

B: Evaluation of field scale straight combining of canola compared to swathed canola

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Progress Report

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INVESTIGATOR

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OBJECTIVES

- a. Compare straight combining canola with a regular straight or flex head to traditional harvest methods of swathing and combining at two locations in North Dakota
- b. Evaluate the application of Spodnum to reduce the shattering of canola of straight combined canola
- c. Compare yield, seed and oil quality and shatter of different combining methods

2005 TRIAL INFORMATION

Trial 1 Kipp Johnson Farm, Rugby, ND:

Hyola 357 Magnum RR was seeded in late April. The trial was a randomized complete block with three replicates. Plots were 45 feet wide by 800 feet long. Spodnam was applied at 1 pt/A with 20 gpa on August 1. The swath treatment was swathed August 5. Shatter cards were placed under the canopy in each plot to collect any seed or pod shatter prior to harvest. All plots were harvested on September 7; which was about 12 days later than the optimum (August 25). All plots were combined with a Case 2388 combine. The straight combine plots were harvested with a 30 foot flex head. Harvest moisture was below 8% for all harvest treatments.

Results: On August 31, sustained winds of 49 mph resulted in severe pod shattering of the standing canola. The swath treatments in the trial were in an east/west direction and did not blow. Swaths in the field that were in a south/north direction had severe yield loss due to blowing. There was a significant loss in yield with the straight combined treatments compared to the swath due to the extensive pod shatter loss. There was significantly higher green count with the swath treatment compared to the straight combine treatments

2005 Field Scale Canola Harvest Trial Results, Rugby, ND

Treatment	Yield Lb/A	Oil %	Green Count %	Seed Shatter At Harvest lb/A
Swath	2266	45.6	5.5	330
Straight	1356	45.3	0.6	831
Straight w/Spodnum	1391	45.4	0.4	735
LSD 5%	148	NS	0.9	318

Trial 2 Steve Kakala Farm, Langdon, ND:

InVigor 4870 was seeded in late May. The trial was a randomized complete block design with three replicates. Plots were 45 feet wide by 500 feet long. Spodnam was applied at 1 pt/A with 20 gpa on August 21. The swath treatment was swathed September 2. All plots were harvested on October 3 with a John Deere 9600 combine. The straight combine plots were harvested with a 30 foot rigid head. Harvest moisture was below 8% for all harvest treatments.

Results: The straight combining yields were significantly higher at the 10% level compared to the swath treatments. There was no difference in yield with the straight combining treatments with and without Spodnam. There was significantly higher green count with the swath treatment compared to the straight combine treatments. In field scale canola harvest trials, Rugby 2004 and Langdon 2005, results indicate that straight combining canola can be successful with equal to higher yield than traditional harvest methods of swathing and combining when harvested at the optimum time.

2005 Field Scale Canola Harvest Trial Results, Langdon, ND

Treatment	Yield lb/A	Oil %	Green Count %	Seeds/lb
Swath	2792	49.5	2.9	114,766
Straight	3062	49.4	0.3	106,468
Straight w/Spodnam	3030	49.6	0.6	103,444
LSD 5%	NS	NS	1.1	NS
LSD 10%	207	NS	0.9	NS

2006 Trial Information

Trial 1 Kipp Johnson Farm, Rugby, ND:

Hyola 357 Magnum RR was seeded in late April. The trial was a randomized complete block with three replicates. Plots were 50 feet wide by 500 feet long. Spodnam was applied at 1 pt/A with 20 gpa on July 28. The swath treatment was swathed August 2. Shatter cards were placed under the canopy in each plot to collect any seed or pod shatter prior to harvest. All plots were harvested on August 28. All plots were combined with a Case 2388 combine. The straight combine plots were harvested with a 30-foot rigid head.

Results: There were no differences in yield or oil content across harvest treatments. There was no difference in yield with the straight combining treatments with and without Spodnam. The rigid head did not cause any significant harvest loss compared to the pick-up head.

2006 Field Scale Canola Harvest Trial Results, Rugby, ND

Treatment	Yield lb/A	Harvest Moisture %	Oil %	Total Seed Shatter At Harvest lb/A
Swath	2239	9.3	45.7	51
Straight	2207	8.9	45.4	42
Straight w/Spodnam	2199	8.9	44.9	19
LSD 5%	NS	0.2	NS	NS

Trial 2 Dave Thom Farm, Velva, ND:

InVigor 5550 was seeded in late April. The trial was a randomized complete block design with three replicates. Plots were 50 feet wide by 500 feet long. Spodnam was applied at 1 pt/A with 20 gpa on July 26. The swath treatment was swathed August 2. Shatter cards were placed under the canopy in each plot to collect any seed or pod shatter prior to harvest. All plots were harvested on August 17 with a New Holland CR970 combine. The straight combine plots were harvested with a 42-foot draper head. Harvest moisture was approximately 9.5 % for the straight combined treatments and 11.5% for the swathed treatments.

Results: Straight combining yields were slightly higher than the swath treatments. There was no difference in oil content between harvest treatments. There was no difference in yield with the straight combining treatments with and without Spodnam. The draper head did not cause any significant harvest loss compared to the pick-up head.

2006 Field Scale Canola Harvest Trial Results, Velva, ND

Treatment	Yield lb/A	Harvest Moisture %	Oil %	Total Seed Shatter At Harvest Lb/A
Swath	2212	11.4	44.3	37
Straight	2356	9.3	44.3	41
Straight w/Biovital	2299	9.5	43.8	42
LSD 5%	NS	0.2	NS	NS

Summary

The results of this research indicate that canola can be successfully straight combined. All combine headers; rigid, flex, and draper all performed well with straight combining canola and did not cause any harvest loss compared to the pick-up head. When harvested at the optimum time, straight combining canola can be successful with equal to higher yield than traditional harvest methods of swathing and combining. Thank you to the Northern Canola Growers Association for supporting this research.