Faba bean phosphorus management

Ganmain 2021

Key findings

- Where phosphorus (P) was applied in-furrow with seed, increasing P fertiliser rate to 20 kg/ha (227 kg/ha single superphosphate) reduced plant establishment by ~12% compared to where no P was applied. P application in-furrow with seed did not affect establishment at rates up to 10 kg/ha.
- There was no effect of P application on establishment where it was broadcast in front of the seeder and incorporated by sowing (IBS).
- The application of 5 kg/ha P (57 kg/ha single superphosphate) increased yield by 0.3 t/ha compared to nil P, but there was no further yield increase with higher P rates.
- There was no difference in yield between the P application treatments, either incorporated by sowing (IBS) or placed in-furrow with seed.

Trial Details

Table 15: *Trial management and treatments applied at Ganmain in 2021.*

Management	
Sowing date	28 April
Soil phosphorus 0–10 cm (Colwell)	73 mg/kg
Soil pH ($CaCl_2$)	5.3
Row spacing	25 cm
Cultivar	PBA Samira(ϕ)
Treatements	
Phosphorus rate (kg P/ha)	0
	5 (57 kg/ha SSP)
	10 (114 kg/ha SSP)
	20 (227 kg/ha SSP)
Placement	IBS (spread on soil surface and incorporated by sowing)
	Seed (in-furrow with seed)

SSP = single superphosphate (0% N, 8.8% P, 11% S)
Gypsum was applied at 0.5 t/ha pre-sowing to ensure adequate sulphur (S) supplies across treatments.

Results

Crop establishment

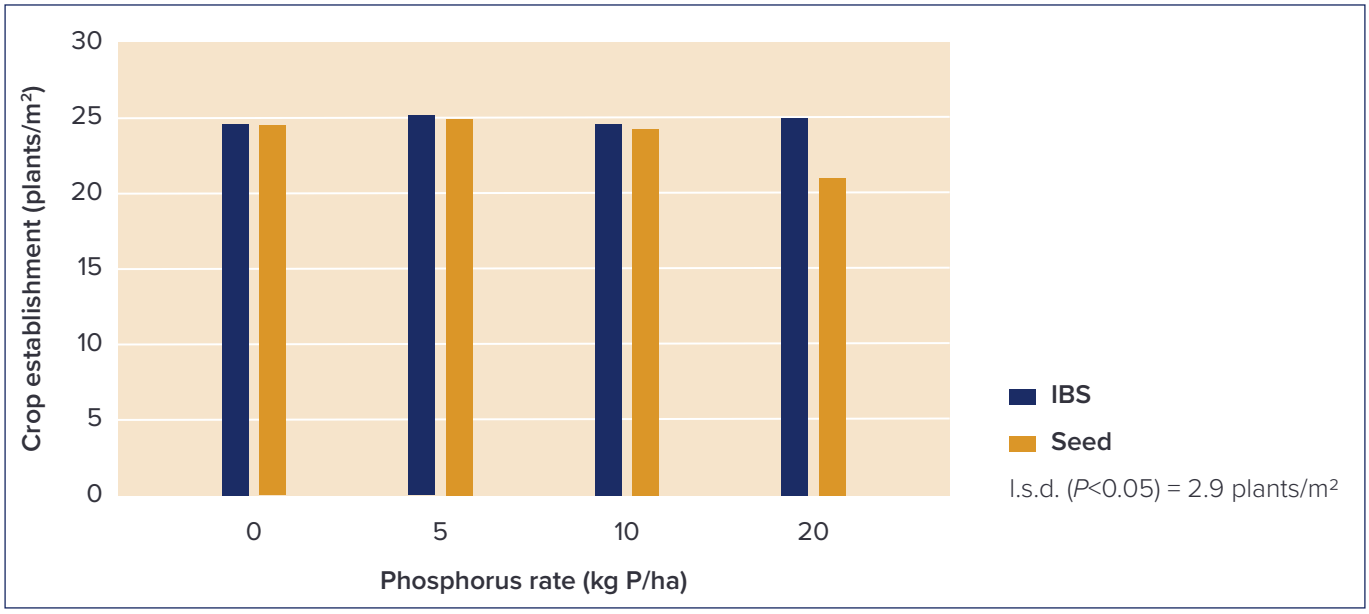

Figure 13: *Effect of phosphorus rate (applied as single superphosphate) and placement on PBA Samira(ф) faba bean establishment at Ganmain in 2021.*

Yield

Table 16: *Effect of phosphorus rate (applied as single superphosphate) on grain yield of PBA Samira(ф) faba beans at Ganmain in 2021.*

Phosphorus Rate (kg P/ha)	Yield (t/ha)
0	4.6
5	4.9
10	4.9
20	4.9
l.s.d. (*P*<0.05)	0.26