sowing furrow
Soil type	Red brown earth, pH <sub>Ca</sub> (0–10 cm) 4.6
Stubble management	Stubble was lightly burnt prior to 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 <sup>2</sup> , 30 cm row spacing.

### Soil

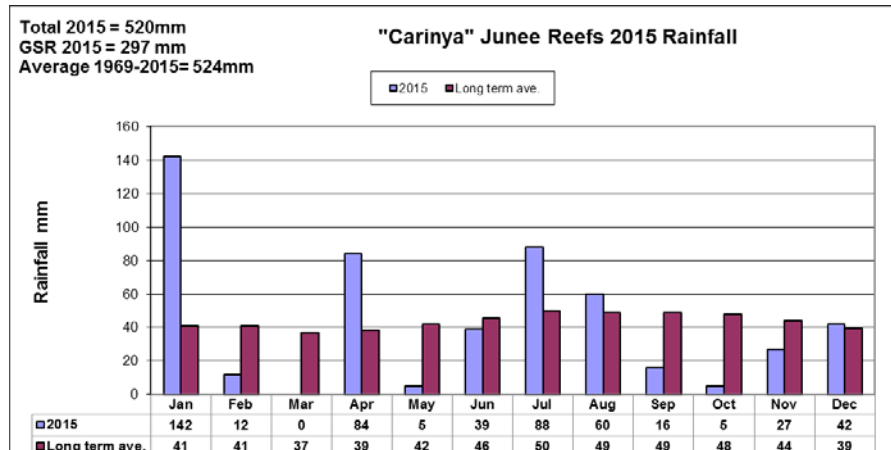
Pulse growth and rhizobia survival can be affected when soil pH falls below 5. This can lead to problems on the acidic red-brown soils that dominate the cropping zones of southern NSW. Growers need to be mindful of this and routinely monitor soil acidity aiming to maintain a base pH of approximately 5 by strategic incorporation of lime.

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

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

Depth	pH (1:5 CaCl <sub>2</sub> )	Aluminium Sat (%)	Nitrate N (NO <sub>3</sub> ) (mg/kg)	Ammonium N (mg/kg)	Sulfur mg/kg	P (Colwell) (mg/kg)	CEC (cmol(+)/kg)
0–10 cm	4.6		54	2	9	79	5.59

### Rainfall



## Results

### Grain yield

**PBA Zahra, PBA Samira, PBA Nasma and Fiesta VF** were the highest yielding varieties at Junee in 2015, and these varieties are also the highest yielding varieties across south-eastern NSW over the long-term (2008-16) (Figure 2). PBA Nasma is a northern NSW variety and is susceptible to ascochyta blight. Also, its seed size in southern NSW is smaller than PBA Zahra and PBA Samira, which may have marketing implications. In this experiment it was the smallest seeded variety with a mean grain weight of 50.8 gm/100 seeds (Figure 3).

The 16 April sowing yielded on averaged 3.16 t/ha, 46% higher than the 6 May sowing (Figure 1).

To put these results in perspective, average commercial yield of faba beans across NSW is 1.83 t/ha compared to 1.46t/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 (moisture and temperature in particular) have to be ideal to reduce the high rates of flower abortion observed here along the stems.

Nevertheless, these results are consistent with maximum faba bean yield resulting from mid-April to early-May sowing in this region. Growers still need to be mindful of the consequences of:

- sowing too early (prior to 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 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.

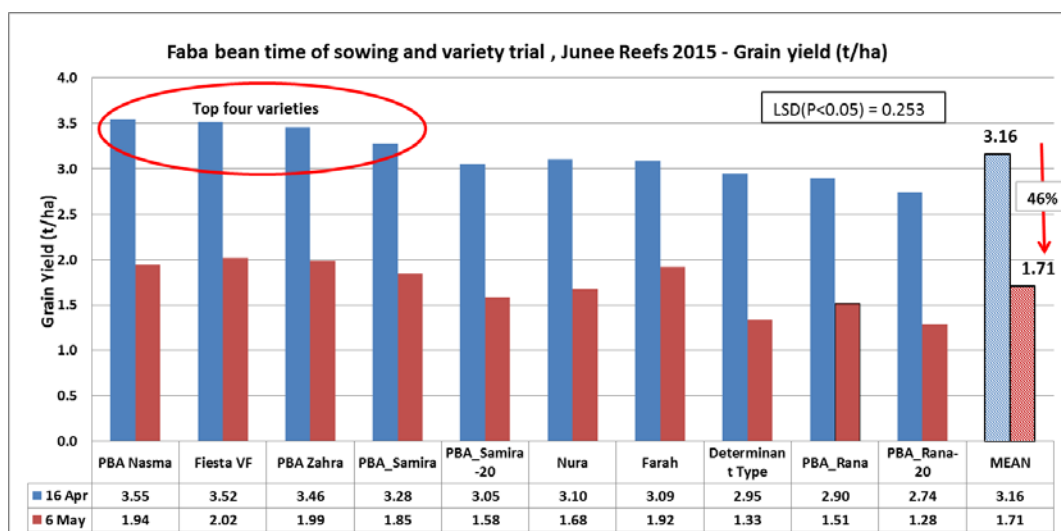


Figure 1. Grain yield of eight faba bean varieties sown at two dates at Junee Reefs in 2015.

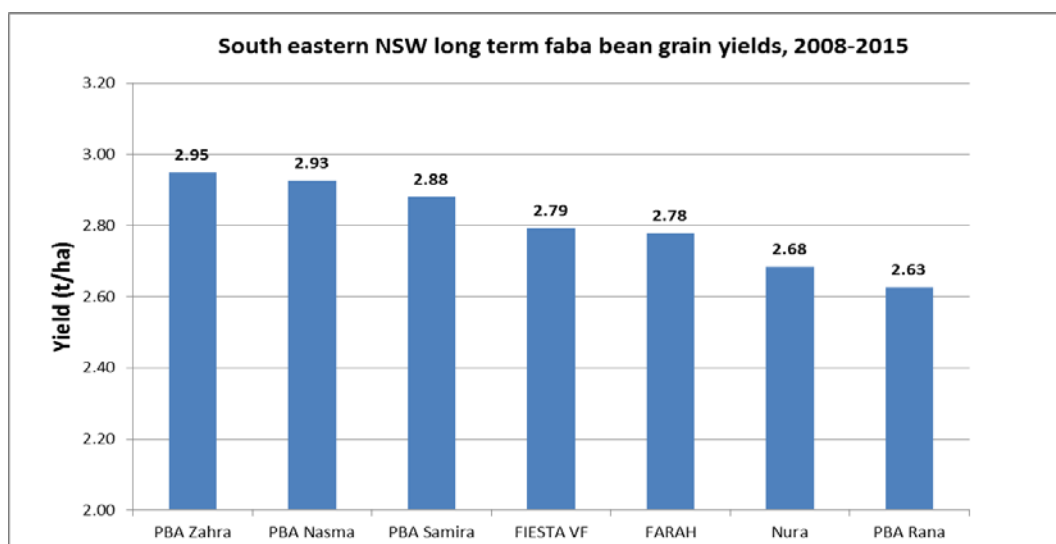


Figure 2. Long-term (2008-15) yield rankings for faba bean varieties in south-eastern NSW.

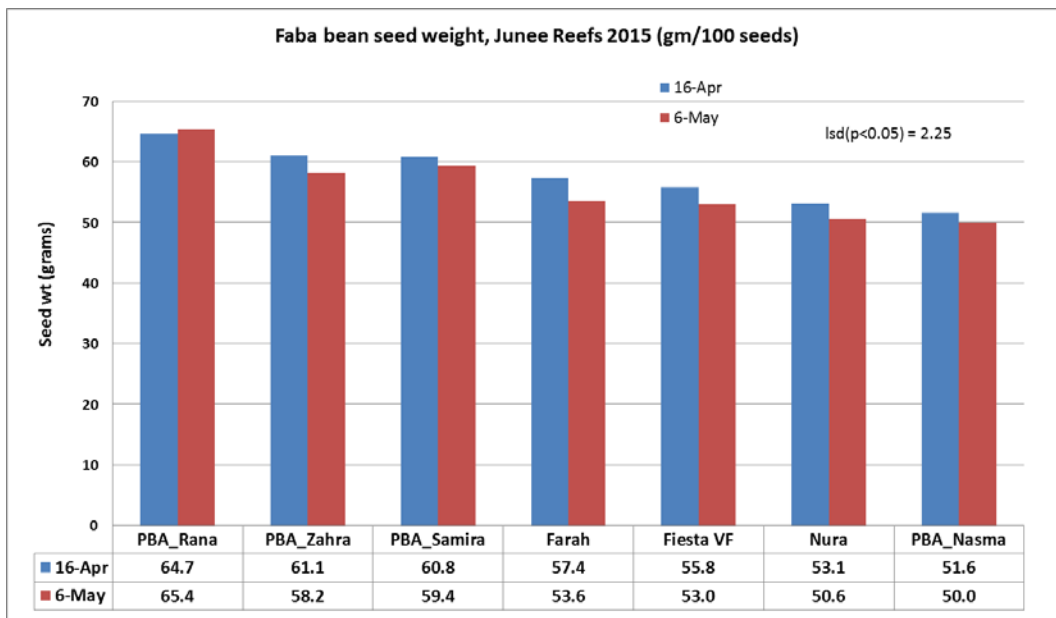


Figure 3. Variety and sowing time effect on seed weight at Junee Reefs in 2015.