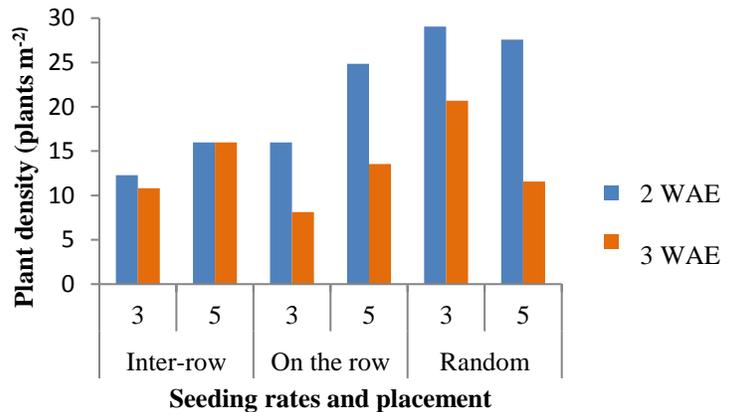


GPS guidance and automated steering have given producers the technology to improve farming practices. Following this technological advancement, there has been considerable interest regarding the potential benefits of inter-row seeding. The benefits associated with inter-row seeding are better seed placement that provides an increased seed contact with soil and better germination. These factors can lead to an enhanced yield. Current GPS can narrow accuracy of field operations around the six to 10-inch range. However, to obtain yield benefits associated with inter-row seeding, more accurate technologies are required. Real-time kinematic (RTK) networks can provide guidance of farm machinery to within an inch or less. However, for producers to invest in this costly technology there should be an indication of the intended benefits of their investments.

The objective of this experiment was to determine the impact of previous stubble rows on seed placement and emergence in canola (seeding on the previous row, in-between rows and random). This demonstration was conducted at the AAFC Scott Research Farm in 2017. A randomized complete block design arranged as a 2 x 3 factorial with four replicates was used. Three seeding directions (inter-row, on-the-row and random) relative to the previous crop were used at two canola seeding rates (3 lbs/ac and 5 lbs/ac). Canola (L140P) was directly seeded into wheat stubble using an R-tech plot drill with a seeding rate of 115 seeds m<sup>-2</sup>.

Plant density was assessed to determine the effects of seeding rates and seeding direction. Three measurements were done at one week after seeding, two weeks and three weeks. No plants had emerged one week after seeding. Due to external factors plant stand was severely affected. A pest problem was detected and all the plots needed to be treated with insecticide. This situation caused huge variation among treatments. Data was not analysed statistically as plant stand was reduced and the effects of the treatments could not be detected. Plant density in all but one of the treatments went down from the second to the third measurement (Figure 1).

Oil content was very similar for all the treatments and no differences were observed for seeding rate (P= 0.2850), seeding placement (P= 0.7117) or interaction between these factors (P= 0.7506). Oil contents values were so similar that a trend was not observed among treatments. Green seed percentage analyses were not performed because all values were well below the maximum level of green seed (2%) required for No.1 grade canola.



**Figure 1.** Canola plant density at two and three weeks after seeding with two seeding rates and three seeding placement at Scott, SK in 2017.

No differences were detected for seeding rate (P= 0.2597), seeding placement (P= 0.3363) or interaction between these factors (P= 0.1075). Interestingly, when plants were seeded randomly there was a higher yield trend. Also, for this treatment, the lower seeding rates had a slightly higher yield. We hypothesize that yield did not have differences among treatments and the plants were able to compensate for the reduced plant stand caused by the pest problem.

The results from this project are circumspect due to low plant stand caused by high insect activity. No effects for yield at two seeding rates or seeding direction were detected. The other variable assessed was vigour and as with the other evaluated parameters, no differences were observed, although the higher seeding rate tends to have a better vigour rating. We hypothesized that due to the low plant stand, the effects of the different seeding rates and direction were masked and that is the reason for a lack of response to the treatments. Additionally, the plastic attributes of canola likely compensated for the low plant stand, minimizing the negative impact on yield. Furthermore, our results determined that seeding direction played a very little role in overall yield production, as well as any seed quality parameters. Without the reduced plant stand, the results could have been more determinant and differences among treatment could be observed.

Full report at:

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