VII SITE INFORMATION

THIS IS GENERAL SITE INFORMATION THAT MAY CHANGE FOR SPECIFIC TRIALS.

Location:	**Roseau, MN**

Co-operator: Richard, John and Bob Magnusson

Previous crop: Barley

Soil Test Results: (AgriSource Laboratories)

Organic matter content: 4.0 %

Macronutrient Levels: 0-6 inches (P and K); 0-24 inches (N and S)
Nitrogen - 18 lb/ac
Phosphorus- 30 lb/ac
Potassium - 316 lb/ac
Sulphur - 27 lb/ac

Recommended Fertilizer Applications - (lb/ac of actual nutrient):

Yield lb/ac	Nitrogen	Phosphate	Potash	Sulphur
2000	0-25	30-50	0	0

Target yield: 2500 lb/ac

Fertilizer applied: N - 50 lb/ac P - 40 lb/ac K - 20 lb/ac S - 10 lb/ac

Soil Association/Zone: Wabanica – Fine Silty, Mixed Calcareous, Frigid Typic Endoaquolls

Soil Texture: Silt Loam (medium)

Soil pH: 8.1

Salinity: 0.5 mmho (slightly saline)

Tillage operations: The site was cultivated in the fall, and twice in the spring to incorporate broadcast fertilizer (50-30-20-10) and Treflan (1.75 pt/ac). Ten pounds of phosphate was seed-placed. The site was harrow-packed once before planting.

Seeding method: Seeded with a JD 9350 double disk press drill
Date: May 6, 7
Depth: ½ to ¾ inch deep
Rate: 6.0 lb/ac *B. napus*

Herbicides applied: Treflan in spring (1.75 pt/ac), Assure II (10 oz/ac) and Stinger (1/3

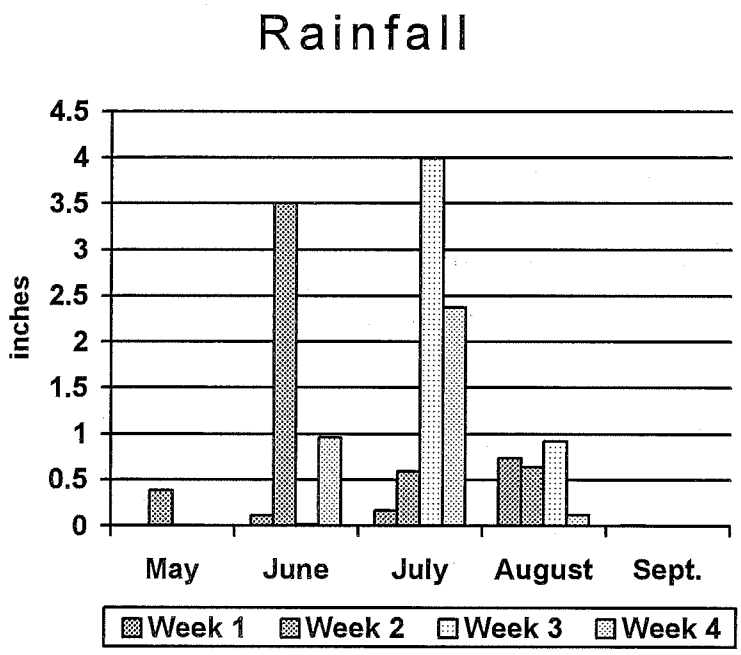
pt/ac) tank mix with crop oil (surfactant) and sprayed at the 4 to 5 leaf stage.

Fungicides applied: Ronilan EG (1.0 lb/ac)

Swathing: Started: August 6 Finished: August 17

Combining: Started: August 31 Finished: September 3

Comments: The site was seeded under ideal moisture conditions and emergence was excellent. The crop was under stress with cold damp conditions in late May and early June. Very wet conditions in late June and early July resulted in standing water on about half of the site. The wet conditions contributed to a shallow root zone, which promoted fast maturity under the hot dry conditions in August. Diamondback moth numbers were recorded but never reached threshold levels.



Total accumulated moisture = 14.52 inches (368.8 mm)

VIII VARIETY TRIALS

A *B. napus*

Objective: To evaluate agronomic differences between newly registered and recommended varieties in a given area as submitted by the seed trade.

Background: The increase in number of new varieties available over the past several years has made the task of choosing a variety for a specific farm challenging. Yield, crop quality and disease resistance are important variety traits to consider in the selection process. However, other agronomic factors such as lodging resistance and harvestability are also important factors. Varieties in the trial are selected and submitted by the seed trade.

Methodology: The variety trial was made up of four replicates in a randomized block system. Identical agronomic practices were used for all varieties. The entire trial was seeded on the same day. Swathing commenced when seed color change was 30% to 40% and harvest was completed when suitable conditions existed.

Observations: This trial was seeded on May 6 into good soil moisture, which resulted in even emergence. A thunderstorm in late June dropped hail on half of the trial. The center two-thirds of each plot in the first two replicates was affected. The hail resulted in heavy lodging and broken or damaged main racemes on most of the plants in the affected areas. This created difficulties in judging when to swath, and with the swathing process. Shallow roots from excess moisture combined with hot dry conditions in August hastened maturity. To prevent losses from shattering, the plots were swathed when the hailed portion was about 20% seed color change and the non-hailed portion was about 40% seed color change.

Results:

B. NAPUS VARIETY TRIAL YIELD, ECONOMIC & QUALITY RESULTS Roseau, MN							
Treatment	**Yield (%)**	**Yield (lb/ca)**	**Yield (bu/ac)**	**Contribution Margin ($/ac)**	**Oil (%)**	**Growing Degree Days**	**Days to Maturity**
Hyola 420	102	2162	43.3	41.52	43.8	1234	99
Ebony	102	2152	43.1	47.26	44.1	1216	98
Hyola 401*	**100**	**2121**	**42.4**	**37.33**	**43.7**	**1216**	**98**
Quantum	96	2025	40.5	38.78	43.5	1183	96
Roseau	93	1981	39.6	33.59	44.6	1216	98
CL2070	92	1960	39.2	21.87	42.4	1264	101
Topscore	92	1941	38.8	32.05	43.0	1216	98
Promark 220	91	1929	38.6	27.94	43.4	1199	97
46A65	91	1918	38.4	21.39	43.9	1183	96
LG 3430	90	1906	38.1	23.99	43.1	1216	98
SchP015	88	1861	37.2	11.81	44.3	1264	101
LSD		127.2	2.54		0.82		
CV %		5.3	5.3		1.5		

**Note: Hyola 401 was used as a check in this trial.*

Discussion:

There were significant differences in yield and oil content among the varieties. Contribution margins reflect yield and seed costs. Ebony had the highest contribution margin because of the high yield and lower seed costs.

The days to maturity represent the calendar days from the date of seeding to 30% seed color change. The growing degree days, expressed in Celsius, represent the heat accumulation above canola's base temperature of 5°C (41°F). Quantum and 46A65 exhibited the earliest maturity at this site, while CL2070 and SchP015 took the longest to mature.

IX HARVESTABILITY TRIAL

Objective: To compare the harvestability of varieties entered in the variety trial.

Background: A number of varieties had very similar yield and quality traits. In choosing a variety a grower should consider such things as lodging, harvestability and yield. Harvestability is the measurement of swathing and combining ease. Currently, there is no quantitative measurement for harvestability.

Methodology: Harvestability was evaluated as swathing and combining was completed on the variety trial. The check variety was swathed and evaluated on a scale of one to five with the check being three. The following criteria was considered; lodging, height, straw stiffness, straw strength, uniformity of stand, swath fluffiness, tendency to bunch, speed of operation, flowability and feeding. The check variety for *B. napus* was Hyola 401.

Ratings:
1 = much better than Check
2 = better than Check
3 = Check
4 = Worse than Check
5 = Much worse than Check

These ratings are subjective. The machine operator, crop conditions, weather and time of day can affect the harvestability of a variety.

Observation: A late June thunderstorm caused severe lodging to a portion of all varieties in replicates 1 and 2. Swathing was difficult in the lodged area and required swathing and straight combining in one direction. Plots in replicates 1 and 2 were cut at lower heights than normal due to the excessive lodging. This resulted in more stem material in the swath and a greater tendency to bunch during swathing. The harvestability scores reflect the average of all four replicates. Plots were swathed with a 15 foot Versatile 400 and combined with a Massey Ferguson 760. The straight combined plots were harvested using a 20 foot header with a bat reel.

Results:

HARVESTABILITY TRIAL *B. napus* Roseau, MN				
Variety	**Lodging Ratio**	**Swathing Rating**	**Combinability Rating**	**Straight cut Rating**
46A65	.44	2	2	3
CL2070	.46	4	3	4
Ebony	.41	3	4	4
Hyola 401	**.43**	**3**	**3**	**---**
Hyola 420	.41	3	3	---
LG 3430	.48	3	3	---
Promark 220	.50	3	4	3
Quantum	.45	2	3	**3**
Roseau	.38	3	4	---
SchP015	.33	3	3	4
Topscore	.36	3	3	---

Note: The check variety for swathing and combining the swaths was Hyola 401.
The check variety for straight combining was Quantum.

Discussion:

The swathing ratings of Quantum and 46A65 were better than the check (Hyola 401) because of smoother feeding with no bunching which allowed for faster ground speed. The variety CL2070 was more difficult to swath than the check because of uneven lodging that slowed ground speed. All the other varieties were similar to the check.

The combinability of 46A65 was better than the check because it fed smoothly into the combine and allowed faster ground. Ebony, Promark 220 and Roseau were more difficult to combine than the check, especially in the hail damaged area. The large amount of straw slowed ground speed. The swaths separated at the pickup and resulted in a portion being fed above the table auger, causing numerous stops.

Ebony, CL 2070 and SchP015 were more difficult to straight combine than Quantum because of uneven lodging in the hailed area and large amounts of tough stem tissue, which reduced ground speed.

X PHOSPHATE FERTILIZER RATE TRIAL

Objective: To compare the effect of various phosphate fertilizer rates on yield, quality and contribution margin of *B. napus* canola.

Background: Phosphate is recognised as an important nutrient for canola production and is necessary for plant growth and health. However, phosphate response in canola can be inconsistent due to the complex interactions between soil type and environmental factors. The purpose of this trial was to demonstrate phosphate response on a soil testing low in available phosphate, and relate these responses to economic return.

Methodology: The phosphate fertilizer rate trial consisted of four reps of five treatments in a randomized complete block design:

1. Check - no phosphate applied.
2. 15 lb/acre of phosphate seed-placed.
3. 30 lb/acre of phosphate seed-placed.
4. 45 lb/acre of phosphate seed-placed.
5. 45 lb/acre of phosphate banded prior to seeding.

Observation: The soil test at this location indicated that levels of available nitrogen, potassium and sulphur should be sufficient to produce a canola crop of nearly 2000 lb/ac (40 bu/ac). Therefore, no additional N, K or S was applied in this trial. The trial was seeded on May 7 into good soil moisture. Each of the above fertilizer treatments was applied with the double disc press drill. The phosphate source used was DAP (18-46-0). Heavy rains in June and early July resulted in flooding throughout the trial. Much of the crop was standing in water for up to two weeks. These conditions contributed to very weak, shallow roots which likely caused reduced access to nutrients and moisture during the hot dry conditions of late July and early August.

Results:

PHOSPHATE FERTILIZER RATE TRIAL Roseau, MN					
Treatment	**Yield (lb/ac)**	**Yield (bu/ac)**	**Oil (%)**	**Contribution Margin ($/ac)**	**Plant Counts (plants/sq ft)**
0 lb/acre	1273	25.5	46.0	(33.54)	8.3
15 lb/acre	1375	27.5	46.0	(27.16)	7.8
30 lb/acre	1510	30.2	45.7	(17.52)	6.7
45 lb/acre	1410	28.2	46.0	(29.74)	5.8
45 lb/ac banded	1423	28.5	46.0	(28.35)	7.9
LSD	161.6	3.23	0.40		
CV %	7.6	7.6	0.6		

Note: Brackets in Contribution Margin reflect a negative value

Discussion: Yields were limited in this trial by stress from excessive moisture. One rep had to be left out of the trial due to flooding in some of the plots. The 30 lb/ac rate of phosphate provided a significant yield increase compared to the 0 lb/ac rate. There was no difference in oil content among the treatments. The contribution margins reflect the yield and costs of fertilizing at the different rates. The 30 lb/ac rate provided the best economic return in this trial. These results demonstrate the importance of phosphate fertilizer for canola production. It is important to note that placing too much phosphate (especially 18-46-0) in the seed row, particularly when using narrow openers such as a double disc, can cause seedling toxicity and poor emergence. Emergence decreased slightly as rate of seed-placed phosphate increased. When high rates of P are required, consider seed placement of a small amount of starter P (eg 10 to 15 lb/ac of P), while placing the rest away from the seed.

XI SEEDING RATE TRIAL

Objective: To evaluate the impact of different seeding rates of *B. napus* canola on agronomic characteristics such as yield, quality and contribution margins.

Background: Canola is a very flexible crop in that variations in seeding rate or plant population over relatively wide ranges normally have very little effect on the final yield, although these variations can affect maturity. Research has shown (Canola Growers Manual-crop establishment section) that as plant populations decline below 5.6 plants/square foot (60 plants/square metre) yields tend to decline. The effect of seeding rates on maturity is more pronounced under cool summer conditions than warm conditions.

Methodology: The variety seeded was Crown. Three seeding rates were selected for below, within and above the recommended range (5 - 7 lb/ac of seed):

A) 3.5 lb/acre
B) 6 lb/acre
C) 9 lb/acre

The treatments were arranged in a randomized complete block design.

Observations: The site was seeded May 7 into good moisture, which resulted in quick emergence. The 9 lb rate reached maturity 1 to 2 days before the 3.5 and 6 lb rates. Lodging was similar among all the seeding rates. The 3.5 lb rate was more difficult to swath than the other treatments due to thin spots which lacked stem material to push the crop across the cutter bar, resulting in some plugging.

Results:

SEEDING RATE TRIAL
Roseau, MN

Treatment	Yield (lb/ac)	Yield (bu/ac)	Contribution Margin ($/ac)	Oil (%)	Plant Counts (plants/sq ft)
Below (3.5 lb/acre)	1884	37.7	34.43	47.6	7.2
Rec. (6 lb/acre)	1971	39.4	33.03	48.2	11.3
Above (9 lb/acre)	1849	37.0	10.69	48.4	20.9
LSD	62.3	1.25		0.48	
CV%	2.4	2.4		0.7	

Discussion: Increasing seeding rate resulted in a corresponding increase in plant density. The recommended seeding rate (6 lb/ac) resulted in a significantly higher yield than the other treatments. This did not improve the contribution margin of the 6 lb/ac rate (compared to the 3.5 lb/ac rate) because the yield difference did not quite compensate for the difference in seed cost. The lower yield and higher cost of seed at the 9 lb/ac rate lowered the contribution margin. The 6 and 9 lb/acre rates had significantly higher oil content than the low rate of 3.5 lb/acre.

XII SEEDING DEPTH AND EQUIPMENT COMPARISON TRIAL

Objective: To compare the effects of seeding depth and seeding equipment (and any interaction between the 2) on stand establishment, yield, quality and contribution margin of *B. napus* canola.

Background: Seeding depth greatly influences the number of seedlings that emerge and their rate of development. Canola seed should be planted no deeper than necessary to reach soil with sufficient moisture for germination. Canola seeds do not have sufficient stored energy to push cotyledons from depths that would be considered normal for cereals. The type of seeding equipment used can also affect emergence through its accuracy of seed placement, type of openers and means of packing. The recommended seeding depth for canola is ¾ to 1 inch.

Methodology: Each treatment was replicated four times in a randomised block system. The canola variety used was LG 3430. The air seeder used was a Concord 3400 with a 10" row spacing, while the double disc press drill was a John Deere 9350 with a 6" row spacing. The treatments were:

A) Broadcast and incorporated
B) 1" depth with press drill
C) 2" depth with press drill
D) 1" depth with air seeder
E) 2" depth with air seeder

Observation: This trial was seeded on May 6 into ample soil moisture resulting in good germination across all treatments. Seed depth in the broadcast and incorporation treatment ranged from the surface to 3 inches deep. There was difficulty obtaining the 2 inch depth with the press drill, and as a result averaged 1.5 inches.

Due to plot orientation, the trial was seeded perpendicular to the normal tillage pattern on the field. This caused a problem with poor emergence in the air seeded plots at the 2 inch depth, due to the undulating field surface. Seeding depth ranged from 0.5 to 2 inches in the 1 inch treatment and from 1 to 3 inches in the 2 inch treatment. As a result, plant density was uneven in the 2 inch treatment, with stands reduced to 6 plants/ft^2 in some areas. These stands remained uneven in growth and maturity throughout the growing season.

Results:

SEEDING DEPTH AND EQUIPMENT COMPARISON TRIAL Roseau, MN					
Treatment	**Yield (lb/ac)**	**Yield (bu/ac)**	**Contribution Margin ($/ac)**	**Oil (%)**	**Plant Counts (plants/sq ft)**
Broadcast & Inc.	1498	30.0	(13.72)	46.2	21.3
1" depth - Press drill	1484	29.7	(15.12)	46.1	17.4
2" depth - Press drill	1505	30.1	(13.12)	45.8	16.4
1" depth - Air seeder	1434	28.7	(19.77)	46.0	20.2
2" depth - Air seeder	1424	28.5	(20.70)	45.1	11.4
LSD	110.7	2.21		0.76	
CV%	6.0	6.0		1.3	

Note: Brackets in contribution margin reflect a negative value

Discussion:

The 2" air seeder treatment had reduced emergence. This was due to two factors. Firstly, we were not able to penetrate to a full 2" with the press drill. Secondly, the undulating surface led to some areas being seeded considerably deeper than 2" with the air seeder. Due to the ideal moisture conditions after planting, we did not see the uneven emergence that we expected in the broadcast and incorporation treatment. With dry conditions, the range in seed depth in the broadcast and incorporation treatment would normally result in multiple flushes of canola. Under crusting conditions, the deep seed would likely run out of energy before emerging. There were no significant differences in yield among treatments. The 1" air seeder treatment was significantly lower in oil content than the other treatments, except the 2" press drill. Contribution margins were indicative of minor yield differences.

Under heavier weed pressure, the thin stands resulting from the 2" air seeder treatment would not compete well. The patchy areas also demonstrated the need for a firm, level seedbed to obtain uniform seed depth.

XIII SCLEROTINIA STEM ROT (WHITE MOLD) CONTROL TRIAL

Objective: To evaluate sclerotinia control using a fungicide on yield, quality and economic return on canola.

Background: Sclerotinia stem rot is caused by the fungus *Sclerotinia sclerotiorum* that occurs in most canola growing areas. The disease is usually most severe in wetter areas of the growing region. Severity of stem rot varies from year to year, and even from field to field within a region. With the right combination of crop density and weather conditions or irrigation, heavy infections can develop almost anywhere. In some cases half the potential yield of a crop may be lost to sclerotinia.

Methodology: The trial was seeded with the variety Roseau.
Treatments:

A) Check - no treatment
B) Full rate - Ronilan EG (1 lb/ac)

Observation: Petal testing showed a high percentage of infected petals (80%), and this together with the wet weather indicated a high potential for yield loss from sclerotinia stem rot (white mold). Wet conditions in early July prevented a timely application of fungicide on this trial. The variety Roseau was in the variety trial and it was sprayed with Ronilan EG (1 lb/ac) by air on July 3. A comparison of Roseau plots from the treated variety trial was made with four plots of Roseau in the untreated area of the sclerotinia trial. This is not a side-by-side comparison and therefore should not be interpreted as one.

Sclerotinia levels in the untreated area were measured at swathing time by taking random counts of 50 plants in a row and determining the percent of plants infected. Infection levels ranged from 30% to 100%. The average was 60%. Observations in the treated area showed very low levels of sclerotinia infection.

Results:

SCLEROTINIA STEM ROT CONTROL TRIAL
Roseau, MN

Treatment	Yield (%)	Yield (lb/ac)	Yield (bu/ac)	Oil (%)	Contribution Margin ($/ac)
Check	67	1335	26.7	46.3	(5.40)
Full Rate	100	1980	39.6	44.6	33.59

Note: Bracket in Contribution Margin reflect a negative value

Discussion: The yield response from spraying with Ronilan EG more than covered its

cost as shown by the contribution margin. The contribution margin represents the differences in yield and fungicide application costs. Some of the yield difference observed could have been associated with the difference in locations within the field. However, the high infection levels in the untreated block and magnitude of the yield difference clearly demonstrate the benefits of fungicide application when disease pressure is high.

XIV INSECTICIDAL SEED TREATMENT TRIAL

Objective: To evaluate the impact of Gaucho seed treatment with Benlate seed treatment, compared to Benlate alone, as it relates to yield, quality and contribution margin.

Background: The most widespread problem of canola production is poor stand establishment. A seedling disease complex including pathogens such as *Rhizoctonia solani*, along with *Fusarium* and *Pythium* species, can cause poor stand establishment. Seed treatment fungicides (eg Benlate) are used extensively in canola production as the first line of defence to control seedling disease. The application of an insecticidal seed treatment such as Gaucho, in combination with the fungicidal seed treatment, may provide the added benefit of early season flea beetle control in areas where they are a problem.

Methodology: The seed treatment trial consisted of two treatments in a randomised block system. The variety used was Hyola 420.

A) Benlate only

B) Benlate & Gaucho

Seed treatment (Gaucho 75) was applied at 10.67 oz./cwt of seed, while all other management practices were the same.

Observation: This trial was seeded on May 6 into good soil moisture. There were no noticeable differences in emergence between the treatments. Flea beetle pressure at the site was negligible.

Results:

INSECTICIDAL SEED TREATMENT TRIAL
Roseau, MN

Treatment	Yield (lb/ac)	Yield (bu/ac)	Contribution Margin ($/ac)	Oil (%)
Benlate	1808	36.2	17.70	46.4
Benlate& Gaucho	1784	35.7	6.14	46.2
LSD	156.6	3.13		0.45
CV%	5.2	5.2		0.6

Note: Seed cost in contribution margin, Hyola 420 with Gaucho and Benlate is $5.13/lb and Hyola 420 with Benlate only is $3.65/lb.

Discussion: There were no significant differences in yield or oil content between the treatments. This is likely a result of favorable conditions at emergence and the lack of flea beetle pressure. Contribution margins reflect the differences in yield and seed treatment costs.

XV DIAMONDBACK MOTH EVALUATION TRIAL

Objective: To determine the level of diamondback moths as it relates to establishing a forecasting model.

Background: Diamondback moth larvae can be a significant pest in canola. Previous work completed by Agriculture & Agri-Food Canada, Environment Canada and the Canola Council of Canada has shown there is a need in establishing a migration forecasting model for diamondback moths. The importance of establishing the deposit points and numbers of diamondbacks present are essential in ground truthing this forecasting model. The diamondback moths recorded help establish the migration forecasting model.

Methodology: Trap counts were completed as follows:

A) Record moth counts
B) Record other insects
C) Change lures and trap inserts weekly
D) Phone in moth counts using ON TAP system.

Observations: Diamondback moth levels were low at the site. Very few non-target insects were trapped. Trapping started on July 1.

Results:

DIAMONDBACK MOTH EVALUATION TRIAL
Roseau, MN

Date	Number
July 10	52
July 18	31
July 24	12
August 10	13

Discussion: While some moths were present at the site, they were well below threshold levels (90/week). The counts were forwarded to Environment Canada to assist in development of a forecasting model.

XVI STRAIGHT COMBINING VS SWATHING *B. NAPUS* TRIAL

Objective: To determine the effects of swathing and straight combining of selected *B. napus* varieties on yield, quality and contribution margin. A secondary objective will determine what conditions mitigate harvest losses due to straight combining.

Background: Work at Canola Production Centres has shown that straight combining is generally not a viable option compared to swathing *B. napus* varieties. However, success of straight combining will be affected by environmental and crop factors.

Methodology: Two plots of selected varieties were seeded side by side within each replicate of the variety trial. One was swathed at 30-40% seed color change and the other was straight combined.

Observation: A Massey Ferguson 760 was used for harvesting this trial. Straight combining was done with a 20 foot header with a bat reel. All swathed treatments were combined on September 1. All straight combined treatments were harvested on September 3. Seed moisture of the swathed plots was about 6% while seed moisture of the straight combined plots was about 9%. Most of the straight combined plots had green stems, branches and pods at combining time, especially in the lodged area. Straight combining of the lodged plots was difficult because the pods and branches wedged under the table auger before the sickle could cut the stems, but raising the feeder auger improved this. Plots that were standing upright were straight combined quite easily at speeds similar to the swathed plots. This led to higher harvesting rates (ac/hr) with straight combining (20 foot cut) as compared to combining the swaths (15 foot cut). There was little shelling at combining time due to the absence of severe weather during dry down, and the lodging of the crop. The lodged plots had some green pods in them, which contributed to more dockage and higher harvest moisture.

Results:

STRAIGHT COMBINING VS SWATHING *B. NAPUS* TRIAL Roseau, MN					
Treatment	**Yield (%)**	**Yield (lb/ac)**	**Yield (bu/ac)**	**Contribution Margin ($/ac)**	**Oil (%)**
46A65					
Straight Combined	104	1991	39.8	28.95	44.7
Swathed	100	1918	38.4	21.39	43.9
CL2070					
Straight Combined	99	1936	38.7	20.58	43.7
Swathed	100	1960	39.2	21.87	42.5
Ebony					
Straight Combined	106	2285	45.7	60.40	44.9
Swathed	100	2152	43.1	47.26	44.1
Promark 220					
Straight Combined	110	2112	42.3	46.20	45.0
Swathed	100	1929	38.6	27.94	43.4
Quantum					
Straight Combined	101	2036	40.7	40.75	43.6
Swathed	100	2025	40.5	38.78	43.5
SchP015					
Straight Combined	108	1998	40.0	25.88	45.6
Swathed	100	1861	37.2	11.81	44.3
LSD for method within variety		98.7	1.97		0.56
CV%		4.0	4.0		1.1

Discussions: Yields were not adversely affected by straight combining. Yield increased significantly when straight combining varieties Ebony, Promark 220, and SchP015. These increases are likely due to the ability of the later formed pods to finish filling after the normal swathing period (30 to 40% seed color change). **Contribution margins reflect differences in yield, seed costs and cost of swathing.** Shattering losses were small due to favorable weather conditions. Higher oil content in the straight combined plots is a common occurrence since oil is the last component produced in the seed. Similar trials done in 1997 by the Canola Council of Canada showed significant losses of 5 to 56% with an average loss of 26%. At one site yields increased 25 to 47 % with straight combining. There were problems with green plant material clumping in the feeder housing and slowing harvest speeds. In 1995 and 1996, all but one location showed significant losses in the straight combined treatments compared to the swathed plots of *B. napus*. Straight combining of *B. napus* varieties appears to work well when weather conditions are favorable (no damaging storms or high winds) and when the plots are lodged and well knitted.

XVII TIME OF SWATHING TRIAL

Objective: To evaluate the impact of swathing at various crop stages on yield, quality and contribution margin of canola.

Background: Work at Canola Production Centres since 1990 has determined that the optimum stage for swathing canola is 30 to 40% seed color change. Oil is one of the last components produced in the canola plant. Stage of swathing can play an important role in yield, oil production and contribution margin for growers.

Methodology: The trial consisted of 5 treatments:

A) Swathing at 0 to 10% seed color change
B) Swathing at 10 to 20% seed color change
C) Swathing at 30 to 40% seed color change
D) Swathing at 50 to 60% seed color change
F) Straight combine

All other management practices were the same across treatments.

Observation: The trial was seeded on May 6 into good moisture with the variety Topscore. The 0-10% seed color change (SCC) treatment was cut as soon as seed color was visible. The hot dry conditions in early August caused rapid seed color change. The 30-40% and 50-60% SCC treatments were swathed in the morning with dew on the crop. The swathed plots were combined on September 1, and the straight combined plots on September 3.

Results:

TIME OF SWATHING TRIAL
Roseau, MN

Treatment	Yield (%)	Yield (lb/ac)	Yield (bu/ac)	Oil (%)	Swath Date	Contribution Margin ($/ac)
0-10% SCC	80	1735	34.7	41.9	Aug. 6	12.96
10-20% SCC	89	1935	38.7	41.8	Aug. 8	25.78
30-40% SCC	100	2165	43.3	42.1	Aug. 13	53.00
50-60% SCC	109	2370	47.4	43.4	Aug. 17	72.08
Straight Combine	106	2290	45.8	44.3	----	65.67
LSD		102.5	2.05	0.76		
CV %		3.6	3.6	1.4		

Discussion:

Yields increased significantly between each successive swathing. This was likely due to the ability of the crop to fill more completely before swathing, combined with the lodging of the crop which limited shattering losses. Straight combining also provided significantly higher yields than the 30-40% SCC. There was a small amount of shelling in the straight combined plots. This would explain some of the loss between 50-60% SCC and straight combining. Oil content also increased as swathing was delayed. Higher oil content in the later swathed plots and the straight combined plots was expected since the oil is the last component produced in the seed. **Contribution margins reflect differences in yield, costs of swathing and differences in green seed counts. The 10-20% SCC treatment had 2.3% green seed. All other treatments had less than 2.0% green seed.**

Although there was a positive result from swathing after the 30-40% SCC and from straight combining, there was a risk of losing much of the crop to shattering. This year the shattering was minimal due to favorable weather (no strong storms) and lodging.

XVIII SUMMARY

The first year of the Minnesota Canola Production Centre program has been a great success. The trials at the Roseau site were chosen to demonstrate basic canola production principles. This was done in recognition of the fact that many producers in Minnesota have not had much previous experience in managing this crop. While many of the trends in the trials reflected past results from the Canadian CPC program, others turned out different than long term trends. Future work will help reveal if these unexpected trends are regionally specific, or if they were just a feature of this year's growing conditions. All of the results will provide good focal points for discussions at extension meetings throughout the winter. This joint project has provided a unique opportunity to share information between Canadian and American growers. Planning for next year's program has already begun. If you have any questions or comments about the Minnesota CPC program please feel free to contact any of the people listed in the following Field Staff Information section.

XIX FIELD STAFF INFORMATION

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