

Field Pea Response to Seed-placed Phosphorus Fertilizer

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A trial was conducted in 1997-98 at the Carrington Center to determine the tolerance of field pea to phosphorus (P) fertilizer applied with the seed. The current NDSU recommendation for seed-placed P is the use of only 11-52-0 or 10-50-0 (MAP) at a maximum rate of 40 lb of product/acre.

The trial was established on a loam soil with low P levels (5 to 7 ppm). Fertilizer treatments included: 1) unfertilized check, 2) 20 lb/ac MAP with seed + 20 lb/ac MAP preplant incorporated (PPI), 3) 40 lb/ac MAP with seed, 4) 20 lb/ac DAP (18-46-0) with seed + 20 lb/ac MAP PPI, 5) 40 lb/ac DAP with seed, 6) 'Provide' (P seed inoculant) with seed, and 7) 40 lb/ac MAP PPI (fertilized check). All P rates are actual P. 'Profi' seed was inoculated with rhizobium bacteria and planted May 23, 1997 and April 23, 1998 at 300,000 pure live seeds/acre.

Seed-placed P treatments reduced pea stands 13 to 34% at five weeks after planting (WAP) compared to the unfertilized check (see table). The high rate of seed-placed MAP or DAP reduced pea stands 34% and yield tended to be less compared to the unfertilized check. Although soil P levels were low both years, a yield response did not occur with P application. Yield with 20 lb/ac of seed-placed P was similar to the unfertilized or fertilized checks. Seed treatment with 'Provide' tended to have a higher yield than the fertilized check. These data indicate stand loss occurs with seed-placed P and potential for yield improvement is unlikely. Research will continue with the objective of assisting growers with pea fertility management.

Field pea plant density and yield with phosphorus applied with seed

Plant		
Fertilizer Treatment	Density (5 WAP)	Seed Yield
No.	plant/ac	bu/ac
1	314500	55.3
2	272780	55.2
3	208590	52.7
4	256830	56.1
5	207170	53.0
6	325840	58.3
7	288160	55.6