

B12. Disease Management x Stubble, HRZ Southern (Westmere), Victoria

Aim

To investigate the effect of chocolate spot and rust management strategies across a range of faba bean varieties.

Experimental Treatments

Varieties: AF050069, AF05095, AF06125, AF07125, Farah, Nura, PBA Rana.

Fungicide Regimes:

Treatment	Chemical and Application Rate¹	Timing
Nil	Nil	Nil
Double Choc (Cx2)	carbendazim 500 @ 500ml/ha	Early and late flower
Triple Choc (Cx3)	carbendazim 500 @ 500ml/ha	Early, mid and late flower
Complete (Com)	mancozeb 800 @ 2kg/ha chlorothalonil 720 @ 2L/ha carbendazim 500ml/ha	mancozeb + chlorothalonil applied fortnightly from 6-8 weeks after emergence All 3 chemical applied fortnightly during flowering.
Rust (Rx2)	Tebuconazole 430 at @ 350ml/ha	6-8 weeks after emergence and early flower
Rust (Rx3)	Tebuconazole 430 at @ 350ml/ha	Early, mid and late flower

1. Refers to application rate of the product

Other Details

Sowing date: 2 May.
Stubble: Cultivated
Row Spacing: 20 cm.
Fertiliser: MAP @ 60 kg/ha at sowing.
Plant Density: 20 plants/m².

Results and Interpretation

➤ Key Message: New varieties are likely to offer significant yield improvement in southern Victoria, along with improvements in disease resistance.

- Disease Damage – Due to a relatively dry winter and spring, disease pressure was only low to moderate in the faba beans. Chocolate spot and cercospora were first noted in August, but disease development was slow. Chocolate spot was the predominant disease, while no rust was seen in the trials. There was a significant interaction between the fungicide regime and variety (Figure 1). For all varieties there was minimal disease in the ‘complete’ treatment, while the Nil treatment resulted in significant infection with scores ranging between 4.5 and 5.5. AF05073, AF07125, Farah and PBA Rana showed significantly worse symptoms than all other varieties. The chocolate spot and rust control strategies reduced disease scores similarly in all varieties and the relative trend among varieties within a regime remained similar to the Nil treatment.
- Grain Yield - Dissimilar to 2011 trials in Lake Bolac, none of the disease management regimes translated into any significant effect on grain yield, so only the mean grain yield across all treatments has been presented (Table 1). Grain yields were excellent ranging from 4.0t/ha to 5.5 t/ha. AF05095 was the highest yielding variety (5.53t/ha), 37% higher than Farah and 33% higher than Nura which were lowest yielding varieties this year.

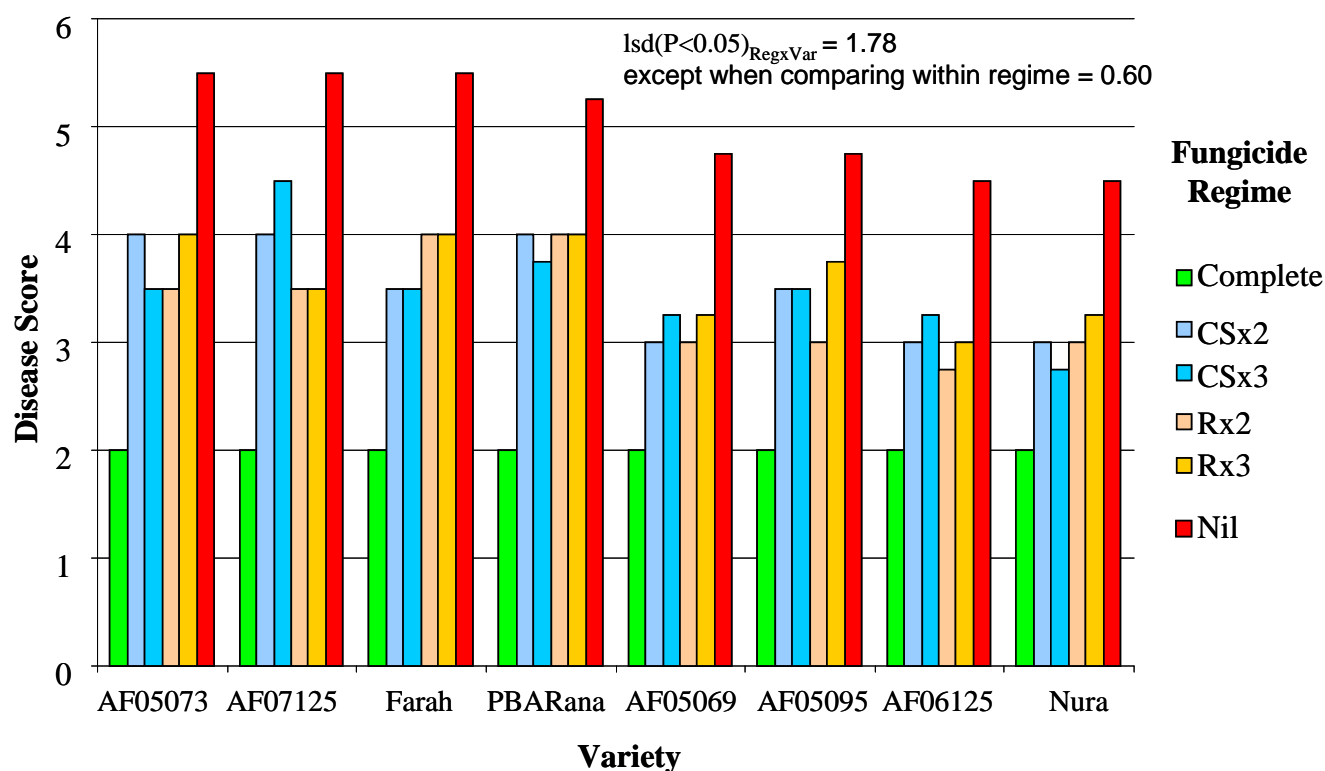


Figure 1. The interaction effect of fungicide regime and variety on disease damage score (1 – no symptoms present, 9 – complete plot death) of faba beans at Westmere recorded November 8, 2012. ¹Disease damage was a combination of Chocolate Spot and Cercospora; Rust was the predominant disease present.

Table 1. Grain yield of faba bean varieties grown at Westmere in 2012.

Variety	Grain Yield (t/ha)
AF05095	5.53
AF05069	5.14
AF05073	5.00
AF07125	4.49
PBA Rana	4.49
AF06125	4.49
Nura	4.14
Farah	4.04

lsd_{p<0.05} = 0.37

Key Findings and Comments

Growing conditions in 2012 were excellent for faba beans, due to adequate growing season rainfall and mild temperatures during flowering and podding periods with few frost or high temperatures. In addition, the disease intensity was relatively low, so yield potential was high. While there were clear varietal differences in susceptibility to disease and level of disease within fungicide treatments, it had no impact on grain yield. This probably occurred because spring conditions were relatively dry and not conducive to an increase in disease intensity, which often occurs in wetter spring conditions.

Grain yield of the beans was excellent and the potential new varieties all had yields significantly higher than Farah, with AF05095, 37% greater than Farah. Longterm data across a range of environments from the breeding program indicates that AF05095, AF05069 and AF05073 all have yields approximately 10% greater than Farah. Similar to observations in this trial, AF05095 and AF05069 also have improvements in disease resistance. AF05095 along with other new varieties assessed in this trial are likely to offer significant yield improvements in southern Victoria, along with improvements in disease resistance

Based on yields achieved (5t/ha) beans could have achieved a gross profit of approximately \$1900/ha based on management costs of \$300/ha and grain price at \$440/t.