

Demonstration Trials

Oilseed and Pulses - Showcasing the impact of various agronomic practices on canola growth, development and yield

Canola is an oilseed crop mostly grown in western Canada. There are several factors that need to be considered in order to obtain optimal yields. These factors include seeding rate, seeding date, seeding speed, seeding depth and herbicide spray timing. This demo aimed to educate growers on how important these agronomic practices are in canola seeding and how they translate into crop development and eventual yield at the end of the season.

Alberta crop statistics has shown a decrease in canola production of 1.2% and a decrease in yield of 3.2% over the past 22 years (Crop statistics | Alberta.ca,2025). Alberta in 2024 showed a decrease in canola yield by 10.6% below the five-year average (Agriculture Alberta and Analytics Branch Data, 2024).

It is possible some of the decrease in canola yield, besides weather, can be attributed to poor BMP (best management practice) adoption. Yet canola remains one of the dominant cash crops for the region and it is one of the cash crops that brings the most economic profit to growers. With this visual education tool, growers may identify some plots seeded and associate them with problems they may have encountered in their own farms. As such, plots in this demonstration will show growers the importance of accounting for all the effects that may influence canola stands and consequently, canola yield.

Producers were invited to summer field tours and allowed to observe the difference of seeding rate, seeding date, seeding speed, seeding depth and herbicide spray timing effects in canola. In this way, there was a visual and clear difference between following the guidelines given for these effects and ignoring them. This demonstration was made to raise questions as to why demonstration plots are so different from each other, and we will use photographic observations to further demonstrate BMPs through other knowledge dissemination methods such as newsletters.

Objectives:

- To create a visual demonstration, where growers can see the impact of the following factors on canola growth, development and eventual yield in an educational setting
 - seeding rate,
 - seeding date,
 - seeding speed,
 - seeding depth, and
 - herbicide spray timing
- To use this demonstration as a practical take home message for growers, so they can see this demo and visually understand the basics for optimal canola planting in their own farming operations.

Materials and Methods

The demonstration was sown at Lakeland Agricultural Research Association headquarters in Fort Kent (54°18'N, 110°37'W). To total of fifteen plots will be set as follows:

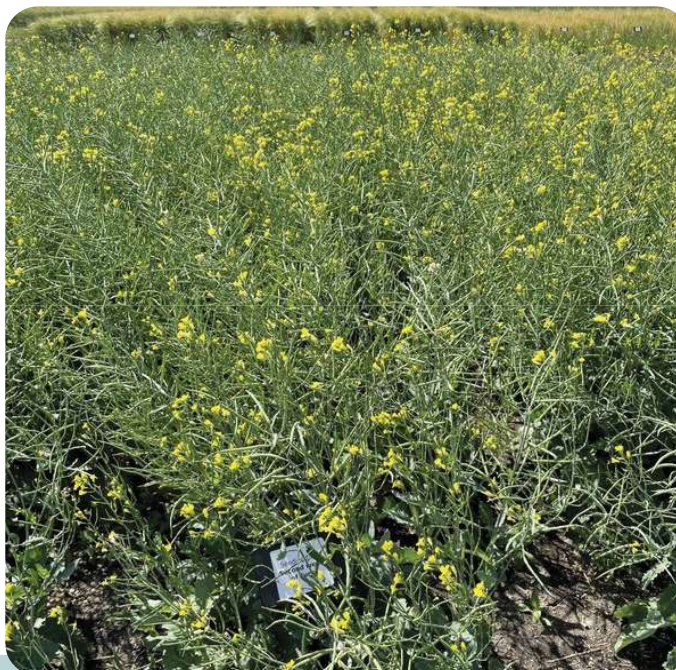
Table 6B-1 List of treatments selected to display different factors influencing canola yield in Fort Kent, Alberta in 2025

	Seeding rate Plants foot ²
1	4
2	6
3	8
	Seeding date
4	Second week of June
	Seeding speed Miles hour ⁻¹
5	3.2
6	4.1
7	5.5
	Seeding depth
8	1.5cm
9	2.5cm
10	3.5cm
	Herbicide timing
11	1-4 leaf stage
12	Past 4 leaf stage
13	At bolting

As part of this demonstration trial, plots will be set at 6mX8m. To remove weeds before seeding, glyphosate was applied at 1L per acre. Liberty Link canola was planned to be seeded thus glufosinate at 1.6 litres per acre was applied in crop at the 1 to four leaf stage except in plots where herbicide timing was required to be at a different canola growth stage (treatments # 12 and 13).

Canola watch posed a scenario from the Ultimate Canola Challenge (Canola Council of Canada, 2018) where speeds of 3.5 and 5.5 miles/hour are tested if it is assumed growers usually seed at 4.5 miles/hr.

Phone conversations to two growers on March 19, at 2:30pm argued that speeds of 2 miles an hour were likely to be conducted in a shank seeder whereas with a disc seeder greater speed of 4, 4.5 up to 6 miles an hour are more likely. At the Lakeland Agricultural Research Association, we are in possession of a shank seeder that is attached to a tractor. The 3220 John Deere tractor has three gears B2 (3.2 miles/hr), B3 (4.1miles/hr) and B4 (5.5miles/hr). These were therefore the speeds used for this demonstration trial.



Overall Outcome:

This demo was placed at the right place, with the right people, at the wrong time. The week prior to our field tour (July 31, 2025), the Canola Council of Canada restructured, removing their agronomic team. As such, Canola Council agronomist, Keith Gabert, who was scheduled to present on the demonstration, was no longer able to attend either representing the Canola Council or as an independent agronomist. In his place, LARA research agrologist, Lance Ouellette delivered the presentation at the tour. Nevertheless, the tour was well attended, growers were interested in the demo and eventually is ended up being a success as it sparked reminiscence of personal experiences, and friendly repartee among growers.

Growers emphasized their following: (a), a lack of difference in plant density in canola sown at different seeding rates per square foot and (b); the importance of seeding speed, as plots sown at speeds greater than 3 miles per hour were sparser than the canola plot sown at the standard speed of 3.1 miles per hour.

Photos were taken to outline the differences among canola under various conditions. Plot treatments were changed from 14 to 13. One canola plot treatment was set for canola sown in the second week of May. However, as aforementioned, canola was sown in June and thus one plot (namely, "canola sown in the second week of June") was added instead. Overall, this issue was inconsequential since the canola plot sown as 6 plants per squared foot could be regarded as canola planted at the right time for comparison purposes. In conclusion, this demonstration was informative for growers, especially in which canola was (a) sown at greater speeds and (b) sown deeper in the soil. Both speed and depth impacted plant density and eventually would impact yield as number of plants were lower compared their controls (canola sown at 3.1 miles per hour and at 1.5cm depth respectively).

Differences in canola seeding rate were not major as per visual assessments. Most plots showed almost the same plant density.

Plots where canola was sprayed, at 1-4 leaf stage, past the 4 leaf stage and at bolting stage respectively did show differences in plant density. More canola plants were observed when these individuals were sprayed at the 1-4 leaf stage compared to the other two plots in the demonstrations. Moreover, these plots showed that past the 4 leaf stage and bolting, the spraying for weed management is negligible compared to spraying at earlier stages.

Canola sown at speeds such as 4.1 and 5.5 miles per hour was not ideal. Plots where canola was sown at this speed showed more empty spaces between canola individuals compared to the canola plot sown at 3.2 miles per hour. Difference in speed thus illustrate that canola requires sufficient time to be placed in the soil and subsequently buried with a hoe drill and greater speeds impede for this process to be carried out properly.

Through visual ratings, canola depth showed to be influential in plant development. Less canola plants were observed in plots where seed was sown as deep as 3.5cm. Differences between 1.5 and 2.5cm depths did not show outstanding differences.