

Faba bean disease management

Buraja 2021

Key findings

- When disease (primarily chocolate spot) was controlled, there was no yield difference between PBA Amberley[Ⓛ] and PBA Bendoc[Ⓛ], but different fungicide strategies could be adopted in each cultivar to achieve peak yields
- There was no effect of fungicide on yield of the moderately resistant (MR) variety PBA Amberley[Ⓛ], whereas a minimum of two fungicide applications was required on the susceptible (S) PBA Bendoc[Ⓛ].
- These results highlight the importance of disease resistance to reduce reliance on fungicides, and the need for more intense fungicide management in susceptible cultivars.
- The application of fungicides reduced disease incidence in the sprayed canopy layers, which in turn reduced disease infection above the layer of fungicide application.
- A two-spray strategy incorporating a new generation SDHI (succinate dehydrogenase inhibitor) fungicide (Miravis[®] Star) didn't improve disease control or grain yield compared to the more traditional 2-spray strategy using chlorothalonil and carbendazim.
- Further trial work across multiple environments will provide greater confidence in the use of new generation fungicide products.

Trial details

Table 26: Sowing date, fertiliser and variety details at Buraja in 2021.

Management	Buraja faba bean disease management trial
Sowing date	7 May
Starter fertiliser	80 kg/ha MAP
Variety (chocolate spot disease rating)	PBA Bendoc [Ⓛ] (susceptible, S) PBA Amberley [Ⓛ] (moderately resistant, MR)
Harvest date	23 December

Table 27: Fungicide management strategies applied at Buraja in 2021.

Fungicide strategy	First flower	14 days after first flower	28 days after first flower
	Product* (rate)	Product* (rate)	Product* (rate)
Untreated	–	–	–
1 fungicide	–	–	Chlorothalonil (1500 mL/ha) + Carbendazim (500 mL/ha)
2 fungicides	–	Chlorothalonil (2300 mL/ha) + Carbendazim (500 mL/ha)	Chlorothalonil (1500 mL/ha) + Carbendazim (500 mL/ha)
3 fungicides	Procymidone (240 g/ha)	Chlorothalonil (2300 mL/ha) + Carbendazim (500 mL/ha)	Chlorothalonil (1500 mL/ha) + Carbendazim (500 mL/ha)
New generation fungicides	–	Miravis® Star (750 mL/ha)	Veritas (750 mL/ha)
Date applied (growth stage)	26 August (GS61)	14 September (GS64)	14 October (GS75)

* Procymidone (500 g/kg procymidone); Chlorothalonil (720 g/L chlorothalonil); Carbendazim (500 g/L carbendazim);

Miravis® Star (150 g/L fludioxonil + 100 g/L pydiflumetofen); Veritas® (120 g/L azoxystrobin + 200 g/L tebuconazole)

** New generation fungicides includes Miravis Star, a succinate dehydrogenase inhibitor (SDHI) fungicide

Results

Canopy disease

The faba bean canopy was tagged at each fungicide application, tag 1 at first spray, tag 2 at second and tag 3 at third spray. Each layer of the canopy was assessed to evaluate the impact of each fungicide application on the canopy levels it was applied to. By the end of the season tag 1 corresponds to lower canopy, tag 2 middle canopy, tag 3 upper canopy, and above tag 3 is unsprayed upper canopy.

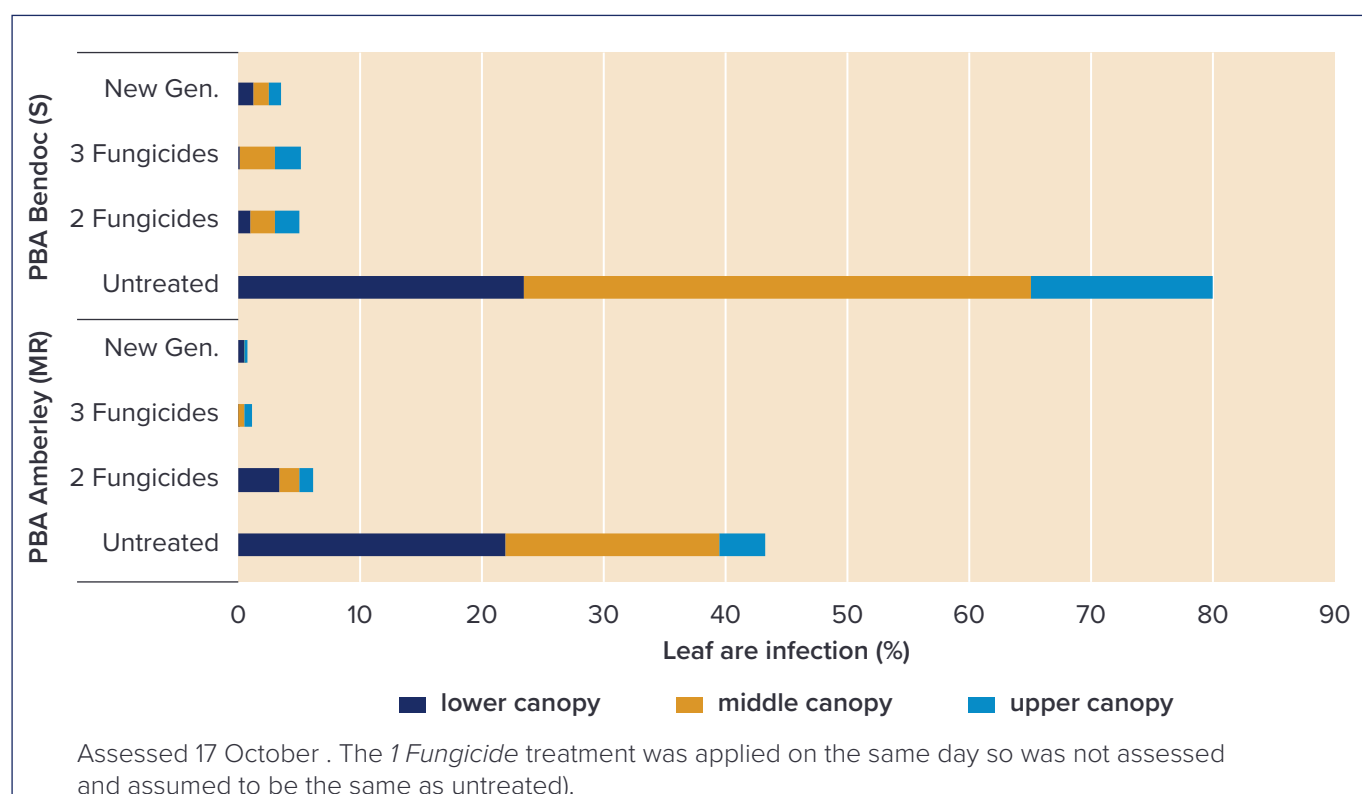


Figure 28: Effect of fungicide strategy on levels of disease infection (chocolate spot) at different canopy levels at Buraja in 2021.

Grain yield

Table 28: Influence of faba bean cultivar and disease management on grain yield (t/ha).

Cultivar (chocolate spot disease rating)	Grain Yield (t/ha)		
	PBA Amberley (MR)	PBA Bendoc (S)	Mean
Fungicide strategy			
Untreated	3.75 ^{ab}	3.17 ^c	3.46
1 Fungicide	3.61 ^{ab}	3.40 ^{bc}	3.50
2 Fungicide	3.78 ^a	3.80 ^a	3.79
3 Fungicide	3.72 ^{ab}	3.97 ^a	3.84
SDHI	3.76 ^{ab}	3.75 ^{ab}	3.76
Mean	3.72	3.62	
Cultivar l.s.d. ($P = 0.05$)	ns	P val	0.169
Fungicide Strategy l.s.d. ($P = 0.05$)	0.26	P val	0.013
Cultivar x Fungicide Strategy l.s.d. ($P = 0.05$)	0.36	P val	0.033