Faba Bean, Variety and Plant Density, HRZ Western District (Cavendish), Victoria

Aim

To test the response of two common faba bean varieties to changes in plant density in the Victorian high rainfall zone (HRZ).

Treatments

Varieties: PBA Samira, PBA Zahra
Target plant populations: 15, 25, 35 plants/m^2

Table 1. Other Site Details

Sowing date	28 April, 2018
Stubble management	Burnt
Row spacing (cm)	20
Fertiliser	None

Results and Interpretation

- **Key Messages:** Plant densities greater than 25 pl/m^2 produced the highest grain yields in 2018.
- PBA Samira and PBA Zahra performed equally well, with average grain yield of 3.2 t/ha and 3.1 t/ha, respectively.
- 2018 was a low disease year and there was no disease penalty from higher sowing rates. Yield benefits from higher plant densities should be weighed against higher disease risks in wetter years.

- **Summary:** Sowing crops early can increase their yield potential by allowing them to take advantage of a longer growing season. However, it can also increase the risk of disease, which may negate any potential gains in grain yield. This fact is of particular concern in the Victorian high rainfall zone (HRZ) where fungal disease such as chocolate spot (*Botrytis sp.*) can be a major constraint to faba bean production. Disease risk can be mitigated by adjusting the sowing rate and hence canopy size, but this must also be weighed against the effect on yield, the initial cost of seed and weed control (GRDC, *Faba Bean GrowNotes – Southern Region,* 2017). Much of the previous work examining this involved older varieties, so the trials in 2018 were conducted to explore the effect of plant density on faba bean yield and disease incidence for a given sowing date using newer varieties and improved fungicide options in the Victorian HRZ.
- Differences in crop establishment were achieved with sowing rates targeting three plant densities. Across sowing rates, PBA Samira established with approximately 5 plants/m^2 more than PBA Zahra. Higher plant density did not lead to a greater incidence of disease in 2018, a low disease pressure year. There were also no differences in disease incidence between varieties (data not shown).
- Grain yield increased significantly from a target density of 15 plants/m^2 to the target 25 plants/m^2, but no significant gains were observed above this level (see Figure 1). Across plant densities the average yield for PBA Samira was 3.2 t/ha and 3.0 t/ha for PBA Zahra, but the difference was not significant. Mean site yields are below average as a result of the dry spring. The results support findings from previous work in narrow row spacings on older varieties, where in a dry year with low disease pressure there is a yield benefit from high sowing rates. It has been noted on wider row spacings and in stubble that lower plant densities can be more profitable.

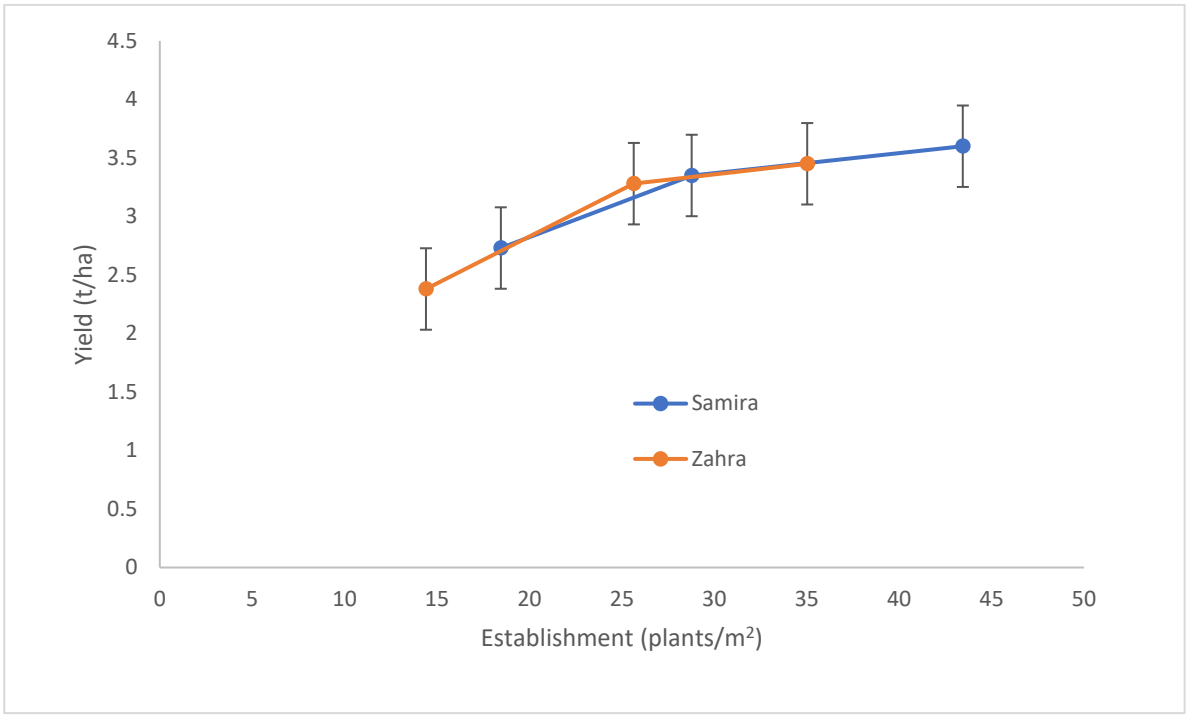

Figure 1. Grain yield of faba beans sown with three plant densities on 28 April, 2018 at Cavendish. Error bars are the LSD for the interaction of sowing date x plant density ($P<0.05$).