

Faba Bean, Nutrition, MRZ Wimmera (Horsham), Victoria

Aim

To investigate the response of faba bean to phosphorus fertilizer rates.

Treatments

Varieties: PBA Samira

Other Site Details

Sowing date	01 June
Planting density	20
Stubble height (cm)	Standing (20)
Row Spacing (cm)	36
Fertiliser (kg/ha)¹	17

1. Urea (46, 0, 0)

Results and Interpretation

- **Key Messages:** There was no grain yield response to the phosphorus fertilizer rates. These results may be due to very dry growing season conditions, which might have reduced movement and uptake of the applied nutrient by the crop. Hence, results should be interpreted with caution. Biomass yield however showed a significant increase from application of 20 kg/ha and higher rates of P_2O_5 .
- **Establishment and Plant Growth:** Due to a dry start to the season, establishment and early growth were very slow. Growth during the rest of the season was impacted by extremely dry seasonal conditions which might have reduced movement and uptake of the applied nutrient by the crop. However, visual differences in growth were observed between the nil and phosphorus fertilizer treatments later in the season. It was also noted than application of higher rates of phosphorus, 60 and 75 kg/ha P_2O_5 , caused slightly early senescence and maturity.
- **Biomass at Maturity:** Biomass at maturity ranged between 1.89 to 3.12 t/ha. Biomass yield generally increased with increasing phosphorus fertilizer rate up to 30 kg/ha P_2O_5 and showed a decreasing trend as phosphorus rates were further increased to 45, 60 and 75 kg/ha P_2O_5 (Figure 1). There was no significant increase in biomass from application of 5, 10 and 15 kg/ha P_2O_5 . Application of 20 kg/ha and higher rates of P_2O_5 significantly increased biomass yield, however differences between these rates were not significant.

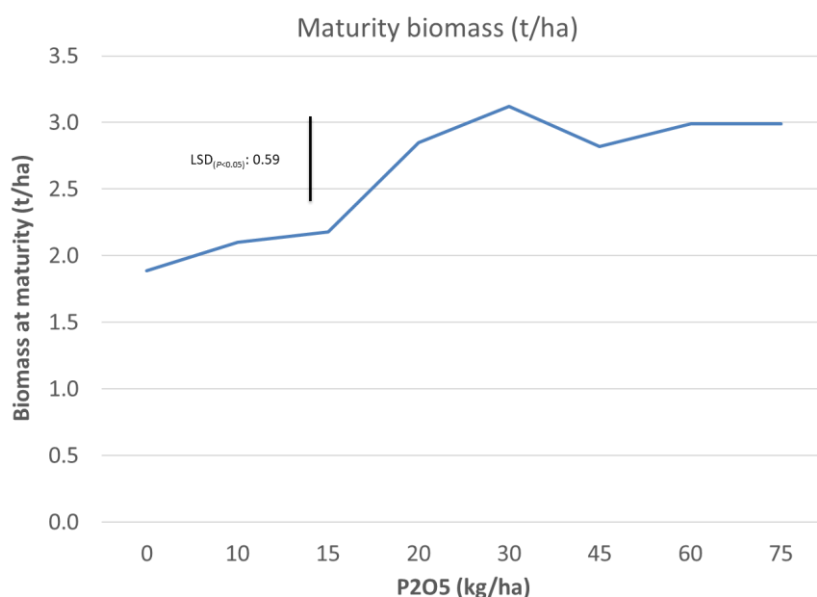


Figure 1. Biomass yield (t/ha) response of faba bean to phosphorus fertilizer rates at Horsham, Victoria in 2018.

- **Grain Yield and Harvest Index:** There was no significant difference grain yield between the phosphorus fertilizer application rates. Grain yields were very low, 0.59-0.84 t/ha, due to extremely dry seasonal conditions. Thus, results should be interpreted with caution. Likewise, harvest index which ranged between 0.25 to 0.32 was not significant different between the treatments (Table 1).

Table 1. Effect of phosphorus fertilizer rates on grain yield (t/ha) and Harvest index of faba bean at Horsham, Victoria in 2018.

P rate (Kg/ha P₂O₅)	Grain Yield (t/ha)	Harvest Index (HI)
0	0.59	0.32
5	0.68	0.29
10	0.57	0.27
15	0.70	0.32
20	0.79	0.28
30	0.73	0.25
45	0.69	0.25
60	0.80	0.27
75	0.84	0.28
<i>Average</i>	<i>0.71</i>	<i>0.28</i>
LSD Var(p<0.05)	ns	ns
CV	17.8	15.5