

Vetch, Disease Management, LRZ North Central (Pyramid Hill), Victoria

Authors

James Murray

Aim

To evaluate the effects of time of sowing and varieties on disease management, biomass production and grain yield in vetch.

Treatments

Varieties: Popany and Timok

Time of sowing: 12/4/2019 and 14/05/2019

Fungicide strategies: See Table 1 for treatments and application rates.

All fungicide applications occurred just prior to canopy closure. There were two controls in the experiment, 'untreated' where no treatments were applied, and the 'complete' where fungicides were applied periodically to prevent disease development.

These experiments were not inoculated with disease relying on natural occurrence.

Table 1. Fungicide strategies

Fungicide Treatments	Fungicide Rate (ml/ ha)	Fungicide Trade Name
Untreated	NA	NA
Prothioconazole + Tebuconazole ¹	700	Prosaro®
Carbendazim	500	Spin Flo®
Tebuconazole + Azoxystrobin	1000	Veritas®
Bixafen + Prothioconazole ¹	600	Aviator® Xpro®
Complete		

¹ Some of the fungicide treatments in this research contain unregistered fungicides, application rates and timings and were undertaken for experimental purposes only. The results within this document do not constitute a recommendation for that particular use by the author or author's organization.

Table 2. Other Site Details

Pyramid Hill	
Stubble height (cm)	10
Row Spacing (cm)	30
Fertiliser (kg/ha) ¹	60
Plant density (plants/m ²)	50

2. MAP (9.2, 20.2, 0, 2.7) + Zn (2.5)

Results and Interpretation

- Key Messages: Environmental conditions were not conducive for disease development. The variety Timok produced more biomass and grain yield than Popany and thus appeared to be better suited to the Pyramid Hill climate during the 2019 season. Biomass yields were good and likely to provide higher profits than grain yields given the seasonal conditions. There was a good start and a drier finish to the season, which resulted in decreased grain yields than the projected outlook.
- Establishment and Plant Growth: Plant growth and establishment was good with early and consistent rainfall.
- Plant Disease: At Pyramid Hill there was no disease observed with environmental conditions not conducive for disease development.

- Biomass Yield: Biomass yields (3.7-4.3 t/ha) were favourable despite a drier than average season, which aligned with the results at Karyrie. Sowing in April (4.2 t/ha) produced 13% more biomass compared to May (3.7 t/ha). Timok (4.3 t/ha) produced 13% more biomass than Popany (3.7 t/ha). Fungicide strategies did not influence biomass yields.

Grain Yield and Profitability: Overall, the grain yields were low with less than 1 t/ha on average and therefore, results should be used with caution. Fungicides did not influence grain yields of varieties or sowing dates (Table 3). Timok produced 366% and 320% more grain yield than Popany when sown in April and May (Table 3). Popany and Timok sown in May produced 100% and 80% more grain yield than those sown in April (Table 3). Effect of time of sowing, varieties and fungicides on grain yields of vetch in Pyramid Hill, 2019.

Variety (V)	Grain Yield (t/ha)				Average
	Popany		Timok		
	12/04	14/05	12/04	14/05	
Time of Sowing (ToS)					
Fungicides (F)					
Untreated	0.07	0.19	0.42	0.73	0.35
Bixafen + Prothioconazole	0.08	0.18	0.42	0.59	0.32
Carbendazim	0.09	0.20	0.36	0.85	0.38
Prothioconazole + Tebuconazole	0.09	0.17	0.41	0.87	0.39
Complete	0.10	0.19	0.49	0.68	0.37
Tebuconazole + Azoxystrobin	0.11	0.17	0.43	0.81	0.38
Average	0.09	0.18	0.42	0.76	

LSD ($P < 0.05$) $T_{OS} = 0.03$

LSD ($P < 0.05$) $Variety = 0.03$

LSD ($P > 0.05$) $Fungicides = NS$

LSD ($P < 0.05$) $T_{OS} \times V = 0.05$

LSD ($P > 0.05$) $V \times F = NS$

LSD ($P < 0.05$) $T_{OS} \times F = 0.08$

LSD ($P < 0.05$) $T_{OS} \times V \times F = 0.12$

Acknowledgements

The research undertaken as part of the GRDC funded Southern Pulse Agronomy project is made possible by the significant contributions of growers through both trial cooperation and the support of the GRDC and the authors would like to thank them for their continued support. The continued assistance in trial management from BCG team is gratefully acknowledged and appreciated. The authors would also like to gratefully acknowledge private agronomists, pulse breeders, pathologists for their scientific input and assistance, as well as growers involved in the project.