

Factsheet: Phosphorous Fertility Management in Camelina



Objective:

The objective of this demonstration is to investigate camelina responses to monoammonium phosphate (MAP; 11-52-0) rate and placement method and interactions between these two factors.

Methodology:

The demonstration was arranged as a randomized complete block design with four replicates at Scott in 2017. The treatments consisted of a factorial combination of 5 phosphorus (P) fertilizer rates and 3 placement methods to result in 15 treatments. Phosphorous was applied as monoammonium phosphate (11-52-0). Nitrogen and sulphur were applied as per soil test recommendation to achieve a 40 bu/ac. Nitrogen was balanced for the N supplied by the monoammonium phosphate (11-52-0) and ammonium sulphate (21-0-24). The nitrogen and ammonium sulphate blends were applied prior to seeding. The seeding rate was targeted to achieve 500 seeds /m²

Table 1: Treatment list representing treatment numbers, rate of P₂O₅ and fertilizer placement.

Trt #	Rate of P ₂ O ₅ (kg/ha)	Fertilizer Placement
1	0	Seed Placed
2	20	Seed Placed
3	40	Seed Placed
4	60	Seed Placed
5	80	Seed Placed
6	0	Side-Band
7	20	Side-Band
8	40	Side-Band
9	60	Side-Band
10	80	Side-Band
11	0	Broadcast
12	20	Broadcast
13	40	Broadcast
14	60	Broadcast
15	80	Broadcast

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Key Findings:

- Camelina is sensitive to application rate and placement early in the growing season, as plant densities tended to decline with seed placed P and rate in excess of 20 kg P₂O₅ per ha
- Camelina has a large capacity to compensate for low plant density by producing more branches and pods per plant.
- Camelina is a low- P input crop, as yield differences were less than 1 bu per acre between fertilized and unfertilized treatments.
- Current fertility recommendations for camelina are based on other oilseed crops, however, these results indicate that perhaps camelina P nutrient requires are lower than those of its similar oilseed counterparts
- These results also suggest that placement will have little effect on camelina yield due to its low- input nature. However, banding of P fertilizers is still the preferred method over broadcasting due to the immobile nature of P.

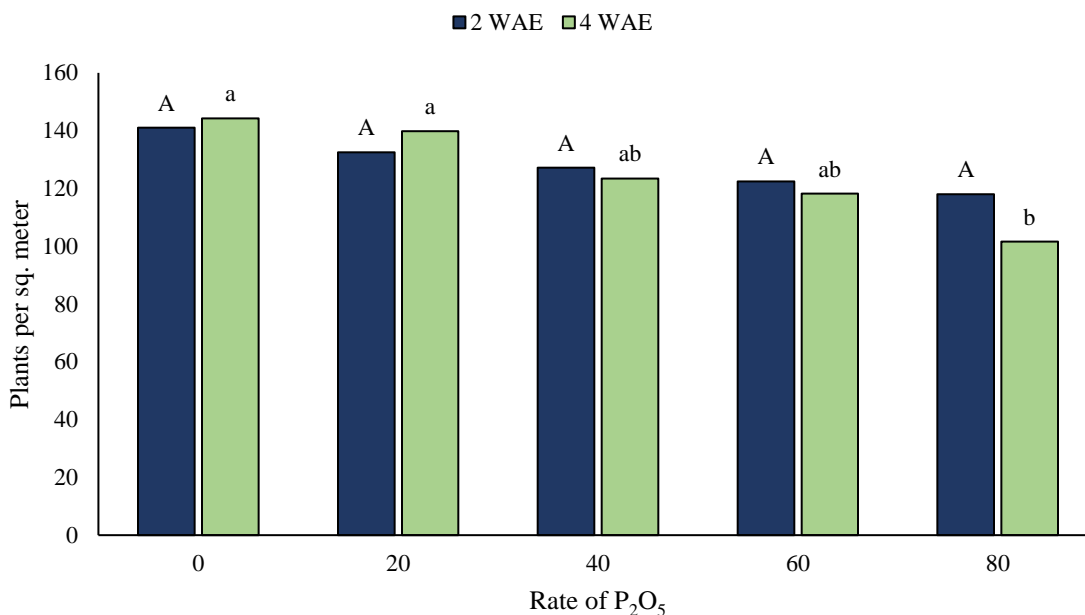


Figure 2. The effect of phosphorus applied at 0, 20, 40, 60, and 80 kg of P₂O₅ / ha on camelina plant density at two and four weeks after emergence at Scott, 2017.