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Quality of western Canadian canola 2009

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Acknowledgments

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Introduction

This report presents quality data and information based on the Canadian Grain Commission (CGC) 2009 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 2009 western Canadian canola crop is characterized by higher oil (44.5 versus 43.4%) contents and, chlorophyll levels (15.4 versus 14.40 mg/kg), and lower protein contents (19.9 versus 21.6%) when compared to the 10-year means (1999 to 2008) (Table 1). Compared to 2008, the mean oil content of Canola, No.1 Canada is similar, 44.5% versus 44.3% in 2008, while the mean protein content, 19.9%, is 0.9% lower. The mean chlorophyll content for Canola, No.1 Canada is 15.4 mg/kg, notably higher than the 11 mg/kg in 2008. The 2009 canola crop is lower in oleic acid content, 62.2% but higher in α-linolenic acid (ALA) content (9.8%). For Canola, No.1 Canada seed, the total saturated fatty acid content decreased slightly to 6.8%. This results in oil with a higher mean iodine value of 114 units. The erucic acid, 0.01%, and the total seed glucosinolates, 9.6 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 higher (0.15%) than those in the 2008 crop (0.10%). The 2009 canola crop shows regional differences in oil, protein and chlorophyll contents but not in fatty acid composition.

Table 1 – Canola, No. 1 Canada
Quality data for 2009 harvest survey

Quality parameter	2009	2008	1999-2008 Mean
Oil content [1], %	44.5	44.3	43.4
Protein content [2], %	19.9	20.8	21.6
Oil-free protein[2], %	38.7	40.3	41.0
Chlorophyll content, mg/kg in seed	15.4	11.0	14.4
Total glucosinolates[1], µmol/g	9.6	10.6	13.2
Free fatty acids, %	0.15	0.10	0.23
Erucic acid, % in oil	0.01	0.01	0.10
Linolenic acid, % in oil	10.0	9.1	9.9
Oleic acid, % in oil	62.2	63.2	61.4
Total saturated fatty acids[3], % in oil	6.8	7.1	7.1
Iodine value	114	111	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 2009 western Canadian growing season can be found on AAFC web site (http://www.agr.gc.ca/pfra/drought/article_e.htm). By the end of August, growth was several weeks behind normal due to the significantly below normal temperatures during May, June, July and August. However, most of the canola harvested in Manitoba and the southern part of Saskatchewan and Alberta was completed by the end of September due to significantly higher than normal September temperatures. Snow fall in October in most of the prairies temporarily stopped the harvest. Harvesting in some areas of Saskatchewan and Alberta resumed in a warmer than normal November with approximately 92% of the total harvest completed by the middle of November.

Production and grade information

Western Canadian farmers planted 6.5 million hectares of canola in 2009, similar to last year's area (Table 2). Statistics Canada's *Field Crop Reporting Series No. 8* reported that the 2009 western Canada mean yield of 1900 kg/ha, higher than the 1700 kg/ha reported in 2008 and the record high 1800 kg/ha reported for 2005. This is well above the 10-year mean of 1465 kg/ha.

Western Canadian producers are expected to harvest 11.7 million metric tonnes of canola, a 6.5% decrease from last year's record production of 12.56 million metric tonnes. According to Statistics Canada's estimates of provincial production (Decemeber 3, 2009, Field Crop Reporting Series), Manitoba (MB), Saskatchewan (SK), and Alberta/British Columbia (AB/BC) accounted for 23.9%, 48.7% and 27.4% respectively of the total canola production) (Table 2).

The grade pattern of the 2009 canola crop was similar to that in 2008 and considerably better than in 2004. Overall, distinctly green seed (DGR) levels were much less of a degrading factor than in the frost-affected 2004 crop. Snow in October, might have 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]
	2009	2008	2009	2008	1999-2008
	thousand hectares		thousand tonnes		thousand tonnes
Manitoba	1,295.0	1,254.5	2,828.1	2,576.4	1,690.8
Saskatchewan	3,176.9	3,095.8	5,726.6	5,629.1	3,472.9
Alberta[3]	2,053.8	2,128.7	3,206.9	4,354.5	2,772.8
Western Canada	**6,525.6**	**6,479.0**	**11,761.6**	**12,560.0**	**7,978.5**

[1] Source: Field Crop Reporting Series, No. 8, December 3, 2009; Statistics Canada
[2] Source: Field Crop Reporting Series, revised final estimates for 1999-2008.
[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. Harvest survey samples are analyzed for oil, protein, chlorophyll and total glucosinolates using a NIRS 6500 scanning near-infrared spectrometer. Industry Services grain inspectors assign grade level based on the Official Grain Grading Guide for Canola and Rapeseed (Chapter 10) that can be found at: http://grainscanada.gc.ca/oggg-gocg/10/oggg-gocg-10-eng.htm

Composite samples are typically 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 and No. 3 Canada samples by province, and Canola, Sample Canada samples by western Canada.

This year's harvest survey report included 1,484 canola samples, less than the 1,677 samples analyzed in 2008 and the 2,015 analyzed in 2007. Specialty oil samples such as high oleic acid, low linolenic acid, and high erucic acid, were excluded from this report.

Saskatchewan contributed 592 samples, Alberta and British Columbia 489, and Manitoba 403 samples during the survey period, September 1st to December 1st, 2009. 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 2009 provincial production estimates in Statistics Canada's Field Crop Reporting Series No. 8, December 3, 2009. Factors used to calculate grade distributions are taken from crop reports published by grain companies and provincial agriculture departments.

Table 3 – Proportion of *Brassica rapa* and *Brassica napus* in GRL Harvest surveys

	2009		2008		1999-2008	
	B.rapa	*B. napus*	*B. rapa*	*B. napus*	*B. rapa*	*B. napus*
			Pecent			
Manitoba	0.23	99.77	0.00	100.0	0.23	99.77
Saskatchewan	0.44	99.56	0.13	99.87	1.33	98.67
Alberta[1]	1.13	98.87	0.99	99.01	5.05	94.95
Western Canada	**0.61**	**99.39**	**0.33**	**99.67**	**2.05**	**97.95**

[1]Includes the part of the Peace River area that is in British Columbia

Quality of western Canadian canola—2009

Tables 3, 4, 5 and 6 show detailed information on the quality of western Canadian canola harvested in 2009. Table 7 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.

Recent exports of commercially cleaned canola from Thunder Bay and Vancouver contained 1.5% and 1.7% dockage respectively, which will affect quality factors such as oil content, chlorophyll and FFA. Canola exports containing over 2.5% dockage are considered not commercially clean (NCC) and will have even greater reductions in measured quality components.

Table 4 – 2009 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	378	43.5	37.9	49.9	20.0	16.3	25.2	13.8	2.6	38.4
Saskatchewan	569	45.3	38.2	52.2	18.9	14.7	27.6	15.4	2.9	57.1
Alberta[3]	408	44.2	37.6	49.7	21.1	15.9	27.0	16.3	0.3	46.9
Western Canada[4]	**1355**	**44.5**	**37.6**	**52.5**	**19.9**	**14.7**	**27.6**	**15.4**	**0.3**	**57.1**
Canola, No. 2 Canada										
Manitoba	13	42.0	41.2	45.2	21.2	17.4	23.7	27.1	9.1	51.3
Saskatchewan	11	44.8	40.9	49.3	19.5	16.4	22.5	20.4	8.3	48.7
Alberta[3]	69	43.9	38.9	50.5	21.0	15.5	25.7	36.1	4.5	74.6
Western Canada[4]	**93**	**44.0**	**38.9**	**50.5**	**20.3**	**15.5**	**25.7**	**26.4**	**4.5**	**74.6**
Canola, No. 3 Canada										
Western Canada[4]	**18**	**42.8**	**35.6**	**46.7**	**21.2**	**18.6**	**27.5**	**44.5**	**12.7**	**81.3**
Canola, Sample Canada										
Western Canada[4]	**18**	**43.1**	**38.4**	**47.9**	**18.3**	**15.3**	**25.6**	**14.0**	**0.0**	**148.0**

[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 5 – 2009 Harvest survey
Canola quality data by grade and province

	Number of samples	Glucosinolates[1] µmol/g			Free fatty acids %
		mean	min.	max.	
Canola, No. 1 Canada					
Manitoba	378	9.21	5.00	13.10	0.14
Saskatchewan	569	9.09	5.40	14.40	0.09
Alberta[2]	408	10.43	5.70	17.60	0.17
Western Canada[3]	**1355**	**9.59**	**5.00**	**17.60**	**0.13**
Canola, No. 2 Canada					
Manitoba	13	10.20	8.00	11.4	0.33
Saskatchewan	11	10.60	7.50	12.90	0.14
Alberta[2]	69	10.48	7.50	15.40	0.25
Western Canada[3]	**93**	**10.49**	**7.50**	**15.40**	**0.21**
Canola, No. 3 Canada					
Western Canada[3]	**18**	**10.14**	**7.60**	**16.9**	**0.20**
Canola, Sample Canada					
Western Canada[3]	**18**	**13.90**	**3.50**	**17.70**	**0.30**

[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 6 – 2009 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	3.94	0.26	1.76	62.23	18.77	9.96	0.64	1.25	0.07
Saskatchewan	3.91	0.26	1.76	62.19	18.87	10.01	0.62	1.22	0.07
Alberta[2]	3.86	0.26	1.75	62.32	18.77	10.00	0.60	1.26	0.07
Western Canada[3]	**3.90**	**0.26**	**1.76**	**62.25**	**18.81**	**10.00**	**0.62**	**1.24**	**0.07**
Canola, No. 2 Canada									
Manitoba	4.07	0.28	1.70	61.46	19.45	9.87	0.62	1.28	0.07
Saskatchewan	3.93	0.27	175	62.43	18.73	9.89	0.62	1.22	0.06
Alberta[2]	3.94	0.27	1.83	62.00	18.88	9.97	0.62	1.28	0.07
Western Canada[3]	**3.93**	**0.27**	**1.80**	**62.10**	**18.90**	**9.91**	**0.62**	**1.24**	**0.07**
Canola, No. 3 Canada									
Western Canada[3]	**4.1**	**0.3**	**1.8**	**61.9**	**19.1**	**9.6**	**0.6**	**1.2**	**0.1**
Canola, Sample Canada									
Western Canada[3]	**3.8**	**0.3**	**1.8**	**61.9**	**18.9**	**10.4**	**0.6**	**1.2**	**0.1**

	Fatty acid composition[1], %					
	C22:0	C22:1	C24:0	C24:1	Total saturates[2]	Iodine value[3]
Canola, No. 1 Canada						
Manitoba	0.4	0.00	0.2		6.9	114
Saskatchewan	0.3	0.01	0.2		6.9	114
Alberta[2]	0.3	0.01	0.2		6.8	114
Western Canada[3]	**0.3**	**0.01**	**0.2**		**6.9**	**114**
Canola, No. 2 Canada						
Manitoba	0.4	0.01	0.2		7.0	114
Saskatchewan	0.4	0.00	0.2		6.9	113
Alberta[2]	0.4	0.01	0.2		7.0	114
Western Canada[3]	**0.4**	**0.01**	**0.2**		**6.9**	**114**
Canola, No. 3 Canada						
Western Canada[3]	**0.4**	**0.00**	**0.2**		**7.2**	**113**
Canola, Sample Canada						
Western Canada[3]	**0.4**	**0.00**	**0.2**		**6.9**	**114**

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 7 – Canola, No. 1 Canada
Comparisons of quality data for 2009 harvest survey with data for recent export shipments

Quality parameter	2009 survey	October 2009 exports		2008–09 exports	
		Thunder Bay	Vancouver	Thunder Bay	Vancouver
Oil content[1], %	44.5	42.9	43.8	42.8	43.8
Protein content[2], %	19.9	19.9	19.9	21.4	20.7
Oil-free protein content[2], %	38.7	37.5	38.2	40.1	39.7
Chlorophyll, mg/kg in seed	15.4	10.5	14.9	12.0	14.9
Total glucosinolates, µmol/g	9.6	12.3	13.3	12.2	12.0
Free fatty acids, %	0.13	0.28	0.3	0.2	0.3
Erucic acid, % in oil	0.01	0.00	0.02	0.03	0.03
Oleic acid, % in oil	62.2	62.4	62.5	63.1	63.0
Total saturated fatty acids[3], % in oil	6.9	6.9	7.0	7.0	7.0
Iodine value	113.7	113.2	113.2	111.7	112.2
Loading moisture, %	N/A	7.8	7.5	7.7	7.7
Number of export samples	N/A	2	21	4	178

[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).

Oil content

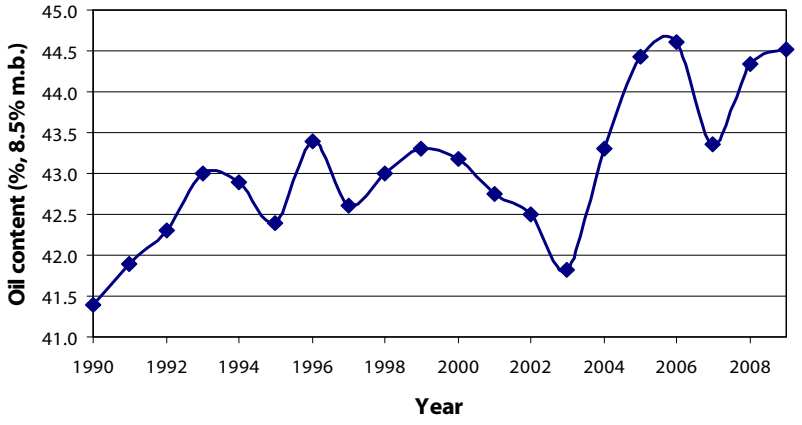
For Canola, No.1 Canada, the 2009 mean oil content (44.5%) was similar to the 2008 mean (44.3%), well above (1.1% higher) than the ten-year (1999-2008) mean of 43.4%. The mean oil content in Manitoba (43.5%) is lower than in Saskatchewan (45.3%) and Alberta (44.5%). Compared to 2008, mean oil contents have changed by +0.6%, +1.0% and +0.1% respectively for Manitoba, Saskatchewan and Alberta. The oil content of Canola, No.1 Canada from producers across western Canada ranged from 37.6% to 49.9% in Manitoba and Alberta; in Saskatchewan the oil content ranged from 44.6% to 49.4%. The oil content for Canola, No.2 Canada was lower than for Canola, No.1, 44.0% versus 44.5%. The Canola, No.2 Canada from western Canada ranged from 38.9% to 50.5%.

The increased oil contents seen in the 2009 survey are a result of the generally cooler growing conditions experienced from May to August over much of the western Canadian canola growing area. However, dry conditions remained in the Peace River region of Alberta and British Columbia; canola was not as stressed as last year because of the cool summer weather.

In general, cool growing conditions at flowering tends to produce canola seed with a higher oil content but lower protein content.

The mean oil content of canola exports from Vancouver was 43.8% in October 2009, similar to the 2008-09 mean (43.5%) (Table 7). It is expected that the mean oil content of the Vancouver exports in the 2008-09 shipping season should remain around 43-44% on a 8.5% moisture basis. The mean oil content of the Thunder Bay export in October 2009 was 42.9%, similar to the 2008-09 mean value of 42.8%.

Figure 2 – Canola, No. 1 Canada
Oil content of harvest survey smples, 1990-2009



2009 average..... 44.5%
2008 average..... 44.3%
1999–2008 mean 43.4%

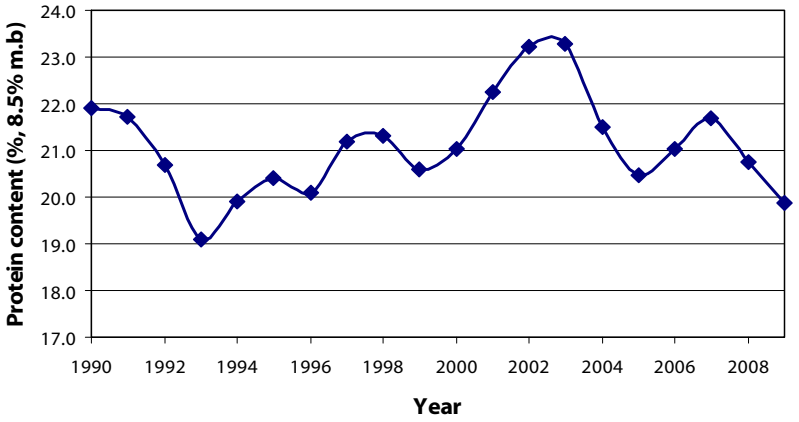
Protein content

The 2009 mean crude protein content (19.9%) is 0.9% lower than the 2008 average (20.8%) and 1.7% lower than the ten-year mean value of 21.6%. The 2009 protein content calculated to an oil-free, 8.5% moisture basis is 38.7% compared to 40.3 % in 2008. In Saskatchewan, protein contents (18.9%) 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 14.7% to 27.6%. The mean protein contents increased in the lower grades of canola.

The mean protein content of canola exports from both Vancouver and Thunder Bay averaged 19.9% in October 2009, 0.8% and 1.5% lower than the 2008-09 mean of 21.7% and 21.4% for Vancouver and Thunder Bay, respectively (Table 7). The protein content in Vancouver exports should remain near this level for the remainder of the 2009-10 shipping season.

It is to be noted that oil-free protein content also decreased compared to last year's results, 38.7% versus 40.3%. This tends to suggest smaller seed size, which could be a result of the cold and difficult growing conditions.

Figure 3 – Canola, No. 1 Canada
Protein content of harvest survey samples, 1990–2009



2009 average 21.0%
2008 average 20.8%
1999–2008 mean.....21.6%

Chlorophyll content

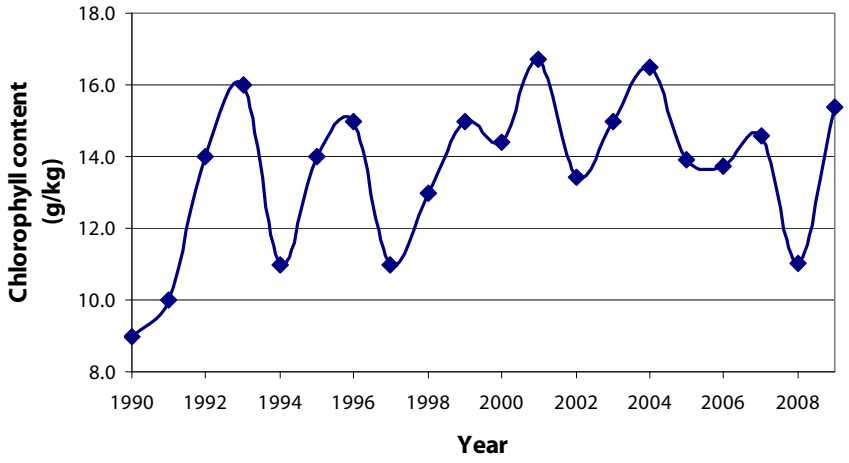
Producer samples of Canola, No. 1 Canada averaged 15.4 mg/kg chlorophyll in the 2009 survey, significantly higher than the 11.0 mg/kg in the 2008 harvest (Table 1). The mean chlorophyll level for Alberta samples (16.3 mg/kg) is higher than for Manitoba (13.8 mg/kg) and Saskatchewan (15.4 mg/kg). Chlorophyll levels for Canola, No. 2 Canada samples averaged 27.9 mg/kg, similar to the 24.4 mg/kg for Canola, No. 2 Canada seed in 2008.

The average chlorophyll content for canola samples graded Canola Sample Canada is lower than the chlorophyll content of Canola, No. 2 Canada; only one producer sample was graded the Canola Sample Canada because of its distinctly green seed count (DGR), all the other samples were down graded because of their high contents of total conspicuous admixture (> 2.0%) and/or inconspicuous admixture (> 5.0%).

Distinctly green seed (DGR) levels seemed to be higher or similar at best than last year's results; they ranged from 0 to 29 in 2009 whereas in 2008 they ranged from 0 to 15. Results showed higher DGR in Alberta than in Saskatchewan and Manitoba.

The October 2009 shipments of canola leaving both Vancouver and Thunderbay had average chlorophyll levels of 14.9 mg/kg. The chlorophyll value in October from Vancouver was equal to the average chlorophyll levels in the 2008-09 exports. The levels of chlorophyll in Vancouver export shipments are likely to change and increase since overall chlorophyll levels were higher in 2009 when compared to 2008 (Table 7).

Figure 4 – Canola, No. 1 Canada
Chlorophyll content of harvest survey samples, 1990–2009

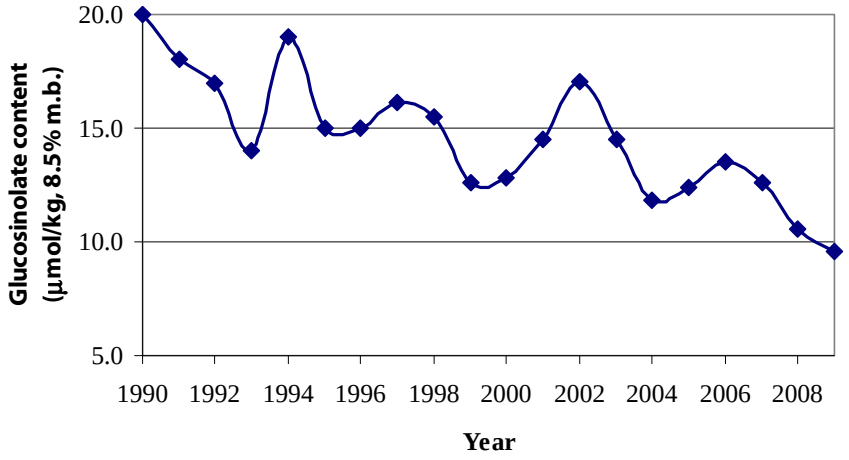


2009 average ..... 15.4 mg/kg
2008 average ..... 11.0 mg/kg
1999–2008 mean..... 14.4 mg/kg

Glucosinolate content

The 2009 total seed glucosinolate level of 9.6 µmoles per gram is slightly higher than the 8.5 (*in table 1)* µmoles per gram in 2008 and similar to the 10 µmoles per gram found 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 2009 crop. The GRL 2009 harvest survey samples were comprised of over 99% Brassica napus types, similar to the 99% in 2008 (Table 3). The average level of total seed glucosinolates in the October 2009 Vancouver and Thunder Bay canola exports indicates glucosinolate levels in exports will be similar to those in the 2008-09 shipping season.

Figure 5 – Canola, No. 1 Canada
Total seed glucosinolate content of harvest survey samples, 1990–2009



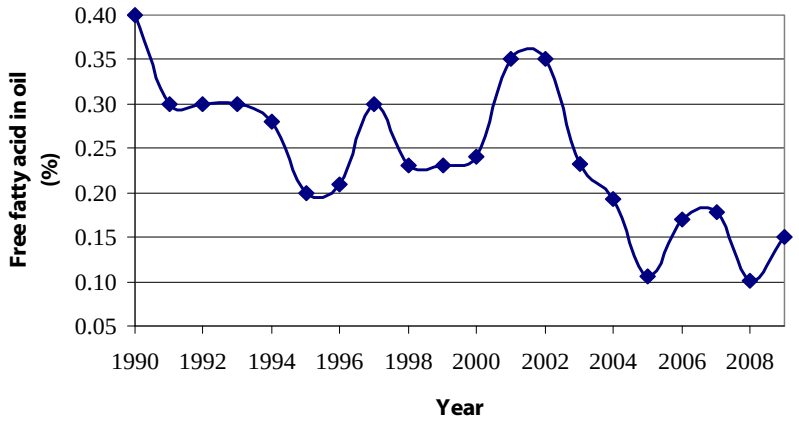
2009 average ..... 9.6 µmol/g
2008 average ..... 10.6 µmol/g
1999–2008 mean..... 13.2 µmol/g

Free fatty acids content

The 2009 harvest survey of Canola, No.1 Canada has a mean free fatty acid (FFA) content of 0.15%. This level is significantly higher than the 2008 value of 0.10% and lower than the long-term mean of 0.23%. However, the FFA levels may be elevated in seed that was subjected to wet harvesting conditions (October snow fall) 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 W. Canada mean of 0.15% for Canola, No.1 Canada.

For initial 2009-10 exports, FFA levels are expected to be around 0.3% for Canola, No.1 Canada (Table 7). 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 6 – Canola, No. 1 Canada
Free fatty acid content of harvest survey samples, 1990–2009



2009 average 0.15%
2008 average 0.10%
1990–2008 mean.....0.22%

Fatty acid composition

The mean for Canola, No.1 Canada samples the mean iodine value of the oil is 113.7 units, almost 3 units higher than the 111 units in 2008 (Table 1). For Canola, No.1 Canada samples the mean linolenic acid is 10.0% in 2009, which is significantly higher than both the 9.0% in 2008 and similar to the 10-year mean of 9.9%. For Canola, No.1 Canada samples the mean oleic acid content of the 2009 crop is 62.2%, a 1.0% decrease while the α-linolenic and linoleic acid contents increased by 0.9% and 0.4% respectively.

At 10.0%, the mean linolenic acid in all three provinces was similar in 2009. 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 be similar to Manitoba and Saskatchewan means.

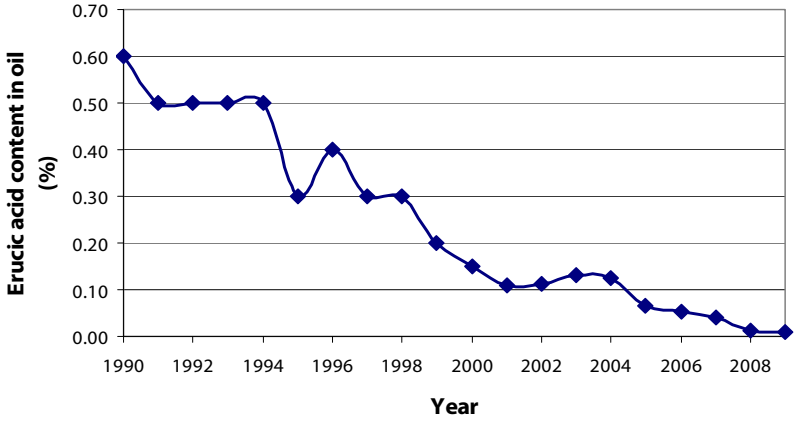
The average level of erucic acid in the 2009 crop is 0.01%, similar to the 0.01% in 2008 and well below the 10-year mean of 0.10%.

The mean level of saturated fatty acids is 6.8% in 2009, slightly lower than the 2008 value of 7.1%. The mean saturated fatty acid levels were similar in all three provinces in 2009. 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 2009 due to the cool summer conditions in the western prairies. The drought like conditions that still remains in the northern Peace River region of Alberta and B.C. affected the fatty acid composition of the canola samples.

Based on the October 2009 data, the mean linolenic acid content for Canola, No.1 Canada exports from Vancouver and Thunder Bay was equal to the 2008-2009 exports (Table 7).

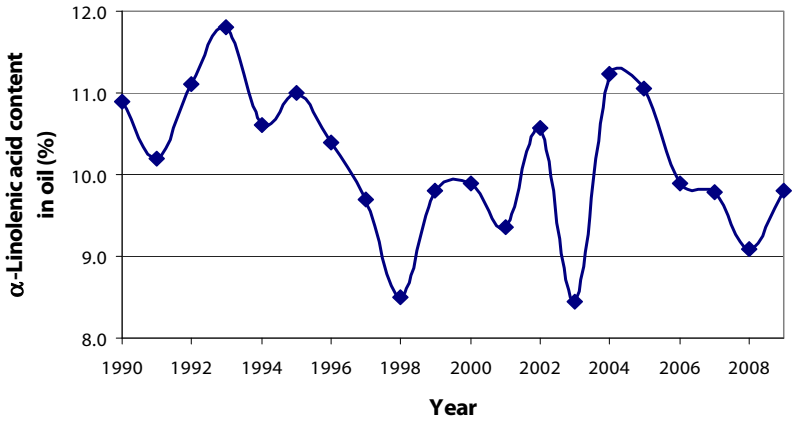
At 113.2 units, the iodine value for October 2009 Vancouver and Thunder Bay canola exports increased by 1 unit from the 2008-09 levels. The iodine value of the October, Thunder Bay canola export increase by up to one unit compared to the 2008-09 means. The level of saturated fatty acids in October 2009 Vancouver and Thunder Bay canola exports remained similar to the 2008-09 means. It is expected that the levels of erucic acid will remain constant during the 2008-09 shipping season – close to 0.02%, well below 0.1%.

Figure 7 – Canola, No. 1 Canada
Erucic acid content of harvest survey samples, 1990–2009



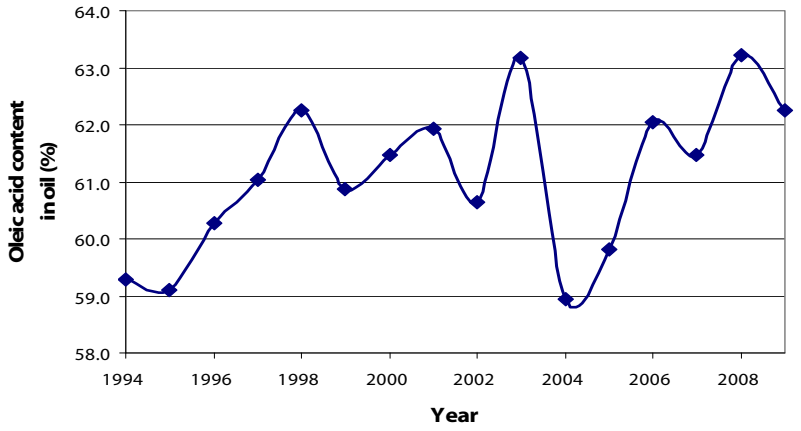
2009 average 0.01%
2008 average 0.01%
1999–2008 mean 0.10%

Figure 8 – Canola, No. 1 Canada
Linolenic acid content of harvest survey samples, 1990–2009



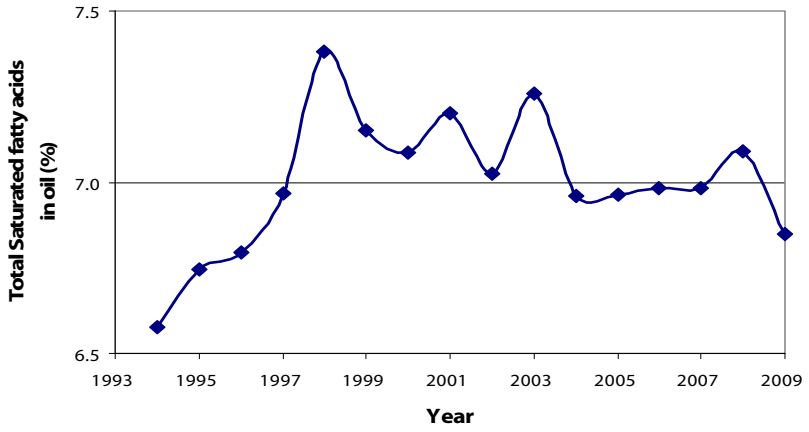
2009 average 9.8%
2008 average 9.1%
1999–2008 mean 9.9%

Figure 9 – Canola, No. 1 Canada
Oleic acid content of harvest survey samples, 1994–2009



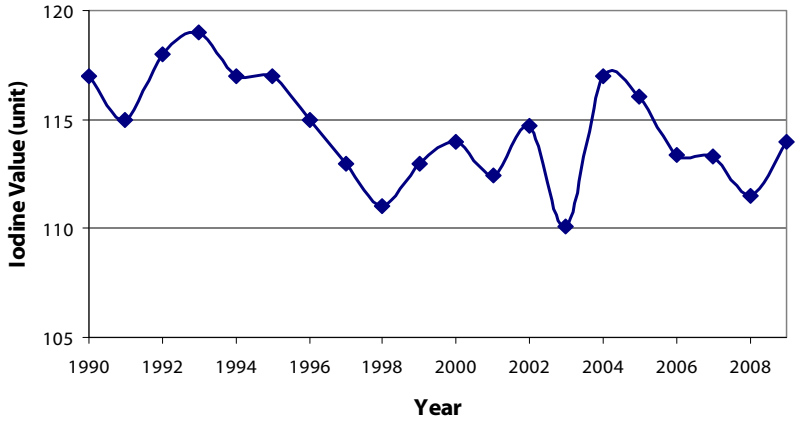
2009 average 62.2%
2008 average 63.2%
1999–2008 mean.....61.4%

Figure 10 – Canola, No. 1 Canada
Total saturated fatty acid content of harvest survey samples, 1994–2009



2009 average 6.85%
2008 average 7.09%
1999–2008 mean.....7.07%

Figure 11 – Canola, No. 1 Canada
Iodine value of harvest survey samples, 1990–2009



2009 average 114
2008 average 111
1999–2008 mean.....114