

# Factsheet: Demonstrating the effects of N and S as side-banding vs. mid row banding with high rates of P seed placed



## Objective:

The objective of this study was to determine if extremely high rates of nitrogen (N) and sulphur (S) would influence canola yield if placed in either the side-band or midrow. The second objective focused on seed-placed phosphorus (P) at a high and low rate to determine if seed safety was affected when N and S is side-banded or midrow.

## Methodology:

The demonstration was arranged as a RCBD with four replicates and seven treatments at Scott, SK 2019. Nitrogen (in the form of urea) and sulphur (in the form of ammonium sulphate) were applied at a target rate of 120 lb N /ac and 45 lb S /ac to result in a 49-0-0-51 blend applied at 367 lb/ac applied either in the midrow or side-band. Phosphorus (in the form of monoammonium sulphate) was applied in the seed row at three rates 0, 10 and 50 lb of P<sub>2</sub>O<sub>5</sub>/ac. The canola was a Liberty Link variety with a target seeding rate of 11 seeds/ft<sup>2</sup>.

**Table 1.** Phosphorus and nitrogen rates and placement treatment list for Scott, SK

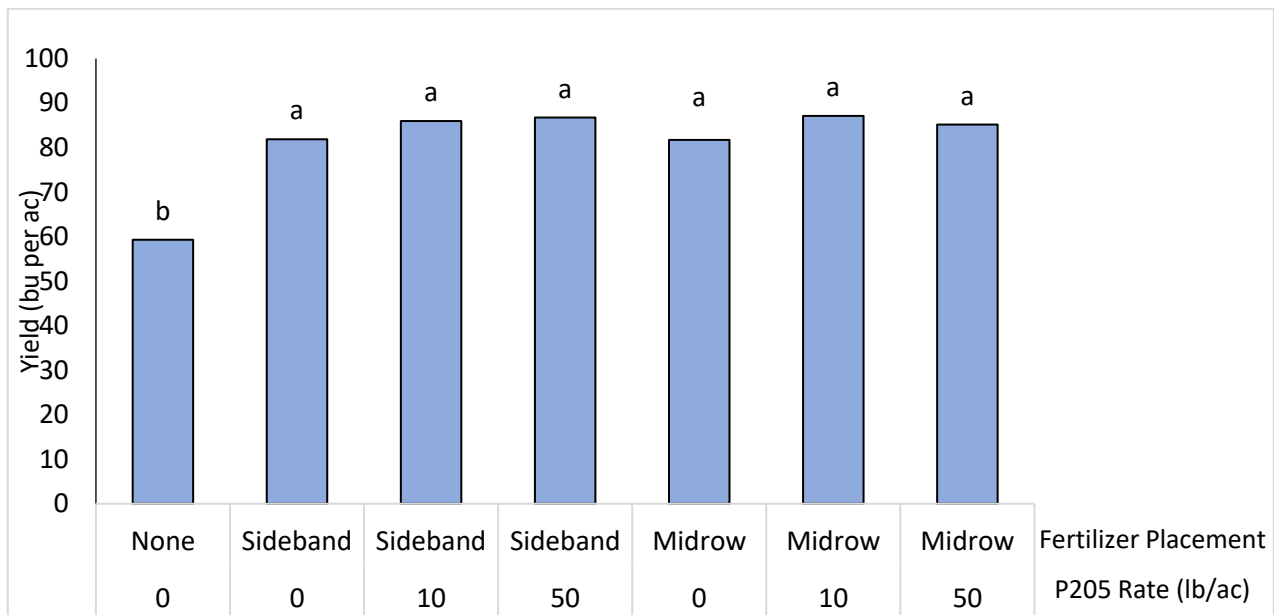
Treatment #	11-52-0 lb/ac Rate	Phosphorus Rate	N Fertilizer Placement
1	0	0	0
2	0	0 P <sub>2</sub> O <sub>5</sub>	Sideband
3	19	10 P <sub>2</sub> O <sub>5</sub>	Sideband
4	96	50 P <sub>2</sub> O <sub>5</sub>	Sideband
5	0	0 P <sub>2</sub> O <sub>5</sub>	Midrow
6	19	10 P <sub>2</sub> O <sub>5</sub>	Midrow
7	96	50 P <sub>2</sub> O <sub>5</sub>	Midrow

## Key Findings:

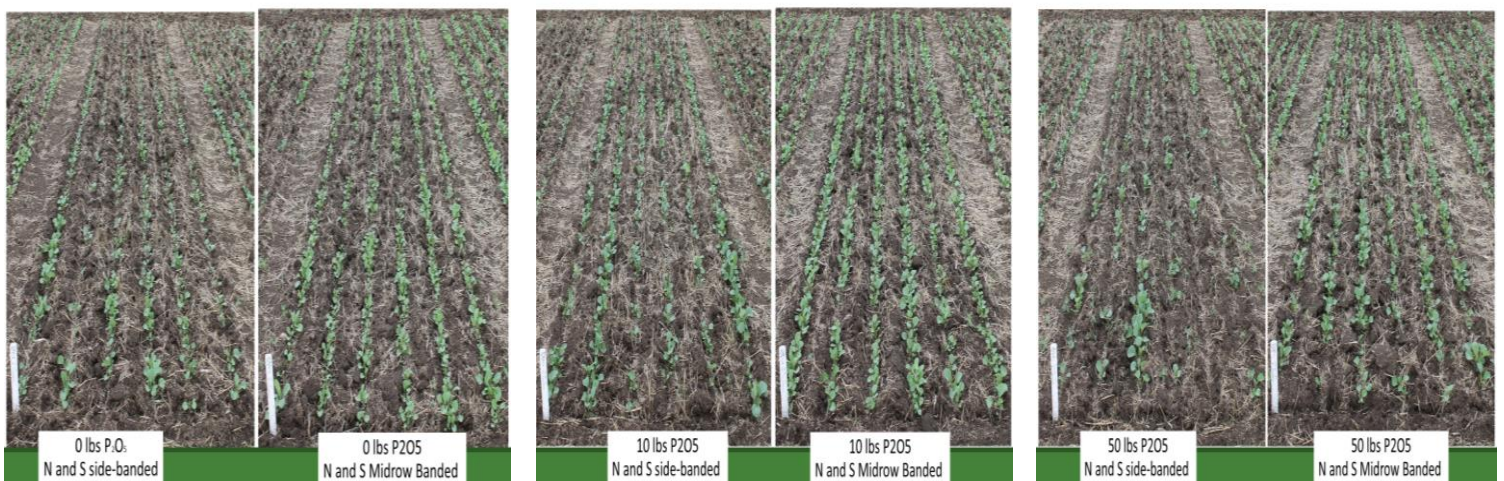
- Plant densities dropped from 7 to 5 plants/ft<sup>2</sup> (25% reduction) when seed placed phosphorus exceeded 10 lb of P<sub>2</sub>O<sub>5</sub> /ac. The greatest stand reductions (less than 4 plants/ft<sup>2</sup>) occurred when N and S were side banded with 50 lb of P<sub>2</sub>O<sub>5</sub> /ac seed placed.
- Days to maturity ranged from 111 to 107 days, with shorter days in maturity resulting from higher rates of phosphorus and N/S midrow banded. When no phosphorus and N/S were side-banded, it resulted in the highest number of days to maturity.
- Green seed was marginally influenced by fertilizer rate and placement. When P was applied, % green seed increased slightly. Unfertilized check resulted in highest green seed (1.45%) compared to side banded and mid rowed treatments

The full report will be available at: [www.warc.ca](http://www.warc.ca). This project was supported by three local producers Blaine Davey, Tony Kun and Dan Holman. We would like to acknowledge them for their contribution to this study.

- Overall, yield was significantly influenced by both fertilizer rate and placement. The application of  $P_2O_5$  at 10 and 50 lb/ ac resulted in a 12 bu/ac gain compared to the untreated check. The placement of fertilizer overall resulted in a 25.5 bu/ac compared to the untreated check.
- There were no significant differences between side-banded and midrowed overall. However, the general trend indicated that the greatest gains were achieved when 10  $P_2O_5$  was seed placed and N/S was midrow banded.
- Based on these results, side-banding high rates (50 lb  $P_2O_5$ /ac) with high N and S is not recommended as plant densities were severely reduced and there is a high probability that yield loss would occur under these conditions.



**Figure 1.** Yield response to P fertilizer placement and rate, Scott 2019.



**Figure 2.** Early season vigour response between N and S side-banded or midrowed with same P rates (0, 10, 50 lb of  $P_2O_5$ /ac).

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