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Seeding between rows improves stand establishment



KEY PRACTICE: Seeding into bare soil between the previous year's stubble rows will improve canola germination and plant establishment without increasing seed costs.

PROJECT TITLE, LEAD RESEARCHER: "Seeding Between the Lines: evaluating the potential of inter-row seeding for canola in southern Alberta," 2011-14, Ken Coles, Farming Smarter

GROWER ORGANIZATION FUNDER: ACPC

Treatment means for the canola inter-row seeding

STUDY YEAR	TREATMENT COMBINATION	PLANT COUNT per m ²	CANOLA YIELD (lb./ac.)
2011	hoe-InterRow	134	1394
	hoe-OnRow	111	1253
	hoe-Control	126	1503
	disc-InterRow	132	1724
	disc-OnRow	123	1570
	disc-Control	130	1603
2012	hoe-InterRow	83	1725
	hoe-OnRow	52	1756
	hoe-Control	88	1655
	disc-InterRow	90	1962
	disc-OnRow	55	1781
	disc-Control	95	1844
2013	hoe-InterRow	54	N/A
	hoe-OnRow	57	N/A
	hoe-Control	55	N/A
	disc-InterRow	62	N/A
	disc-OnRow	56	N/A
	disc-Control	52	N/A
2014	hoe-InterRow	90	1798
	hoe-OnRow	79	1932
	hoe-Control	79	1776
	disc-InterRow	82	1872
	disc-OnRow	89	1864
	disc-Control	75	1800

Highly accurate GPS guidance and automated steering have given producers the ability to seed between the stubble rows from previous crops. This practice may allow for improved canola emergence due to more accurate seed placement, improved seed to soil contact, improved micro-climate, higher soil temperatures and seedling protection from more standing stubble.

In previous studies, Farming Smarter found that seeding on-row significantly reduced plant stand establishment in canola compared to seeding between the row and check plots. Also, canola yield was significantly higher with Pillar Lasers disc/hoe openers compared to Stealth paired row, and canola yield was not affected by row placement.

This study continued some of this work, comparing two openers: Pillar Lasers disc and Stealth paired row hoe; and three seed row options: between the stubble (inter-row), directly on the stubble (on-row) and a control with no attempt to align with stubble.

The field trial was set up on large-size plots (approximately 50m x 1.93m) in the Dark Brown Soil Zone near Lethbridge, AB. The study used glyphosate-tolerant hybrids seeded at 5 lb./ac. and 1/2" into no-till cereal stubble. Soil moisture was excellent each year.

Three years were taken to yield — 2011, 2012 and 2014 (2013 was lost to hail and flooding). Data was collected on the plant emergence and final plant stands, weed presence and abundance, soil

temperatures, canopy closure, stubble heights and yield.

Results from these three years validated Farming Smarter's previous findings that seeding on-row significantly reduced plant stand establishment in canola compared to seeding between the row and check plots.

The results showed that, on the average, seeding canola crop between stubble rows with Pillar Lasers disc hoe type seeding row openers produced the highest canola plant stand count and, therefore, would most likely benefit producers in establishing the healthiest and most profitable canola crop.

For this study, canola seeded with disc hoe openers produced significantly higher yields than the paired-row openers, especially when used for seeding between the stubble rows of the previous crop.

Conclusion

Based on the results, Farming Smarter concludes that producers with the ability to inter-row seed could adopt the practice to enhance plant stands and protect against yield loss. It would also allow for better germination without increasing seed costs. Future studies should include reduced seeding rates.

Does this investment increase profits? Advanced GPS signals such as real-time kinematic (RTK) and Omnistar give producers the precision accuracy to seed within 2.5 centimetres of their intended target. However the cost to upgrade from a basic WAAS signal is prohibitive without a proven return on investment. ●

Seeding between the rows (right) puts the seed into bare soil, which improves plant establishment compared to on row (left) or random placement.

