

3. Field Peas

F1 Sowing Date, MRZ Mid North (Hart), South Australia

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Aim

To maximise yield of new field pea varieties through the identification of optimum sowing dates, and to confirm yield advantages from previously identified best practice blackspot management strategies.

Treatments

Varieties: Kasper, Alma, PBA Gonyah, PBA Twilight, PBA Oora, PBA Percy, PBA Pearl and OZP0903
Sowing dates: 20 May (Early-Mid), 14 June (Mid-Late)
Treatments: Nil – no fungicide applied
Strategic – P-Pickel T plus 2kg/ha Mancozeb at 9 node and Early Flower
Fertiliser: MAP + Zn @ 75kg/ha

Results and Interpretation

- Foliar Disease – The severity of blackspot in 2011 was a lot lower than previous years. This was due to the early release of spores from pea stubble, facilitated by high summer rainfall, so that most spores were dispersed prior to field pea emergence. The blackspot infection levels were rated at the end of August as the number of nodes girdled with disease. There was significantly more disease in the first time of sowing (average of 5.6 diseased nodes) compared to the second time of sowing (average of 0.2 diseased nodes). There were also significant differences between varieties (Table F1.1) with most blackspot recorded in Alma and least recorded in PBA Gonyah, PBA Percy and OZP0903. There was no significant interaction for blackspot severity between varieties and time of sowing. Scores showed no significant difference in disease severity between fungicide treated and untreated plots, however a small yield response was noted, as outlined below.

Table F1.1. Blackspot severity (# nodes infected) of field pea cultivars (averaged across fungicide treatments and sowing dates) at Hart, 2011, rated August 27.

Variety	Alma	Kasper	PBA Gonyah	PBA Twilight	PBA Oora	PBA Percy	PBA Pearl	OZP0903
Blackspot (# nodes infected)	3.6 ^c	3.1 ^{bc}	2.5 ^a	3.1 ^{bc}	2.7 ^{ab}	2.6 ^{ab}	2.8 ^{ab}	2.5 ^{ab}

lsd (P<0.05) Variety = 0.5

- Grain Yield – Grain yield of field peas averaged 2.9t/ha at Hart in 2011, slightly higher than in the previous favourable seasons of 2009 (2.4t/ha) and 2010 (2.5t/ha). Grain yield showed no response to sowing time in 2011 due to generally low blackspot severity (5- 6 infected nodes does not cause yield loss) and a favourable season finish, so that neither sowing date was favoured.

All varieties performed similarly to the site mean except Alma, which was the lowest performing variety (Table F1.2) at 7% lower than Kasper. Recent releases PBA Gonyah, PBA Twilight, PBA Oora and PBA Percy all performed similarly to Kasper, while potential releases PBA Pearl (erect, white pea) and OZP0903 (high yield potential) yielded 8% greater than Kasper. At present prices of ~\$270/tonne this represents a gross increase of ~\$60/ha. OZP0903 was also the highest yielding line in the 2010 trial, although PBA Pearl was not included.

A grain yield response was observed from the application of fungicides. Neither interactions of fungicide with sowing date or variety were significant, meaning that the treatment response was similar at both sowing dates and across all varieties.

Treatment with Mancozeb (2kg/ha) at 9 node and early flower resulted in a 4% increase in yield across all varieties (Table F1.3). This corresponded to an average 120kg/ha increase in yield, or

\$33/ha, which means this practice was not economic in 2011 as it has been in previous years under higher disease pressures.

Table F1.2. Grain yield (t/ha) of field pea cultivars at Hart, 2011.

Variety	Alma	Kaspa	PBA Gunyah	PBA Twilight	PBA Oura	PBA Percy	PBA Pearl	OZP0903	LSD (P<0.05)
Yield (t/ha)	2.57 ^a	2.76 ^b	2.91 ^{bc}	2.89 ^{bc}	2.9 ^{bc}	2.91 ^{bc}	2.98 ^c	2.99 ^c	0.18

lsd (P<0.05) Variety = 0.18

Table F1.3. Grain yield (t/ha) of field peas untreated or treated with fungicide, Hart 2011.

Treatment	Nil	Fungicide	LSD (P<0.05)
Yield (t/ha)	2.8 ^a	2.92 ^b	0.09

lsd (P<0.05) Fung = 0.09

Key Findings and Comments

- Despite only close to average growing season rainfall, yields in 2011 (average 2.9t/ha) were buoyed by stored soil moisture from summer rainfall, low disease levels and generally favourable growing conditions, and performed significantly higher than the wetter seasons of 2009 (2.4t/ha) and 2010 (2.5t/ha) where growing season rainfall was higher but disease was more prevalent. These favourable growing conditions are also likely responsible for the lack of sowing date response in 2011.
- The earlier flowering and maturing recent PBA releases, PBA Gunyah, PBA Twilight, PBA Oura and PBA Percy, all performed similarly to Kaspa and the site mean, demonstrating their flexibility in a season which generally favoured later maturing varieties and produced high yields. Over the recent run of favourable seasons these varieties have generally performed slightly lower than Kaspa, however long term data (2005-2011) shows similar or slightly higher yield, and regional benefits generally associated with lower rainfall areas and in years when delayed sowing is required.
- PBA Pearl and the potential release OZP0903 were the highest yielding lines in the 2011 trial. OZP0903 was also the highest yielding line in the 2010 trial, while PBA Pearl was not included. These lines show a lot of promise as new varieties for their high yield potential and also their agronomic and disease resistance profiles.
- Fungicides for control of blackspot in field peas are generally not economic unless the blackspot risk is severe. If field peas are sown according to recommendations of Blackspot Manager, i.e. after 50% of spores have been released, then the disease is unlikely to reach severe levels. If the peas are sown before the peak spore release e.g. the spores are released in late May or June and peas are sown mid May, then foliar fungicides are warranted for disease control. Trials in previous years have shown that potential yield needs to be at least 2 t/ha for foliar fungicides to be economic in field peas even when blackspot is severe. Whilst yields were high in 2011, blackspot severity was generally low, and application of fungicides was not economic in 2011.