



SASKATCHEWAN CANOLA GROWERS ASSOCIATION

PHONE 752-5576, BOX 3377, MELFORT, SASK. S0E 1A0

"CANOLA GROWERS IN BUSINESS"

Maximum Yield Canola Production

1987 Data

(Year two of a three year program)

Sponsored by:

Potash & Phosphate Institute
of Canada

in co-operation

Lorne Christopherson
&
Norman Maze



ABSTRACT

The primary objective of this project was to determine the maximum yield of canola on a commercial farm using field scale equipment.

Climatic conditions experienced during the spring of 1987 made the establishment of canola very difficult. Weather conditions resulted in low plant counts and high weed pressure.

Yield response to the rates of fertilizer elements used was considerably less than expected.

Increasing rates of fertilizer appear to raise chlorophyll and protein levels in the seed and reduce levels of oil in the seed.

Title: Maximum Yield Canola Production

Objective: The primary objective of this project was to determine the maximum yield of canola on a commercial farm using field scale equipment. Secondly, we wished to determine the response of present canola varieties to high levels of fertility and other management practices.

Work Plan: Two locations were selected. The Lorne Christopherson farm at Weldon was our primary site. At this location we used both Tobin and Westar varieties. Our secondary site was located at the Norman Maze farm in the Phippen area. At this location only the variety Tobin was used.

At each location a plot with a fertilizer rate equal or greater than that recommended by the soil test lab was compared to plots fertilized at a rate considerably higher than that recommended.

At each location Canocote seed was used. However, at the Phippen site the plot had to be reseeded because of weed competition and poor germination. This plot was reseeded with uncoated, certified Tobin seed. Double seeding was not used at either location in 1987. Grow with Canola demonstration data from Saskatchewan, Manitoba and Alberta had indicated in past years that there was not an advantage from the use of the double seeding technique with the seeding equipment farmers have at this time.

The plots were monitored for disease. At neither location did the situation warrant the spraying of a fungicide for sclerotinia. Also the levels of blackleg did not appear to have a significant affect on yield.

Observations Recorded: Tissue samples were taken at the early bloom stage and submitted to the Saskatchewan Soil Testing Laboratory for analysis. The results of the analysis from both locations are included in the report.

The weather experienced during the spring of 1987 made the establishment of canola very difficult. The canola was seeded into a very dry seedbed. Very little germination took place until rainfall was experienced. This resulted in low canola plant counts and heavy weed pressure. We reseeded the Phippen location because of the weed pressure. Rainfall was adequate during the balance of the growing season at both locations. A week of extremely hot weather at the end of July greatly lowered the yield potential of Tobin canola still blooming at that time.

Data Analysis and Interpretation: The climatic conditions experienced and resulting heavy weed pressure resulted in a reduction in the fertilizer response in relation to that which was experienced last year. Quality analysis of the seed indicates that increasing levels of fertilizer result in higher protein levels in the seed and lower percentages of oil in the seed. Fertilizer use also appeared to increase the parts per million of chlorophyll found in the seed.

Conclusion: I suggest that this project be continued as planned for one additional year in order to create a more reliable data base.

Lorne Christopherson

Weldon, Sask.

PERTINENT DATA - Variety: Tobin and Westar

Seeded: May 20 on wheat stubble
IHC hoe drill
Tobin 8 lbs of seed (12 lbs of coated) per acre
Westar 10 lbs of seed (14 lbs of coated) per acre

Chemicals: Vitavax Rs seed treatment (Canocote)
Herbicide: Rival, spring applied

Fertilizer: A combined application of banding, broadcast,
seed placed and foliar application.

Soil Test: Nor West labs 0 - 6"
N 11, P 15, K 239, S 7.1, Fe 159, Cu 0.9, Zn 3.7,
B 0.7, Mn 13.2

Swathing: Tobin, August 17
Westar, August 29

Harvest: September 23, all

WESTAR

TOBIN

	Single Seeded Normal Fertility Chk	High Fertility	High Fertility Plus Boron	High Fertility Plus Boron	Single Seeded High Fertility	Single Seeded Normal Fertility Chk.
Fertilizer lbs/acre	N 70.5 P 25.5	N 200 P 107 K 100 S 25	N 200 P 107 K 100 S 25 B 1.5	N 200 P 107 K 100 S 25 B 1.5	N 200 P 107 K 100 S 25	N 70.5 P 25.5
Plants/ M ²	42	45	39	47	36	43
- Emergence	54%	54%	21	23	32	35
- Harvest	24	23	77	111	84	75
Weeds/M ²	95	106				
Dockage	11.7%	17.0%	11.4%	5.3%	7.2%	4.8%
Net Yield Bu./Ac.	25.2	24.3	26.7	35.9	37.2	39.4
% of Check Yield	100%	96.4%	106%	91.1%	94.4%	100%
Canadian Grain Commission Grade	S.A.A.	S.A.A.	S.A.A.	S.A.A.	S.A.A.	S.A.A.
ppm Chlorophyll	15	21	21	34	35	18
% Green Seed	3.4%	5.4%	2.6%	5.2%	6.6%	2.2%
% Oil	35.2%	33.3%	34.0%	39.3%	40.4%	42.6%
% Protein	35.8%	35.0%	37.0%	40.0%	41.6%	39.1%

SASKATCHEWAN SOIL TESTING LABORATORY
 TISSUE ANALYSIS

Ref: 28-10-87
 SENSID=97-3002/3007

Lorne Christopherson

Lab Number	Client Identification	N percent	P percent	K percent	S percent	Ca percent	Mg percent	Cu ug/g	Fe ug/g	Mn ug/g	Zn ug/g	B ug/g
P7-3002	PLOT 1 FERT TO SOILTESTI	3.12	0.49	3.13	0.55	1.61	0.38	5	180	27	35	21
P7-3003	PLOT 2 HIGH FERT TOBENI	3.68	0.56	3.22	0.59	1.91	0.44	4	182	49	26	17
P7-3004	PLOT 3 HIGH FERT + B	3.61	0.51	3.52	0.59	1.90	0.40	4	193	43	34	21
P7-3005	PLOT 4 HIGH FERT+8 WESTARI	4.17	0.48	3.19	0.66	1.80	0.50	4	203	38	20	26
P7-3006	PLOT 5 HIGH FERT WESTARI	3.93	0.54	3.68	0.77	1.89	0.54	5	150	72	52	25
P7-3007	PLOT 6 SOIL TEST WESTARI	3.56	0.51	3.57	0.57	1.49	0.45	5	227	52	38	28

Norman Maze

Phippen, Sask.

PERTINENT DATA - Variety: Tobin

Seeded: Reseeded June 12 & 13 on pea stubble
Double disc press drill (I.H.)
7 lbs/acre

Chemicals: Vitavax Rs seed treatment
Herbicide: Trifluralax, applied May 2, 1987

Fertilizer: Deep banded Anhydrous Ammonia, phosphate, potash,
sulphur and boron, spring applied.
Rates - as per plots

Soil Test: Reported on fallows N 70, P 49, K 550, S 34,
CU 1.0, Fe 124.0, Zn 10.6, Mn 50.0, B 0.2
Sask. Lab 24 inch sample

Swathing Date: Plot A, September 13
Plot B & C, September 19

Harvest Date: October 7

COMPARATIVE DATA

Normal Maze

Plot A
No Fertilizer

Plot B
Normal Fertility

Plot C
High Fertility

	<u>Plot A</u> No Fertilizer	<u>Plot B</u> Normal Fertility	<u>Plot C</u> High Fertility
Fertilizer lbs/ac.	Nil	N 56 P 25 K 0 S 0 B 0	N 200 P 99 K 53 S 53 B 3
Plants/M ² Emergence	98	121	69
Post Harvest Plants/M ²	N.A.	N.A.	N.A.
Weed Count Per M ²	31	18	84
Net. bushels/ac.	18.5	18.1	13.98
% of Check Yield	100%	97.8%	75.6%
Dockage	3.7%	5.7%	7%
Canadian Grain Commission Grade	# 2 Can	# 2 Can	# 3 Can
ppm Chlorophyll	18	27	32
% Green Seed	3.8%	6.0%	7.0%
% Oil	42.2%	40.3%	38.7%
% Protein	36.4%	37.8%	38.7%

SASKATCHEWAN SOIL TESTING LABORATORY
 TISSUE ANALYSIS
 Norman Maze

b Number	Client Identification	N percent	P percent	K percent	S percent	Ca percent	Mg percent	Cu ug/g	Fe ug/g	Mn ug/g	Zn ug/g	B ug/g
-1625	NO FERT.	3.02	0.53	4.49	0.68	1.43	0.51	5	245	42	68	36
-1626	REG FERT.	3.96	0.58	4.80	0.73	1.59	0.52	5	279	62	47	38
-1627	HIGH FERT.	5.13	0.69	4.95	0.84	2.41	0.58	5	518	191	61	67

nt:

xxxEndxxx