

# Factsheet: Optimal Seeding Rate Based on Seed Size in Canola



## Objective:

To determine optimal seeding rate to achieve adequate plant populations and optimize yield under various environmental conditions in Saskatchewan and to determine if optimal seeding rate varies with seed size and/or hybrid.

## Methodology:

The study was conducted at five locations (Indian Head, Yorkton, Melfort, Scott, and Outlook) in 2018. The treatments were a combination of two canola hybrids (InVigor L233P and Pioneer 45M35), two seed sizes of each hybrid (“small” and “large”), and three different seeding densities (5, 10, and 15 seeds/ft<sup>2</sup>).

Table 1: Treatment list for Optimal seeding rate based on seed size in canola

Entry	Hybrid	Seed size (g 1000 seeds <sup>-1</sup> )	Seeding rate (density) (seeds ft <sup>-2</sup> / seeds m <sup>-2</sup> )	Seeding rate (lb ac <sup>-1</sup> / kg ha <sup>-1</sup> )
1	L233P	Small (4.3 g)	5 (54)	2.1 (2.3)
2		Small (4.3 g)	10 (108)	4.1 (4.6)
3		Small (4.3 g)	15 (161)	6.2 (6.9)
4		Large (5.5 g)	5 (54)	2.6 (3.0)
5		Large (5.5 g)	10 (108)	5.3 (5.9)
6		Large (5.5 g)	15 (161)	7.9 (8.9)
7	45M35	Small (4.8 g)	5 (54)	2.3 (2.6)
8		Small (4.8 g)	10 (108)	4.6 (5.2)
9		Small (4.8 g)	15 (161)	6.9 (7.7)
10		Large (5.9 g)	5 (54)	2.8 (3.2)
11		Large (5.9 g)	10 (108)	5.7 (6.3)
12		Large (5.9 g)	15 (161)	8.5 (9.5)

## Key Findings:

- Percent emergence decreased as seeding rate increased in both hybrids, but was significantly lower for small-seeded lots than for large-seeded lots, regardless of hybrid.
- Percent emergence was higher for L233P than 45M35.
- Plant density significantly increased with increasing seeding rate for all hybrids and seed sizes.
- Plant density tended to be lower for small-seeded lots than large-seeded lots, regardless of hybrid.
- The recommended target spring plant density of 5-8 plants/ft<sup>2</sup> was attained by seeding at 10 plants/ft<sup>2</sup> for all four seed lots.

The full report is available at: [www.warc.ca](http://www.warc.ca). Funding for the project was provided by the Saskatchewan Canola Development Commission.

- Small seed lots experienced relatively greater in-season mortality than large seed lots, and 45M35 experienced relatively greater increase in in-season mortality than L233P with increasing seeding rates.
- Days to maturity decreased with seeding rate and was lower overall for L233P than for 45M35.
- The rate of decrease in days to maturity with seeding rate was greater in large seed lots compared to small seed lots.
- There was a significant increase in yield with larger seed size in 45M35 but not in L233P.
- Yield of L233P was consistent across seeding rate and seed size, regardless of differences in plant populations and maturity; while yield of 45M35 appears to be indirectly affected by seeding rate and seed size effects.
- Hybrid L233P achieved maximum yield at the lowest seeding rate.

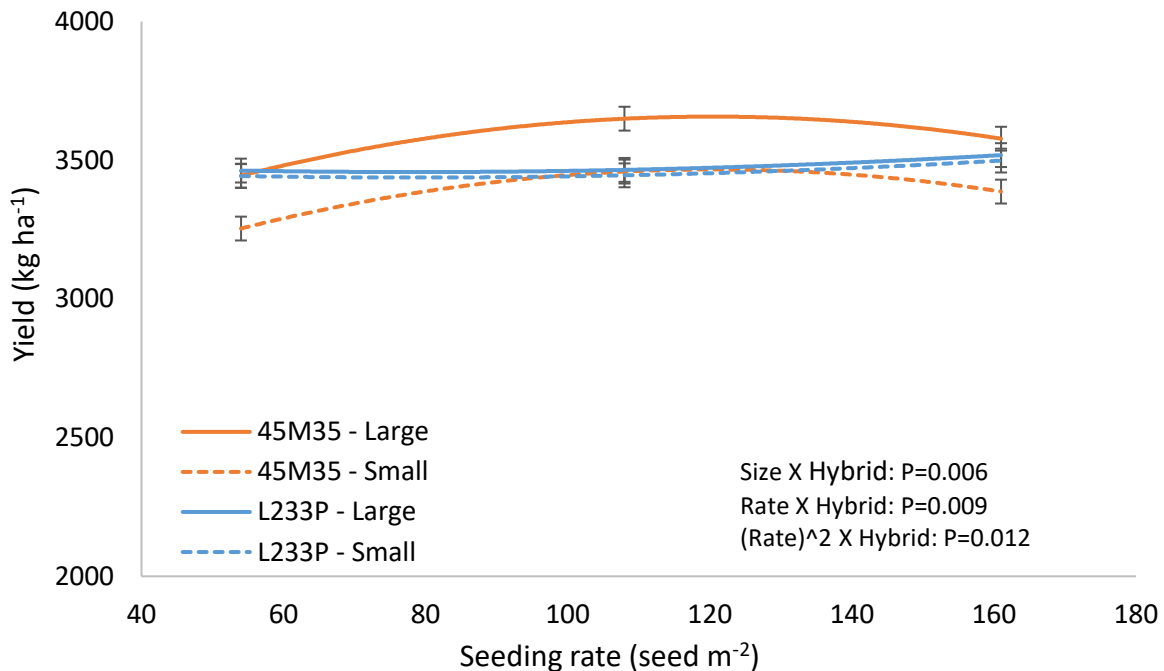


Figure 1. The effect of hybrid, seed size, and seeding rate on canola seed yield, averaged over multiple environments in 2018. The error bars include the standard error within treatments.

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