

Vetch, faba bean, field pea, Time of Sowing x Disease Management, MRZ Wimmera (Horsham), Victoria

Authors

Jason Brand, Mitch Fromm and Tim Nigussie

Aim

To investigate the adaptability of a range of species to varying sowing dates and disease management programs.

Treatments

Varieties: See table 2 below

Sowing Dates: April 15 (TOS 1) and May 31 (TOS 2)

Treatments: Nil disease control and complete disease control

Table 1. Other Site Details

	Curyo
Stubble height (cm)	Standing (15)
Row Spacing (cm)	36
Fertiliser (kg/ha) ¹	80

¹MAP (9.2, 20.2, 0, 2.7) + Zn (2.5)

Results and Interpretation

- **Key Messages:** All varieties had higher biomass when sown on April 15. Beans had a higher grain yield when sown early, whereas field peas and vetch benefited from a later sowing time. A drier than average spring accompanied with frost held back the earlier time of sowing. Interestingly field peas and vetch had an inverse relationship between biomass and grain yield on average. Due to low disease pressure at Horsham there was no significant interaction at any level with fungicide strategies. PBA Butler topped the trial for biomass at flowering on the 17th April sowing time, this did not translate to yield, as it yielded similarly to the other field pea variety. Vetch varieties were similar in flowering biomass excluding Timok, although Timok had the smallest decrease in biomass between sowing times, indicating a higher tolerance for delayed sowing.
- **Establishment and Plant Growth:** Establishment and growth of all crop types was excellent due to enough soil moisture at sowing and suitable growing conditions during the rest of the season. The second TOS had slower plant growth due to colder temperatures during early growth. This is reflected in Table 2, which shows a significant decrease in biomass yield between TOS 1 and 2.
- **Biomass at Flowering:** There was a significant interaction for time of sowing. Across all varieties and species there was an average difference of 1.38 t/ha. PBA Samira outperformed PBA Marne across both sowing times and did not decrease in biomass as much as PBA Marne from delayed sowing. PBA Butler had the highest biomass production for all varieties and species in the trial for both times of sowing, PBA Hayman had almost identical biomass for both times of showing. In vetch, biomass was highest in Volga and Studenica. Timok had the smallest relative biomass decrease across all vetch varieties but averaged well below other vetch types overall.
- **Grain Yield:** Grain yield for TOS 1 was highest only for faba beans. PBA Marne yielded very similarly to PBA Samira, even with much less flowering biomass. Both faba bean varieties suffered from delayed sowing and had losses of 19% (0.79 t/ha) in PBA Marne and 10% (0.42 t/ha) in PBA Samira. PBA Butler was very similar to PBA Hayman for both times of sowing, but both showed a small benefit to delayed sowing. Bacterial blight was observed in the trial and had a negative impact on yield in field pea. Interestingly Timok yielded on par with Volga, even though biomass production was much lower. All vetch varieties yielded higher at the second time of sowing excluding Studenica, which yielded 0.06 t/ha less.

Table 2. Biomass at flowering (t/ha) and grain yield (t/ha) at two times of sowing for multiple species and varieties at Horsham, Victoria in 2019

Variety	Biomass at Flowering (t/ha)			Grain Yield (t/ha)		
	TOS1	TOS2	Ave	TOS1	TOS2	Ave
PBA Marne	3.53	2.55	3.04	4.08	3.29	3.69
PBA Samira	4.13	3.60	3.87	4.06	3.64	3.85
PBA Butler	7.95	5.71	6.83	1.87	2.18	2.03
PBA Hayman	5.33	5.32	5.33	1.9	2.02	1.96
Studenica	5.75	2.76	4.26	1.64	1.58	1.61
Timok	4.15	3.50	3.83	2.11	2.38	2.25
Volga	6.02	3.58	4.80	2.04	2.42	2.23
Morava	4.94	3.79	4.37	1.28	2.02	1.65
LSD ($p<0.05$) _{TOS}	1.16			ns		
LSD ($P<0.001$) _{Variety}	0.92			0.47		
LSD ($P<0.05$) _{TOS*Variety}	1.35			ns		

The main effect of fungicide and all the interactions are insignificant

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 AgVic and Frontier Farming teams 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.