

Influence of seed size on the yield of the faba bean variety PBA Nasma[Ⓛ] – Breeza 2015

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Key findings

There is no evidence to support growers grading seed into different size categories and sowing the smaller seed.

In one trial in 2015, sowing seed of different size classes did not significantly influence the yield of PBA Nasma[Ⓛ]. Insufficient data is currently available to make a recommendation either way on this practice, but there was a trend towards reduced size of harvested seed and yield from sowing smaller PBA Nasma[Ⓛ] seed.

Introduction

Faba bean is a rotation crop used in northern NSW to break disease cycles in winter cereals and to maintain soil nitrogen fertility. The Pulse Breeding Australia (PBA) faba bean breeding program aims to breed locally adapted varieties with improved disease resistance. PBA Nasma, released in 2015, is a large-seeded faba bean classified MR–R (moderately resistant to resistant) to rust. The large seed size can potentially cause blockages in planting machinery if it is not well set up and also requires a very high sowing volume to achieve a targeted plant population. A possible solution is to grade PBA Nasma seed into different size categories and plant the smaller seed.

Site details

Location: **Liverpool Plains Field Research Station, Breeza**
Co-operator: **Scott Goodworth, NSW DPI**
Sowing date: **19 May 2015**

Treatments

PBA Nasma seed was graded into three size categories (Table 1) with ungraded seed used as a control. Data on yield, seed size and above ground biomass were collected.

Table 1. PBA Nasma seed size categories

Category	Seed size (g/100 seeds)
Normal (ungraded)	–
Small	43
Medium	76
Large	102

Results

Grain yield results showed significant variation between replications. There was no significant difference in biomass or yield at harvest between the PBA Nasma seed size categories (Table 2). The small seed size category produced significantly smaller seed at harvest than the other treatments at this site in 2015.

Table 2. Biomass, yield and seed weight at harvest resulting from sowing different seed sizes categories of PBA Nasma – Breeza 2015

Treatment	Biomass at harvest (t/ha)	Yield (t/ha)	Hundred seed weight (g/100 seeds)
Normal (ungraded)	9.83 a*	4.00 a	51.4 a
Small	9.67 a	3.65 a	43.4 b
Medium	9.83 a	4.47 a	53.6 a
Large	9.97 a	4.30 a	57.7 a

*Numbers indicated by different letters are significantly different at P = 0.05

Summary

Although seed size did not significantly influence yield in this trial, further research is required before a definitive recommendation around using a particular seed size for sowing can be made. Growers are currently advised not to grade PBA Nasma in order to plant smaller seed. Planting smaller seed might produce seed of smaller size at harvest which might, in turn, reduce financial returns to the grower.

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