



Canadian Grain
Commission

Commission canadienne
des grains

ISSN 1700-2222

Quality of western Canadian canola 2008

Douglas R. DeClercq

Program Manager, Oilseeds Services

Contact: Douglas R. DeClercq

Program Manager, Oilseeds Services

Tel : 204 983-3354

Email: ddeclercq@grainscanada.gc.ca

Fax : 204-983-0724

Grain Research Laboratory

Canadian Grain Commission

1404-303 Main Street

Winnipeg MB R3C 3G8

www.grainscanada.gc.ca

Canada

Quality

Innovation

Service

Table of contents

Introduction	4
Summary	5
Weather and production review	6
Weather review	6
Seeding.....	6
Growing conditions.....	6
Harvest conditions.....	7
Production and grade information	7
Harvest survey samples	9
Quality of western Canadian canola—2008	11
Oil content	16
Protein content	17
Chlorophyll content.....	18
Glucosinolate content.....	19
Free fatty acids content	20
Fatty acid composition	21

Tables

Table 1 – Canola, No. 1 Canada Quality data for 2008 harvest survey	5
Table 2 – Seeded area and production for western Canadian canola.....	8
Table 3 – 2008 harvest survey Canola quality data by grade and province	12
Table 4 – 2008 harvest survey Canola quality data by grade and province	13
Table 5 – 2008 harvest survey Fatty acid composition by grade and province	14
Table 6 – Canola, No. 1 Canada Comparison of 2008 harvest survey quality data with recent export shipments.....	15

Figures

Figure 1 – Map of western Canada showing traditional growing areas for canola	4
Figure 2 – 2008 harvest survey Proportion of samples identified as <i>Brassica napus</i> and <i>Brassica rapa</i>	10
Figure 3 – Canola, No. 1 Canada Oil content of harvest survey samples, 1998–2008	16

Figure 4 – Canola, No. 1 Canada	
Protein content of harvest survey samples, 1998–2008	17
Figure 5 – Canola, No. 1 Canada	
Chlorophyll content of harvest survey samples, 1998–2008.....	18
Figure 6 – Canola, No. 1 Canada	
Total seed glucosinolate content of harvest survey samples, 1998–2008.....	19
Figure 7 – Canola, No. 1 Canada	
Free fatty acid content of harvest survey samples, 1998–2008	20
Figure 8 – Canola, No. 1 Canada	
Erucic acid content of harvest survey samples, 1998–2008.....	22
Figure 9 – Canola, No. 1 Canada	
Linolenic acid content of harvest survey samples, 1998–2008.....	22
Figure 10 – Canola, No. 1 Canada	
Oleic acid content of harvest survey samples, 1998–2008.....	23
Figure 11 – Canola, No. 1 Canada	
Total saturated fatty acids of harvest survey samples, 1998–2008	23
Figure 12 – Canola, No. 1 Canada	
Iodine value of harvest survey samples, 1998–2008	24

Acknowledgments

The Grain Research Laboratory acknowledges the cooperation of the canola producers, grain handling offices, and oilseed crushing plants in western Canada for supplying the samples of newly harvested canola. The assistance of the Industry Services Division of the Canadian Grain Commission in grading producer survey samples is also acknowledged. The technical assistance of the Oilseeds staff, Grain Research Laboratory is recognized. Seed images on cover are courtesy of Grain Biology, Grain Research Laboratory, Canadian Grain Commission.

Introduction

This report presents quality data and information based on the Canadian Grain Commission (CGC) 2008 harvest survey of western Canadian canola. Quality parameters included are oil, protein, chlorophyll, glucosinolates, free fatty acids and the fatty acid composition of harvest samples. Quality data are from analyses of canola samples submitted to the CGC throughout the harvest period by producers, grain companies and oilseed crushing companies. The map shows the traditional growing areas for canola in western Canada.

Figure 1 – Map of western Canada showing traditional growing areas for canola



Source: Canola Council of Canada

Summary

The 2008 western Canadian canola crop is characterized by near record oil contents, lower protein contents and much reduced chlorophyll levels when compared to the 10-year means. Compared to 2007, the mean oil content of Canola, No. 1 Canada is 1.0% higher at 44.3%, while the mean protein content, 20.8%, is 0.9% lower. The mean chlorophyll content for Canola, No. 1 Canada is 11 mg/kg, notably lower than the 15 mg/kg in 2007. The 2008 canola crop is higher in oleic acid content, 63.2%, but lower in linolenic acid content, 9.1%. For Canola, No. 1 Canada seed, the total saturated fatty acid content increased slightly to 7.1%. This results in oil with a lower mean iodine value of 111.5 units. The erucic acid, 0.01%, and the total seed glucosinolates, 9 µmoles/gram, are similar to last year and well within canola specifications. The mean free fatty acid (FFA) levels in Canola, No. 1 Canada seed are significantly lower than those in the 2007 crop. Unlike most years, the 2008 canola crop shows only minor regional differences in oil, protein and fatty acid composition.

**Table 1 – Canola, No. 1 Canada
Quality data for 2008 harvest survey**

	2008	2007	1998-2007 Mean
Oil content ¹ , %	44.3	43.4	43.2
Protein content ² , %	20.8	21.7	21.6
Oil-free protein ² , %	40.3	41.2	41.0
Chlorophyll content, mg/kg in seed	11	15	15
Total glucosinolates ¹ , µmol/g	9	10	10
Free fatty acids, %	0.10	0.18	0.23
Erucic acid, % in oil	0.01	0.04	0.12
Linolenic acid, % in oil	9.1	9.8	9.9
Oleic acid, % in oil	63.2	61.5	61.3
Total saturated fatty acids ³ , % in oil	7.1	7.0	7.1
Iodine value	111	113	113

¹ 8.5% moisture basis

² N x 6.25, 8.5% moisture basis

³ Total saturated fatty acids are the sum of palmitic (C16:0), stearic (C18:0), arachidic (C20:0), behenic (C22:0), and lignoceric (C24:0).

Weather and production review

Weather review

Temperature and precipitation patterns for the 2008 western Canadian growing season can be found on the PFRA web site (http://www.agr.gc.ca/pfra/drought/mapscc_e.htm). The prairie provinces experienced cool spring weather to start the 2008 growing year. A cooler and wetter than normal growing period characterized much of the south, while some northern regions experienced near drought like conditions. The Weather and Crop Surveillance department of the Canadian Wheat Board provided the majority of the detailed weather review for the 2008 crop year.

Seeding

The early spring season was characterized by very cool temperatures which delayed planting in the south and slowed the snowmelt in the northern growing areas. Cool soil temperatures delayed crop germination and early seeded regions reported poor crop emergence. Moderate to heavy precipitation fell in the southern growing regions during the late-April to mid-May period, which provided much needed moisture for the seeding and germination of the crop. Northern areas of the Prairies were mostly dry, which allowed regions that had received heavy snowfall to plant most of the crop by the end of May. The dry trend in the northern growing areas persisted through the first half of growing season.

Growing conditions

Precipitation during June was close to normal or above normal in most of the Prairie region, which helped boost crop prospects. Temperatures during the month of May and June were significantly below normal, which delayed crop development. By the end of June, growth was 10 days to two weeks behind normal, but the crop condition was rated as mostly good to excellent. In July, moderate temperatures were reported, with many stations in the western Prairies reporting monthly averages that were 2 to 5 degrees Celsius below those received in July 2007. The cooler temperatures allowed crops to move through the reproductive stage without significant stress. Dry conditions persisted in the northern growing areas during July and caused some crop deterioration. The Peace River region of Alberta and British Columbia was dry throughout the month, with above normal temperatures that caused significant crop stress and significantly reduced yield expectations. In northern areas of Alberta and Saskatchewan, the cooler than normal temperatures in July helped maintain crop conditions until rains arrived in late July and early August.

Harvest conditions

Above normal temperatures were reported in August across the Prairies, which helped boost crop development. However, frost and crop damage were reported during the month in parts of Alberta and western Saskatchewan. Warmer temperatures allowed the harvest of the canola crop to begin by the first week of September. Persistent rains in the last week of August and the first ten days of September slowed the harvest. Temperatures remained mild during September, with many areas reporting their first fall frost one to two weeks later than normal. This allowed late developing crops to mature without significant quality damage. Drier and warmer conditions returned to the entire Prairie region during the mid-September to mid-October period, which allowed for a rapid completion of the harvest. Approximately 95% of the western Canadian canola crop was harvested by the middle of October.

Production and grade information

Western Canadian farmers planted 6.5 million hectares of canola in 2008, which is a 3 percent increase from last year's area (Table 2). Statistics Canada's *Field Crop Reporting Series No. 8* reported that the 2008 western Canada mean yield of 1900 kg/ha was significantly higher than both the 1500 kg/ha reported for 2007 and the 10-year mean of 1510 kg/ha.

With the increases in yield, total canola production in western Canada increased to a record 12.5 million tonnes, 5 million tonnes above the 10-year mean of 7.5 million tonnes. According to Statistics Canada's December 4th, 2008 estimates of provincial production, Manitoba, Saskatchewan, and Alberta/B.C. accounted for 21%, 45% and 35% respectively of the total canola production.

The grade pattern of the 2008 canola crop was the best in recent years and considerably better than in 2004 when frost-affected much of the crop. For the 2008 Saskatchewan canola crop, *Saskatchewan Agriculture, Food and Rural Revitalization Report Number 29* estimated the portion of Canola, No. 1 Canada to be 90% compared to 80% in 2007 and 75% for the ten-year mean. Poor harvest weather in September and October resulted in some regional downgrading in northern areas of Saskatchewan and Alberta.

Table 2 - Seeded area and production for western Canadian canola

	Seeded area		Production ¹		Average production ²
	2008	2007	2008	2007	1998-2007
	thousand hectares		thousand tonnes		thousand tonnes
Manitoba	1255	1238	2576	1950	1611
Saskatchewan	3116	2995	5629	4082	3232
Alberta ³	2129	2066	4355	3450	2630
Western Canada	6,500	6,299	12,560	9,482	7,474

¹ Source: *Field Crop Reporting Series*, No. 8, December 4, 2008; Statistics Canada

² Source: *Field Crop Reporting Series*, revised final estimates for 1998-2007.

³ Includes the part of the Peace River area that is in British Columbia

Harvest survey samples

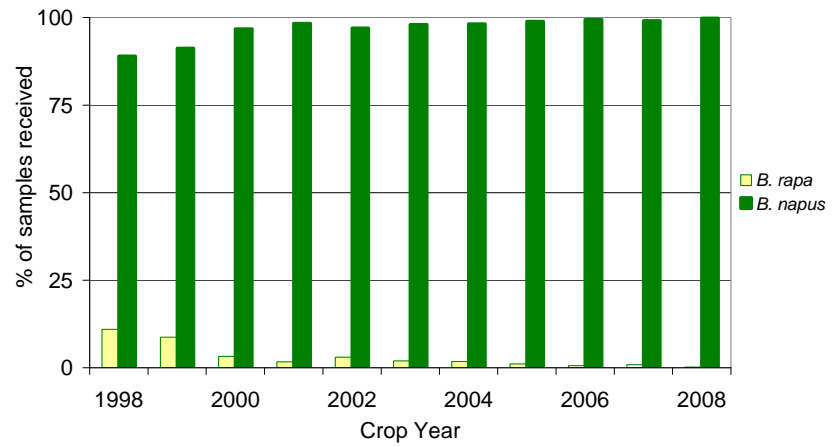
Samples for the Canadian Grain Commission canola harvest survey are collected from producers, crushing plants and grain handling offices across western Canada. The samples are cleaned to remove dockage prior to testing. The Industry Services Division of the Canadian Grain Commission assigned grades to all the survey samples. Harvest survey samples are analyzed for oil, protein, chlorophyll and total glucosinolates using a NIRS 6500 scanning near-infrared spectrometer.

Composite samples are used for free fatty acids and fatty acid composition analyses. Composites are prepared by combining Canola, No. 1 Canada samples by provincial crop district; Canola, No. 2 by province, and Canola, No. 3 Canola and Sample Canada samples by western Canada.

This year's harvest survey report included 1 677 canola samples, less than the 2 015 in 2007. Specialty oil samples such as high oleic acid, low linolenic acid, and high erucic acid, were excluded from this report.

Saskatchewan contributed 760 samples, Alberta and British Columbia 451, and Manitoba 466 samples during the survey period, August 25 to November 1, 2008. Weighting factors used to calculate provincial and western Canadian means were derived from the previous five years average production for each crop district and the 2008 provincial production estimates in Statistics Canada's *Field Crop Reporting Series No.7*, October 2, 2008. Factors used to calculate grade distributions are taken from crop reports published by grain companies and provincial agriculture departments.

Figure 2 – 2008 harvest survey
Proportion of samples identified as *Brassica napus* and *Brassica rapa*



Quality of western Canadian canola—2008

Tables 3, 4 and 5 show detailed information on the quality of western Canadian canola harvested in 2008. Table 6 compares the quality of recent canola exports. The numbers of samples in each grade or province may not be representative of the total production or grade distribution. However, there were sufficient samples to provide good quality information for each province. Provincial means were calculated from results for each crop district, weighted by a combination of five-year average production by crop district, and an estimate of grade distribution from crop reports. To calculate western Canadian averages for each grade, provincial averages are weighted by the Statistics Canada production estimate and the estimate of grade distribution.

All oil and protein content values discussed below are presented using the CGC's historical 8.5% moisture basis in order to permit annual and regional comparisons. Some areas had wet weather around harvest time. This means that the moisture content of initial 2008-09 exports is likely to be higher than the final mean moisture content of 2007-08 exports. The mean moisture content of canola exports from Vancouver was 8.3% in October 2008, 0.4% higher than the 2007-08 mean of 7.9% (Table 6). The moisture content of the Thunder Bay canola export in October 2008 was also 8.3%, 1.7% higher than the 2007-08 mean value of 6.6%. Moisture contents of the harvest survey samples are not discussed in this report, as there may have been significant changes during handling, cleaning and storing of the survey samples.

Recent exports of commercially cleaned canola from Vancouver contained 1.7% dockage, which will affect quality factors such as oil content, chlorophyll and free fatty acids. Canola exports containing over 2.5% dockage are considered not commercially clean (NCC) and will have even greater reductions in measured quality components.

**Table 3 – 2008 harvest survey
Canola quality data by grade and province**

	Number of samples	Oil content ¹ %			Protein content ² %			Chlorophyll content mg/kg		
		mean	min.	max.	mean	min.	max.	mean	min.	max.
Canola, No. 1 Canada										
Manitoba	452	43.5	37.8	48.4	21.4	16.5	25.7	12	1	32
Saskatchewan	714	44.6	34.6	51.5	20.3	15.6	29.1	12	0	33
Alberta ³	428	44.5	37.7	50.8	21.0	14.9	27.1	10	0	37
Western Canada ⁴	1594	44.3	34.6	51.5	20.8	14.9	29.1	11	0	37
Canola, No. 2 Canada										
Manitoba	12	42.9	40.3	44.5	21.7	19.4	25.8	21	5	39
Saskatchewan	28	43.0	38.1	47.6	21.8	17.5	29.3	23	7	51
Alberta ³	14	43.5	39.6	47.2	21.4	18.2	25.1	29	9	66
Western Canada ⁴	54	43.1	38.1	47.6	21.7	17.5	29.3	25	5	66
Canola, No. 3 Canada										
Manitoba	1	42.6	42.6	42.6	21.9	21.9	21.9	16	16	16
Saskatchewan	8	45.2	41.4	47.3	19.0	16.9	22.8	20	4	49
Alberta ³	5	42.9	40.9	45.2	21.7	20.7	23.1	48	32	65
Western Canada ⁴	14	43.8	40.9	47.3	20.6	16.9	23.1	29	4	65
Canola, Sample Canada										
Western Canada ⁴	15	43.6	38.3	48.7	20.6	14.7	24.5	13	3	31

¹ 8.5% moisture basis

² N x 6.25; 8.5% moisture basis

³ Includes part of the Peace River area that is in British Columbia

⁴ Values are weighted averages based on production by province as estimated by Statistics Canada.

**Table 4 – 2008 Harvest survey
Canola quality data by grade and province**

	Number of samples	Glucosinolates ¹ mol/g			Free fatty acids
		mean	min.	max.	%
Canola, No. 1 Canada					
Manitoba	452	8.6	3	14	0.12
Saskatchewan	714	8.6	4	18	0.08
Alberta ²	428	8.5	4	22	0.12
Western Canada ³	1594	8.5	3	22	0.10
Canola, No. 2 Canada					
Manitoba	12	9.6	7	11	0.25
Saskatchewan	28	10.3	5	14	0.32
Alberta ²	14	9.3	7	16	0.36
Western Canada ³	54	9.9	5	16	0.32
Canola, No. 3 Canada					
Manitoba	1	11.4	11	11	
Saskatchewan	8	9.9	9	12	
Alberta ²	5	9.6	8	12	
Western Canada ³	14	10.1	8	12	0.32
Canola, Sample Canada					
Western Canada ³	15	11.0	8	15	0.32

¹ 8.5% moisture basis

² Includes part of the Peace River area that is in British Columbia

³ Values are weighted averages based on production by province as estimated by Statistics Canada.

**Table 5 – 2008 Harvest survey
Fatty acid composition by grade and province**

	Fatty acid composition ¹ , %								
	C16:0	C16:1	C18:0	C18:1	C18:2	C18:3	C20:0	C20:1	C20:2
Canola, No. 1 Canada									
Manitoba	3.9	0.3	1.9	63.0	18.7	9.1	0.7	1.2	0.1
Saskatchewan	3.9	0.3	1.9	63.2	18.5	9.1	0.7	1.2	0.1
Alberta ⁴	3.9	0.3	1.9	63.4	18.2	9.1	0.6	1.2	0.1
Western Canada ⁵	3.9	0.3	1.9	63.2	18.4	9.1	0.7	1.2	0.1
Canola, No. 2 Canada									
Manitoba	3.9	0.3	1.8	61.8	19.6	9.4	0.7	1.2	0.1
Saskatchewan	4.0	0.3	1.9	61.9	19.0	9.7	0.6	1.3	0.1
Alberta ⁴	3.9	0.3	1.8	60.9	19.4	10.4	0.7	1.3	0.1
Western Canada ⁵	3.9	0.3	1.9	61.6	19.2	9.8	0.7	1.3	0.1
Canola, No. 3 Canada									
Western Canada ⁵	3.9	0.3	1.9	61.7	18.7	10.3	0.7	1.3	0.1
Canola, Sample Canada									
Western Canada ⁵	3.8	0.2	1.9	63.1	18.2	9.7	0.7	1.2	0.1

	Fatty acid composition ¹ , %					Total saturates ²	Iodine value ³
	C22:0	C22:1	C24:0	C24:1			
Canola, No. 1 Canada							
Manitoba	0.3	0.0	0.2	0.2	7.1	112	
Saskatchewan	0.3	0.0	0.2	0.2	7.1	112	
Alberta ⁴	0.3	0.0	0.2	0.2	7.1	111	
Western Canada ⁵	0.3	0.0	0.2	0.2	7.1	111	
Canola, No. 2 Canada							
Manitoba	0.4	0.0	0.2	0.2	7.1	113	
Saskatchewan	0.3	0.1	0.2	0.2	7.1	113	
Alberta ⁴	0.4	0.0	0.2	0.2	7.0	115	
Western Canada ⁵	0.4	0.0	0.2	0.2	7.1	114	
Canola, No. 3 Canada							
Western Canada ⁵	0.4	0.0	0.3	0.2	7.1	114	
Canola, Sample Canada							
Western Canada ⁵	0.3	0.0	0.2	0.2	6.9	113	

¹ Percentage of total fatty acids including: palmitic (C16:0), palmitoleic (C16:1), stearic (C18:0), oleic (C18:1), linoleic (C18:2), linolenic (C18:3), arachidic (C20:0), eicosenoic (C20:1), eicosadienoic (C20:2), behenic (C22:0), erucic (C22:1), lignoceric (C24:0), nervonic (C24:1)

² Total saturated fatty acids are the sum of palmitic (C16:0), stearic (C18:0), arachidic (C20:0), behenic (C22:0), and lignoceric (C24:0)

³ Calculated from fatty acid composition

⁴ Includes part of the Peace River area that is in British Columbia

⁵ Values are weighted averages based on production by province as estimated by Statistics Canada.

**Table 6 – Canola, No. 1 Canada
Comparisons of quality data for 2008 harvest survey with data
for recent export⁴ shipments**

Quality parameter	2008 survey	October 2008 exports		2007–08 exports	
		Thunder Bay	Vancouver	Thunder Bay	Vancouver
Oil content ¹ , %	44.3	41.9	43.8	42.1	43.5
Protein content ² , %	20.8	21.1	20.7	22.1	21.3
Oil-free protein content ² , %	40.3	39.0	39.7	40.8	40.7
Chlorophyll, mg/kg in seed	11	14	14	14	21
Total glucosinolates, µmol/g	9	12	11	11	12
Free fatty acids, % in oil	0.10	0.46	0.28	0.52	0.40
Erucic acid, % in oil	0.01	0.00	0.05	0.02	0.06
Oleic acid, % in oil	63.2	62.2	63.1	61.8	60.5
Linolenic acid, % in oil	9.1	9.5	9.4	9.9	10.8
Total saturated fatty acids ³ , % in oil	7.1	7.1	7.0	7.1	6.9
Iodine value	111.5	113.0	112.2	113.4	115.6
Loading moisture, %	n/a	8.3	8.3	6.6	7.9
Dockage, %	0.0	3.4	1.7	2.2	1.9
Number of samples	1,594	1	18	4	146

¹ 8.5% moisture basis

² N x 6.25; 8.5% moisture basis

³ Total saturated fatty acids are the sum of palmitic (C16:0), stearic (C18:0), arachidic (C20:0), behenic (C22:0), and lignoceric (C24:0).

⁴ Commercially clean exports contain up to 2.5% dockage while survey samples are dockage free.

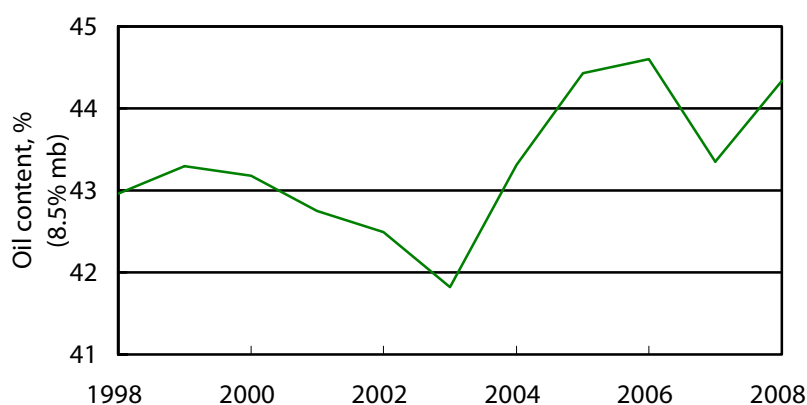
Oil content

For Canola, No. 1 Canada, the 2008 mean oil content (44.3%) is 0.9% higher than the 2007 mean (43.4%) and 1.1% above the ten-year (1998-2007) mean of 43.2%. The mean oil content in Manitoba (43.5%) is lower than in Saskatchewan (44.6%) and Alberta (44.5%). Compared to 2007, mean oil contents have changed by +1.9%, +1.3% and +0.1% respectively for Manitoba, Saskatchewan and Alberta. The oil content of Canola, No. 1 Canada from producers across western Canada ranged from 34.6% to 51.5%. The oil content for Canola, No. 2 Canada is significantly lower than for Canola, No. 1 Canada (Table 3).

The increased oil contents seen in the 2008 survey are a result of the generally cooler growing conditions experienced during July over much of the western Canadian canola growing area. However, the hot, dry conditions in the Peace River region of Alberta and British Columbia stressed canola and reduced oil contents in that region. In general, cool growing conditions at flowering tend to produce canola seed with higher oil contents but lower protein content.

The mean oil content of canola exports from Vancouver was 43.8% in October 2008, 0.3% higher than the 2007-08 mean of 43.5% (Table 6). Late October, early November shipments reached 44% oil content. The mean oil content of the remaining Vancouver exports in the 2008-09 shipping season should remain around 44% on an 8.5% moisture basis. The mean oil content of the Thunder Bay export in October 2008 was 41.9%, similar to the 2007-08 mean value of 42.1%.

**Figure 3 – Canola, No. 1 Canada
Oil content of harvest survey samples, 1998–2008**



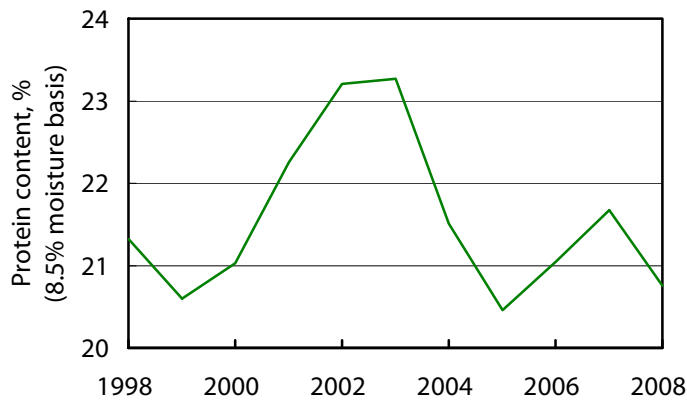
2008 average.....	44.3%
2007 average.....	43.4%
1998–2007 mean	43.2%

Protein content

The 2008 mean crude protein content (20.8%) is 0.9% lower than the 2007 average (21.7%) and 0.8% lower than the ten-year mean value of 21.6%. The 2008 protein content calculated to an oil-free, 8.5% moisture basis is 40.3% compared to 41.2 % in 2007. In Saskatchewan, protein contents (20.3%) are lower than in Manitoba (21.4%) and Alberta (21.0%). Canola, No. 1 Canada samples from producers across western Canada varied in protein content from 14.9% to 29.1%.

The mean protein content of canola exports from Vancouver averaged 20.7% in October 2008, 0.6% lower than the 2007-08 mean of 21.3% (Table 6). The protein content in Vancouver exports should remain near this level for the remainder of the 2008-09 shipping season. The mean protein content of the October 2008 Thunder Bay canola shipment was 21.1%, a 1.0% decrease from the 2007-08 mean of 22.1%.

Figure 4 – Canola, No. 1 Canada
Protein content of harvest survey samples, 1998–2008



2008 average	20.8%
2007 average	21.7%
1998–2007 mean.....	21.6%

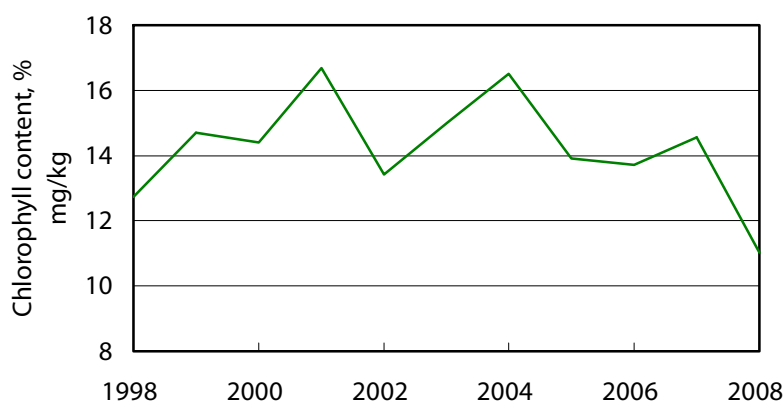
Chlorophyll content

Producer samples of Canola, No. 1 Canada averaged 11 mg/kg chlorophyll in the 2008 survey, significantly lower than the 15 mg/kg in the 2007 harvest (Table 1). The mean chlorophyll level for Alberta samples is lower than for Manitoba and Saskatchewan. Chlorophyll levels for Canola, No. 2 Canada samples averaged 25 mg/kg, significantly lower than the 32 mg/kg for Canola, No. 2 Canada seed in 2007.

Based on discussions with producers and processors, distinctly green seed (DGR) levels were lower than those in 2007 and significantly less of a degrading factor than in a frost-affected crop. Some wet and cool conditions in the late fall hindered the harvesting of the 2008 canola crop in some parts of northern Alberta and northern Saskatchewan. Overall, the green seed count and the amount of chlorophyll per green seed is lower than that in the 2007 crop.

The October 2008 shipments of canola leaving both Vancouver and Thunder Bay had average chlorophyll levels of 14 mg/kg. The October Vancouver value was significantly lower than the average chlorophyll levels in the 2007-08 exports. The levels of chlorophyll in Vancouver export shipments are expected to remain below the 2007-08 mean values (Table 6).

**Figure 5 – Canola, No. 1 Canada
Chlorophyll content of harvest survey samples, 1998–2008**

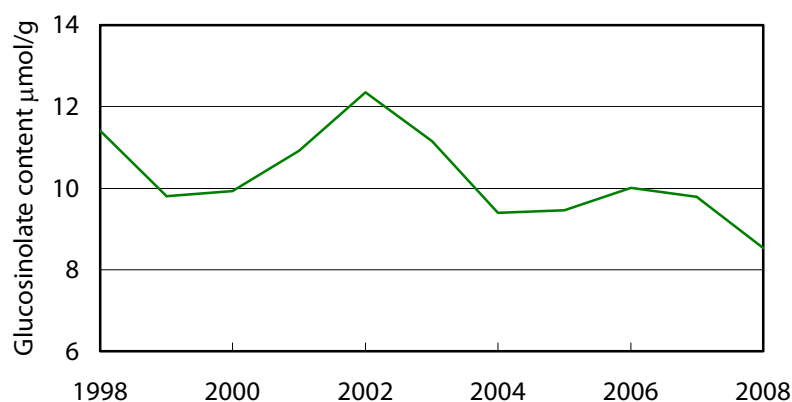


2008 average	11 mg/kg
2007 average	15 mg/kg
1998–2007 mean	15 mg/kg

Glucosinolate content

The 2008 total seed glucosinolate level of 9 micromoles per gram is lower than the 10 micromoles per gram in 2007. The absence of widespread heat stress and the large proportion of *Brassica napus* samples contributed to the overall low glucosinolate levels for the 2008 crop. The GRL 2008 harvest survey samples were comprised of over 99% *Brassica napus* types, similar to the 99% in 2007. The average level of total seed glucosinolates in the October 2008 Vancouver and Thunder Bay canola exports indicates glucosinolate levels in exports will be similar to those in the 2007-08 shipping season.

Figure 6 – Canola, No. 1 Canada
Total seed glucosinolate content of harvest survey samples,
1998–2008

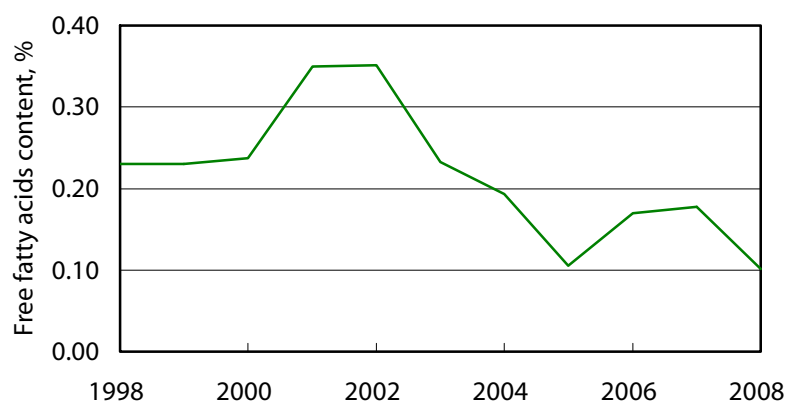


2008 average	9 μmol/g
2007 average	10 μmol/g
1998–2007 mean.....	10 μmol/g

Free fatty acids content

The 2008 harvest survey of Canola, No. 1 Canada has a mean free fatty acid (FFA) content of 0.10%. This level is significantly lower than the 2007 value of 0.18% and the long-term mean of 0.23%. However, the FFA levels may be elevated in seed that was subject to wet harvesting conditions or improper storage, particularly in the northern regions of the canola growing area. Individual producer samples from some areas are higher in FFA (e.g. 0.6% to 0.8%) than the reported western Canada mean of 0.10% for Canola, No. 1 Canada. For initial 2008-09 exports, FFA levels are expected to be around 0.3% for Canola, No. 1 Canada (Table 6). The FFA levels towards the end of the shipping season will likely be higher than the values seen in October shipments because FFA levels tend to increase over time.

Figure 7 – Canola, No. 1 Canada
Free fatty acid content of harvest survey samples, 1998–2008



2008 average	0.10%
2007 average	0.18%
1998–2007 mean.....	0.23%

Fatty acid composition

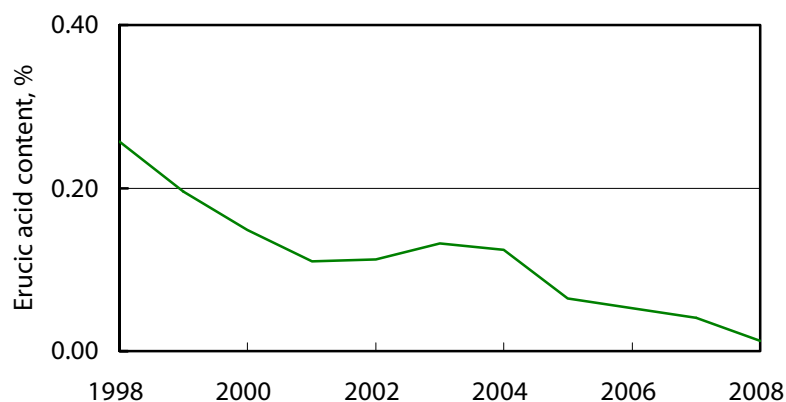
For Canola, No. 1 Canada samples the mean iodine value of the oil is 111 units, 2 units lower than the 113 units in 2007 (Table 2). For Canola, No. 1 Canada samples the mean linolenic acid is 9.1% in 2008, which is significantly lower than both the 9.8% in 2007 and the 10-year mean of 9.9%. For Canola, No. 1 Canada samples the mean oleic acid content of the 2008 crop increased 1.7% while the linolenic and linoleic acid contents decreased 0.7% and 0.9% respectively.

At 9.1%, the mean linolenic acid in all three provinces was similar in 2008. Usually, Alberta would have notably higher mean linolenic acid content than Saskatchewan and Manitoba. The drought-like conditions in the northern Peace River region of Alberta and B.C. caused the Alberta mean linolenic acid content to decrease significantly from its 2007 value of 10.9%.

The average level of erucic acid in the 2008 crop is 0.01%, lower than the 0.04% in 2007 and well below the 10-year mean of 0.12%. The mean level of saturated fatty acids is 7.1% in 2008, slightly higher than the 2007 value of 7.0%. The mean saturated fatty acid levels were similar in all three provinces in 2008. Usually, samples from the southern prairies have significantly higher saturated fatty acids than samples from the northern regions. However this was not the case in 2008 due to cooler conditions in the south and drought like conditions in the northern Peace River region of Alberta and British Columbia.

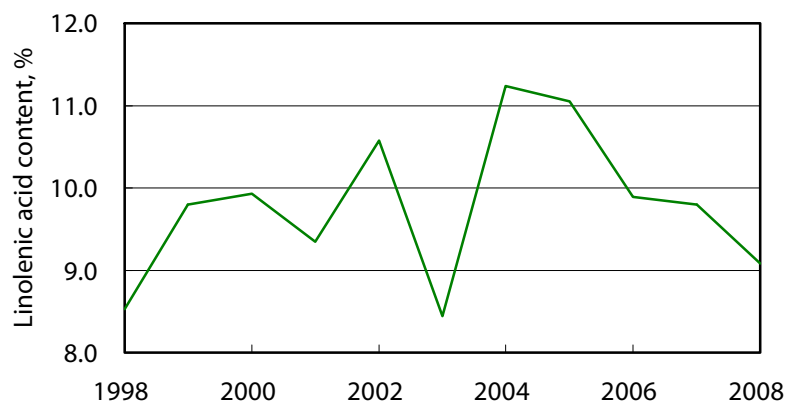
Based on the October 2008 data, the mean linolenic acid content for Canola, No. 1 Canada exports from Vancouver decreased by 1.4% to a mean value of 9.4% (Table 5). The October 2008 Thunder Bay exports decreased by 0.4% to a mean value of 9.5% linolenic acid content. At 112 units, the iodine value for October Vancouver canola exports decreased by over 3 units from the 2007-08 levels. The iodine value of the October, Thunder Bay canola export decreased by less than a unit compared to the 2007-08 mean. The level of saturated fatty acids in October 2008 Vancouver and canola exports increased by 0.1%. The levels of erucic acid in all exports during the 2008-09 shipping season will likely remain around 0.1%.

Figure 8 – Canola, No. 1 Canada
Erucic acid content of harvest survey samples, 1998–2008



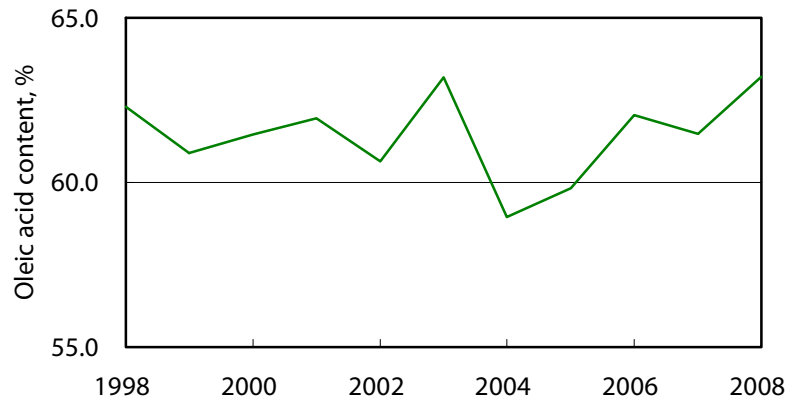
2008 average.....0.01%
 2007 average.....0.04%
 1998–2007 mean0.12%

Figure 9 – Canola, No. 1 Canada
Linolenic acid content of harvest survey samples, 1998–2008



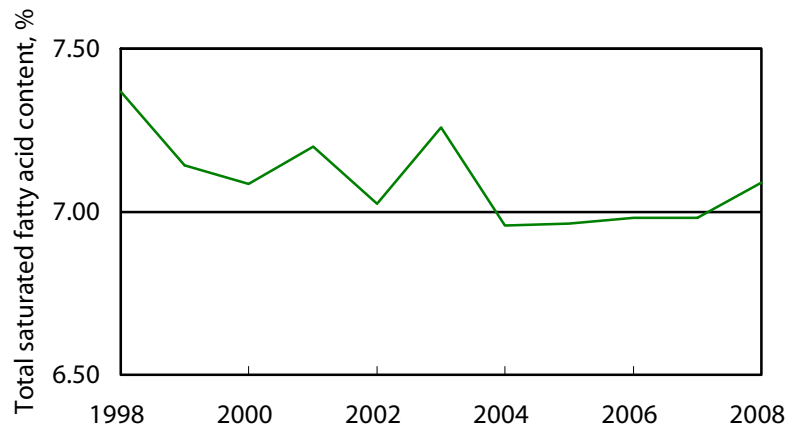
2008 average9.1%
 2007 average9.8%
 1998–2007 mean.....9.9%

Figure 10 – Canola, No. 1 Canada
Oleic acid content of harvest survey samples, 1998–2008



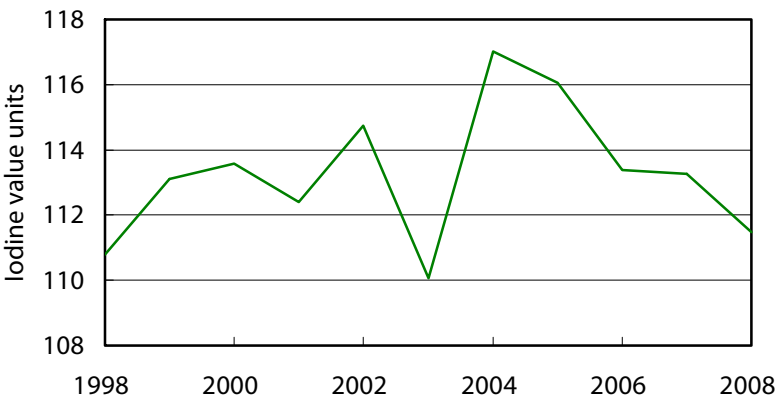
2008 average63.2%
 2007 average61.5%
 1998–2007 mean.....61.3%

Figure 11 – Canola, No. 1 Canada
Total saturated fatty acid content of harvest survey samples, 1998–2008



2008 average7.1%
 2007 average7.0%
 1998–2007 mean.....7.1%

**Figure 12 – Canola, No. 1 Canada
Iodine value of harvest survey samples, 1998–2008**



2008 average 111
2007 average 113
1998–2007 mean..... 113