

**EFFECTS OF STAGE OF SWATHING ON SPRING BRASSICA NAPUS
CANOLA IN WESTERN CANADA**

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ABSTRACT

Canola Council agronomists conducted field scale trials regarding the different stages of swathing (seed color change in pods in the main stem) over 25 site years from 1990 to 1994 in Manitoba, Saskatchewan and Alberta. Their conclusions have been that canola growers can be given the advice to start swathing at an earlier stage than previously believed. The conventional advice has been to swath at 30 - 40% seed color change in pods on the main stem. Their trials showed that swathing at 20 - 30% seed color change causes an average yield loss of 0.1% and an average loss of oil content of 0.6% of oil in the seed. Even swathing at 10 - 20% seed color change on the main stem may be feasible as a starting point if enough acres have to be swathed whereby the later acres are at risk from shattering or frost.

METHODOLOGY

From 1990 to 1994, trials were conducted at 14 locations across the prairies, in the provinces of Alberta, Saskatchewan and Manitoba. All work was done with farm equipment. All trials were replicated four times with the following treatments: swathing at 0 - 10% seed color change in pods on the main stem, 10 - 20% seed color change, 20 - 30% seed color change, and 30 - 40% seed color change, which is the recommended swath stage for optimum yield and quality in canola seed.

The swaths were then allowed to cure until fully ripe and dry enough to combine (less than 10% moisture content) and less than 2% green seeds left in the sample, which was fully cured unless a frost had the effect of locking in the chlorophyll in the seed. Yields were then taken using a combine and weigh wagon and oil content was assessed from each sample. It should be noted that this operation of swathing usually takes place at a time of year when the risk of damage from the frost is steadily increasing. A swathed canola crop will soon be at less risk from frost damage once it is laying in the swath and the moisture content

is dropping, whereas a standing crop in cool or cold moist conditions may be at serious risk from frost.

RESULTS

Four of twenty-five site years reported increased yields from swathing earlier than the traditionally recommended time. These four sites in themselves confirmed benefits that can be obtained from earlier swathing in special circumstances. Three of the sites suffered yield loss in later swathing treatments due to frost affecting standing crops and a fourth site suffered severe yield loss from blackleg that did much more damage than in the plants that were not swathed earlier. Of the remaining sites, four had dramatic yield losses from swathing earlier. These can all be attributed to swathing earlier than the 0 - 1% seed color change; in other words, way before the seed was about to turn. This happened for logistical reasons or lack of technician experience. They do, however, provide an interesting lesson. All sites, where the seed color change was between 0 & 10%, rather than earlier than 0, showed a yield loss that was not very serious (less than 15%). The majority of the sites, however, showed that swathing between 20 & 30% seed color change had a very minor effect on yield and quality.

TABLE 1. Summary of yield and oil percentages (average of 25 site years 1990 - 1994)

Seed Colour	Average Net Yield					
	bu./ac.			kg./ha.		
	Avg.	Min.	Max.	Avg.	Min.	Max.
0 - 10%	27.4	13.7	41.9	1535.6	767.8	2348.2
10 - 20%	29.4	13.4	44.0	1647.7	750.1	2465.9
20 - 30%	30.6	13.0	48.9	1714.9	728.6	2740.5
30 - 40%	30.6	13.7	47.1	1714.9	767.8	2639.6

Average Percentage of Oil in the Seed @ 8.5%

Seed Colour	Avg.	Min.	Max.
0 - 10%	40.8	35.4	47.7
10 - 20%	41.5	35.9	47.8
20 - 30%	42.2	36.0	49.4
30 - 40%	42.8	13.7	47.1

Average Yield as % of 30 - 40%			
<u>Seed Colour</u>	<u>Avg.</u>	<u>Min.</u>	<u>Max.</u>
0 - 10%	90.1	66.0	119.1
10 - 20%	96.5	82.9	120.6
20 - 30%	99.9	87.5	122.6
30 - 40%	100.0	100.0	100.0

Discussion

This data has given the Canola Council agronomists the confidence to recommend that growers of large acreages of canola in Western Canada, e.g. 1,000 - 2,000 acres of the canola crop, should make the decision to begin the swathing operation any time after the seed is past the 10% seed color change on the main stem, thereby ensuring that the maximum amount possible of the crop will be swathed at the optimum time, (30 - 40% seed color change). Swathing earlier, rather than later, reduces risk from factors such as frost, or blackleg damage should the variety be susceptible, and one or two days advantage may be critical in the fall, where weather conditions can become unfavourable in a very short space of time. We do not recommend swathing before 10% seed color change in any situation, unless the crop was so late seeded, that it has not begun to reach seed color change by mid September, in which case the canola can be swathed and what yield that is possible to be salvaged can be salvaged prior to frost damage.

REFERENCES

Christensen, J.V., et al. (1983). Unpublished.
Beaverlodge: Agriculture Canada.

Figure 1. Effect of Time of Swathing on Spring Canola Seed Yield in Western Canada

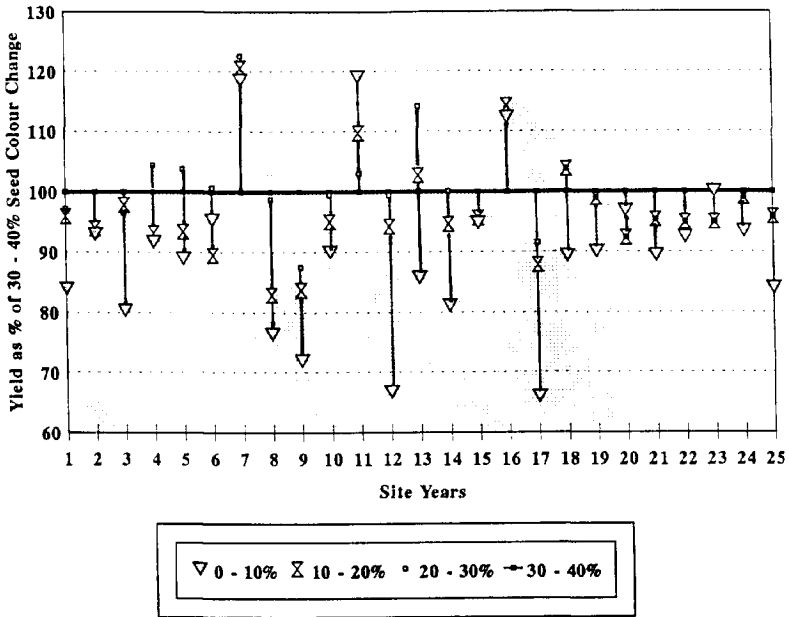


Figure 2. Effect of Time of Swathing in Spring Canola Seed Oil Content in Western Canada

