



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

Canada 

OILSEEDS SECTOR PROFILE

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1. INTRODUCTION

The Canadian oilseeds ¹ sector can be divided into three distinctive components:

- **Seed production:** covering farm production and farm storage.
- **Processing:** covering crushing, refining and further processing for the production of oils, protein meals and finished products; it includes bottling and packaging operations.
- **Marketing:** covering trade, distribution, exporting and hedging of oilseeds and their products.

In 1996 the farm value of oilseed production was estimated at \$2,883 million. In addition, oilseed processing contributed an additional \$500 million in direct value-added and over \$1,000 million in spinoff benefits to the Canadian economy.

¹ Corn oil and its secondary products are produced in Canada only in relatively small quantities as a by-product of the corn starch industry. Therefore they are not included in this profile. Furthermore, corn is a cereal not an oilseed.

Oilseed Sector Profile

TABLE 1

CANADIAN OILSEED PRODUCTION BY PROVINCE

	AREA in HECTARES					YIELD in KG/HA					PRODUCTION in TONNES				
	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
CANOLA															
Quebec	N/A	N/A	N/A	5,200	8,000	N/A	N/A	N/A	2,120	2,313	N/A	N/A	N/A	11,000	18,500
Ontario	22,300	36,400	20,200	26,300	26,300	2,000	1,900	2,200	2,070	2,156	45,400	68,000	45,400	54,400	56,700
Manitoba	1,031,900	951,000	631,300	930,800	1,112,900	1,500	1,300	1,700	1,540	1,624	1,485,500	1,227,000	1,050,100	1,417,500	1,781,500
Saskatchewan	2,670,900	2,509,100	1,618,700	2,266,200	2,529,300	1,200	1,100	1,400	1,170	1,284	3,175,100	2,630,800	2,245,300	2,651,200	3,220,500
Alberta	2,023,400	1,800,900	1,274,800	1,618,700	1,760,400	1,200	1,400	1,400	1,290	1,408	2,472,100	2,449,400	1,678,300	2,041,200	2,449,400
British Columbia	48,600	50,600	37,200	30,400	40,500	1,200	1,300	1,200	1,020	1,511	54,400	61,200	17,500	2,270	61,200
Canada	5,797,100	5,348,000	3,582,200	4,877,600	5,477,400	1,300	1,200	1,400	1,290	1,400	7,232,500	6,436,400	5,036,600	6,198,000	7,587,800
SOYBEANS															
Prince Edward Isle	5,300	4,500	5,300	2,800	2,800	2,300	1,700	1,900	2,040	2,179	12,300	7,800	10,300	5,700	6,100
Quebec	56,000	85,000	93,000	120,000	128,000	3,000	2,900	2,700	2,810	3,059	170,000	244,000	255,000	337,000	390,000
Ontario	758,800	736,500	777,000	936,800	849,800	2,700	2,800	2,500	2,560	2,754	2,068,400	2,041,200	1,905,100	2,395,000	2,340,500
Canada	820,100	826,000	875,300	1,061,700	980,600	2,700	2,800	2,500	2,580	2,792	2,250,700	2,293,000	2,170,400	2,737,700	2,736,600
FLAXSEED															
Manitoba	279,200	313,600	234,700	303,500	283,300	1,400	1,300	1,500	1,250	1,319	381,000	403,900	350,000	378,500	368,300
Saskatchewan	424,900	526,100	352,100	505,900	566,600	1,300	1,300	1,400	1,100	1,233	546,100	647,700	472,500	556,300	698,500
Alberta	28,300	36,400	16,200	24,300	28,300	1,400	1,500	1,400	1,310	1,392	40,600	53,300	20,300	31,800	39,400
Canada	732,400	876,100	603,000	833,700	878,200	1,300	1,300	1,500	1,160	1,266	967,700	1,104,900	842,800	966,600	1,106,200
SUNFLOWER SEED															
Manitoba	56,700	30,400	28,300	34,400	50,600	1,527	1,654	1,560	1,380	1,704	86,600	43,500	40,900	47,600	86,200
Saskatchewan	24,300	16,200	8,100	14,200	16,200	1,066	1,136	1,560	1,010	1,315	25,900	18,400	12,600	14,300	21,300
Alberta	2,000	2,000	1,200	2,000	2,000	2,250	2,150	1,830	1,600	2,150	4,500	4,300	2,200	3,200	4,300
Canada	83,000	48,600	37,600	50,600	68,800	1,410	1,488	1,565	1,290	1,625	117,000	66,200	55,700	65,100	111,800
MUSTARD SEED															
Manitoba	4,000	4,000	4,400	6,900	4,000	1,025	650	1,110	910	850	4,100	2,600	4,900	6,300	3,400
Saskatchewan	283,200	222,600	194,200	226,600	234,800	985	880	1,020	820	847	278,900	190,600	193,300	186,400	195,500
Alberta	36,400	46,500	42,400	58,700	44,500	997	1,297	970	860	892	36,300	60,300	39,300	50,600	39,700
Canada	323,600	273,100	241,000	292,200	283,300	987	949	1,011	830	855	319,300	253,500	237,500	243,300	238,600

Source: Statistics Canada, CANSIM

2. THE SEED PRODUCTION SUB-SECTOR

Oilseed production in Canada is regionalised. In Ontario, and to a lesser degree Quebec, soybeans are grown mostly for crushing but significant amounts are also destined for the Asia soy food market. In Quebec, Manitoba and the Maritime provinces² some soybeans are also grown and roasted on farms for whole bean livestock feed. Canola (spring types), flaxseed (including Solin), sunflower (oil and confectionery varieties) and mustard seed are grown mainly in the three Prairie provinces (Manitoba, Saskatchewan and Alberta) and in the Peace River Region of British Columbia. A small acreage of winter (fall planted) canola is grown in Ontario.

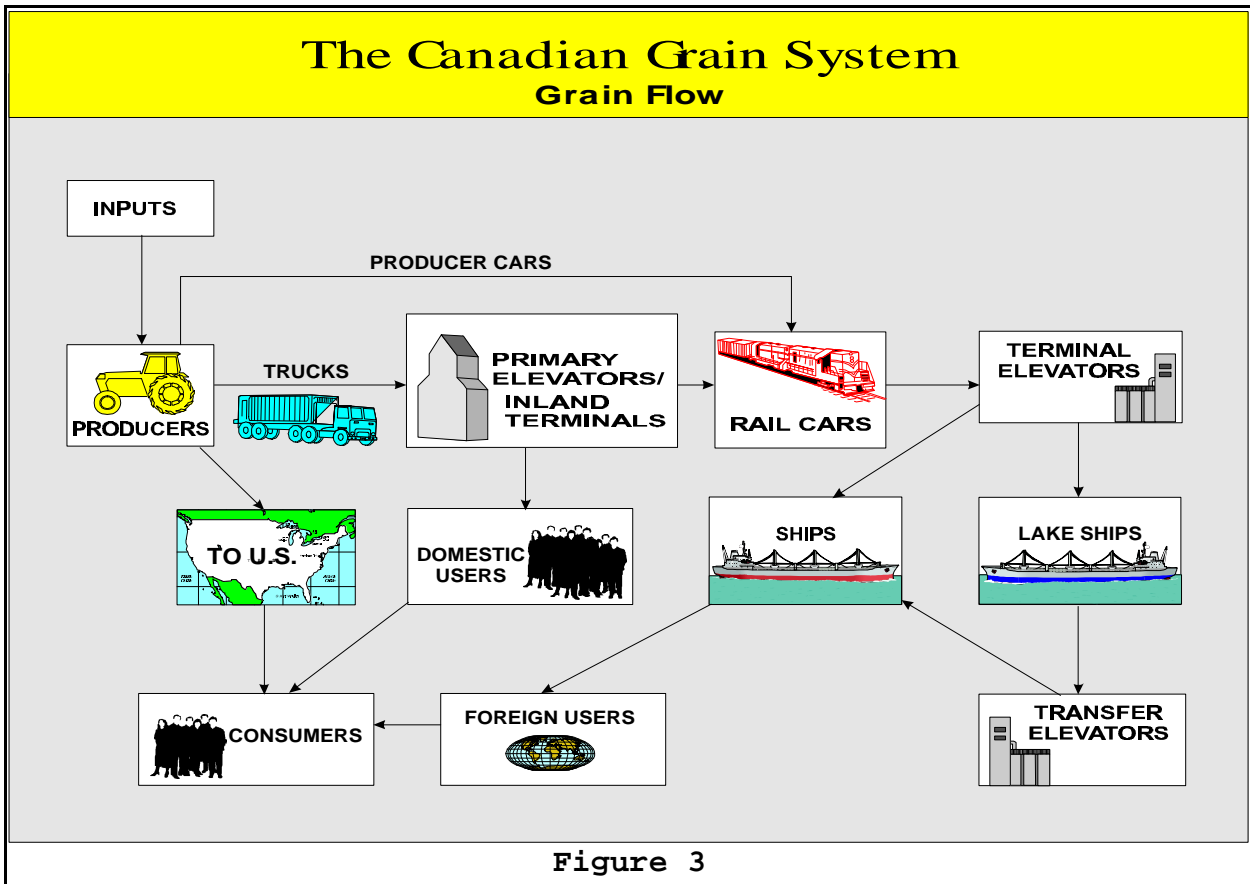
In 1995 and 1996, the returns from cereal crops, particularly wheat, combined with rotational pressures, limited the area devoted to oilseeds. In 1997, lower cereal prices resulted in a substantial increase in the oilseeds acreage. In 1997 the Canadian oilseed production reached a level of 10.211 million tonnes, a 26% increase over the 8.078 million tonnes produced in 1996.

The sustained Canadian research commitment to develop new and improved varieties may, in the non too distant future, make the production of oilseed crops less regionalised. The introduction of canola varieties suitable to Eastern conditions; of more soybean varieties suitable for Quebec, Manitoba and the Maritime provinces; of Solin type flax; and of Sunola, are evidence of this trend. The use of genetic modification techniques to expand the diversity and speed up the development of improved cultivars has become wide spread. For example, in the case of canola, several of such cultivars, tolerant to specific herbicides, have been registered for general production allowing producers a more targeted and effective weed control with potential economic and environmental impact advantages.

In the early 1990s, Sunola, a short stem drought resistant sunflower type, was introduced into the Canadian prairies. Production of Sunola has been expanding during the 1990s. About the same time, Solin cultivars, a light coloured Low Linolenic flaxseed type, was also introduced to the Prairie provinces. These new oilseed cultivars are controlled under Canada's Plant Breeders' Rights legislation.

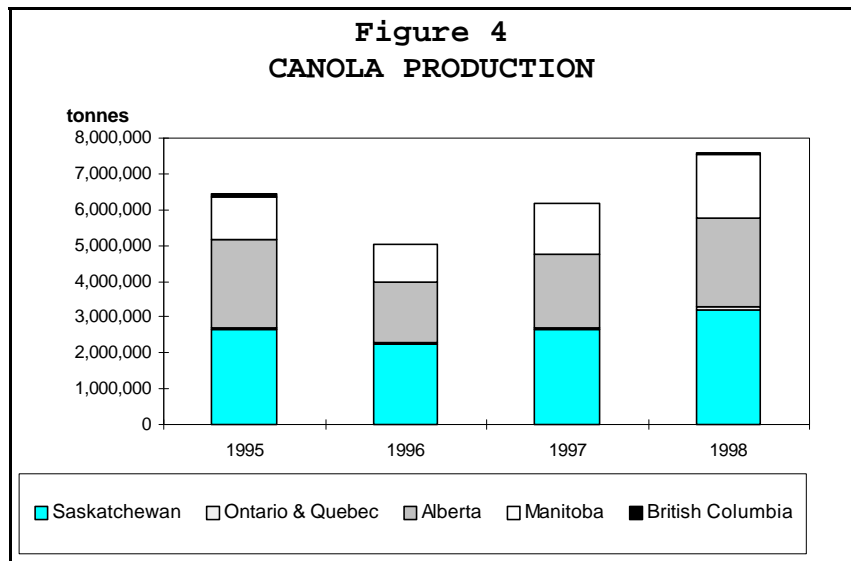
Generally, oilseeds flow to the final consumers in an orderly fashion as shown in figure 1. Producers have the option of either marketing their oilseeds directly to a processing (crushing) firm or to move them into the elevator system from where it may go to domestic or export customers. The primary and inland elevator system has traditionally gathered supplies of oilseeds for the export markets but in the last few years has become a supplier to the growing processing sector.

² New Brunswick, Nova Scotia and Prince Edward Island.



2.1 CANOLA

The commercial production of rapeseed (a forerunner of canola) in Western Canada began in 1942 as a source of lubricants for the allied war effort. After the end of World War II, rapeseed oil began to be used for human consumption in Western countries, but in very small amounts due to some limitations related to its nutritional composition.



Oilseed Sector Profile

In the mid-1970s, the development of new varieties by the Federal Department of Agriculture (Agriculture and Agri-Food Canada) and the University of Manitoba provided the Canadian rapeseed industry with a breakthrough. These new varieties, now known as canola, had less than 2 percent erucic acid in the oil and less than 30 micromoles/g of aliphatic glucosinolates in the meal. Continued research efforts have reduced the levels of erucic acid to less than one percent and glucosinolates to less than 20 micromoles/g.

This success opened the way for the acceptance of canola as a high quality source of both an edible vegetable oil and a protein meal. The prominence of canola oil was enhanced in 1985 when the US Food and Drug Administration granted canola GRAS (Generally Recognized as Safe) status. Since that time, and given its superior nutritional characteristics for a balanced diet, canola oil sales to the US have increased from practically nil to over 400,000 tonnes making canola oil the fastest growing vegetable oil imported into that country. Canola seed and meal sales to the US have also increased substantially.

According to 1996 data, canola oil accounts for 75 percent of all vegetable oils produced in Canada, 87 percent of salad oils, 49 percent of margarine oils and 64 percent of shortening. Today, the value of the canola crop is second to wheat, the prairies major crop.

To satisfy the industrial market demand, a small acreage of high erucic acid rapeseed is produced under contract and under specific agronomic regulations. Those regulations ensure these rapeseed varieties do not enter the edible oil market. The meal from these high erucic varieties meets canola meal's glucosinolates standards.

In the 1970s, canola seed production and utilization were subject to considerable fluctuations from year to year. During the 1980s, such fluctuations decreased and production took on a growth trend. However, seed production remains dependent on weather conditions, crop rotation requirements and international commodity prices, while domestic utilization is dependent on crushing margins (the difference between the cost of seed and the value of canola oil and meal). A positive combination of all these factors led to record production levels in 1994 when a 7.2 million tonnes canola crop was harvested. Changes in these factors in subsequent years determined a reduction in canola production to 6.4 million tonnes in 1995 and to just over 5 million tonnes in 1996. However, in 1997, fuelled by better comparative returns to producers, canola production has once again increased to 6.2 million tonnes and forecasts for 1998 and beyond indicate that production could stabilize at between 7 and 8 million tonnes.

The approximately 80,000 Canadian canola producers are the backbone of the industry. In 1997, canola was a strong second to wheat as Canada's most valuable crop in terms of its economic contribution to the sector. New varieties offer the potential to expand production into drier regions of Western Canada. In addition, varieties with special traits, developed using biotechnology, offer the possibility of significant yield increases.

Oilseed Sector Profile

Canola seed moves to the export market through an extensive handling and processing chain. Numerous companies, both Canadian owned and multinationals, are involved in handling, trading and processing of canola seed and its products. Please refer to Appendix "B" for a list of these companies.

Domestic processing of canola seed has experienced a dramatic expansion in the 1990s. There was extensive corporate restructuring and consolidation while the existing crushing facilities were or are undergoing modernization and expansion. In addition, two large new facilities have been built in the last 3 years. A full description of the processing sector is included in the Processing Subsector Section.

Table 2
CANADIAN SUPPLY AND DISPOSITION
OF CANOLA
(000 tonnes)

	Average 1989-90 to 1993-94	1994-95	1995-96	1996-97	1997-98
Beginning stocks	737.5	329.7	589.1	991.0	563.0
Production	4,019.3	7,232.5	6,436.4	5,062.0	6,198.0
Imports	40.6	41.5	97.4	103.0	141.0
Total Supplies	4,797.4	7,603.7	7,122.9	6,156.0	6,901.0
Crushings	1,721.6	2,512.9	2,752.9	2,712.0	3,239.0
Exports	2,208.5	3,912.1	2,803.8	2,519.0	2,964.0
Seed	27.2	38.6	26.4	35.0	39.0
Feed	259.0	547.6	546.0	383.5	320.0
Loss	0.4	3.5	4.3	3.3	5.0
Ending stocks	580.7	589.1	900.8	563.0	334.0
Total Disposition	4,797.4	7,603.7	7,122.9	6,196.0	6,901.0

Source: Statistics Canada, CANSIM

2.2 SOYBEANS

Soybeans were introduced into Canada in 1893. However, they did not become a significant commercial crop until the late 1920s. In that year, the first soybean crushing plant was built in Milton, Ontario. The introduction of modern crushing mills took place in the late 1930s. Increased demand for vegetable oil and protein meal during the early 1940s firmly established the crop and, by 1950, soybeans had become a major cash crop in Ontario. Strong promotional efforts by the crushing industry assisted in this continued crop expansion.

During the 1980s, soybeans were introduced into Quebec, Manitoba and the Maritime provinces as a source of livestock feed. Due to the presence of enzymes, soybeans must be roasted before being fed to livestock. In Quebec, whole roasted soybeans have become a viable alternative feed source. In other regions, whole soybeans are only a minor ingredient of livestock rations. Research is underway to reduce or eliminate the need to roast whole

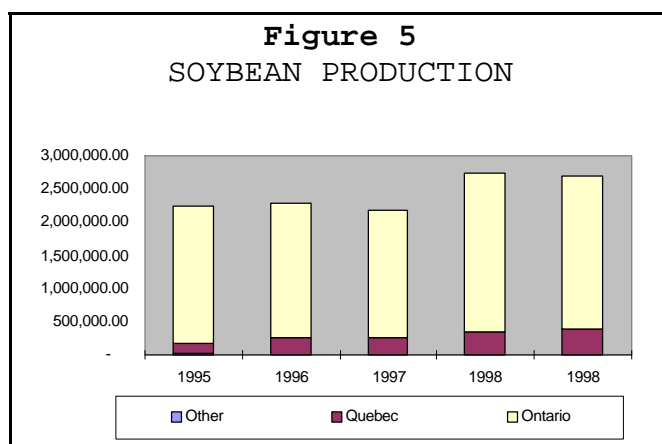


Table 3
CANADIAN SUPPLY AND DISPOSITION
OF SOYBEANS
(000 tonnes)

	1994-95	1995-96	1996-97	1997-98
Beginning stocks	94.0	168.0	14.0	80.0
Production	2,254.0	2,298.0	2,170.0	2,738.0
Imports	67.2	70.0	232.0	149.0
Total Supplies	2,415.0	2,536.0	2,415.0	2,966.0
Domestic use	1,709.3	1,933.0	1,858.0	2,109.0
Exports	542.4	589.0	478.0	666.0
Ending stocks	149.2	14.3	80.0	192.0
Total Disposition	2,415.0	2,536.3	2,415.0	2,966.0

Source: Statistics Canada, CANSIM

Oilseed Sector Profile

soybeans before feeding. As research has reduced the levels of the deleterious enzymes, whole unroasted soybeans are now a significant ingredient for livestock rations in Eastern Canada

In recent years, Canadian plant breeders have developed varieties of soybeans with the qualities required by specific soyfood markets of the Asia Pacific region. In both Ontario and Quebec, food quality varieties of soybeans, mostly known as Special Quality White Hilum Beans (SQWHB), are grown to be exported for further processing into tofu, natto, misto and tempe in Asian markets.

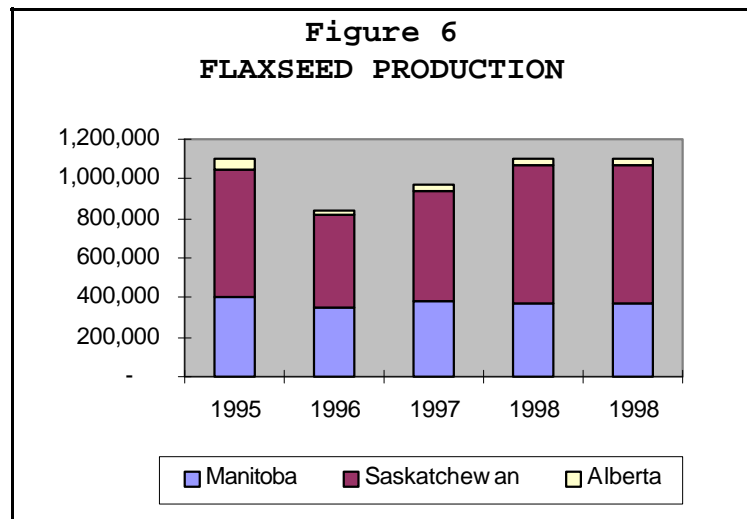
Canadian soybean production has increased sharply from the late 1970s when up to 60 percent of Canadian soybean requirements had to be imported. Today, domestic production is enough to supply the Canadian demand for crushing into soyoil and soymeal, as well as leaving a surplus of approximately 500,000 to 600,000 tonnes for export, including over 100,000 tonnes of SQWHB (Table 3).

Domestic crush of soybeans has made Canada self-sufficient in soyoil production. However, soymeal is still in a deficit position. Annually, 600,000 to 800,000 tonnes of soymeal are imported, equivalent to approximately 50 percent of domestic soymeal requirements.

There are two mayor soybean crushers, both in Ontario, with a combined capacity of 1.5 million tonnes. The majority of soybeans in Canada are grown in Ontario (90%) and Quebec (9%).

2.3 FLAXSEED

The first recorded uses of flaxseed come from Mesopotamia, where it was cultivated as long ago as 5,000 B.C. Over the centuries, flaxseed spread across Europe, Africa and finally to North America. Flax was the first oilseed to be widely grown in western Canada and was used as a “break crop” in virgin soil. Today, the unique properties of flaxseed differentiate it from other oilseeds in the industrial, human food and livestock feed markets. Currently, industrial uses of linseed oil are the dominant source of world demand for flaxseed, with human food requirements a distant second.



Most countries, other than those in North America, refer to flaxseed as linseed. In Europe, flaxseed refers to the tall, long fibre varieties of the crop produced for the linen textile industry, while linseed designates the varieties used for oil and livestock meal. In Canada, the vast majority of flaxseed produced is of the short fibre oilseed varieties. The Canadian flaxseed crop is mainly grown in the western provinces of Alberta, Saskatchewan and Manitoba.

Oilseed Sector Profile

Canada also grows Solin, a type of flaxseed that has a fatty acid profile similar to sunflower oil.

Demand for flaxseed has also undergone major shifts over the last century. On the industrial side, the demand for linseed oil has dropped significantly since the 1950s largely due to the introduction of new technological developments, such as the increased use of water based paints and petroleum based floor coverings. However, in the late 1980s, the trend towards environmentally friendly and health oriented products began to open new opportunities for the flaxseed industry. The biodegradability and non-allergenic

	Average 1989 to 1993	1994-95	1995-96	1996-97	1997-98
Beginning stocks	251.7	153.9	100.6	190.0	105.0
Production	849.0	967.7	1,104.9	851.0	967.0
Imports	250.2	0.4	1.1	1.0	1.0
Total Supplies	496.0	1,122.0	1,206.6	1,042.0	1,073.0
Domestic use	102.9	173.2	179.1	293.0	74.0
Exports	-	848.2	841.7	669.0	2,964.0
Ending stocks	24.1	100.6	190.0	80.0	105.0
Total Disposition	818.4	1,122.0	1,206.6	1,042.0	1,073.0

Source: Statistics Canada, CANSIM

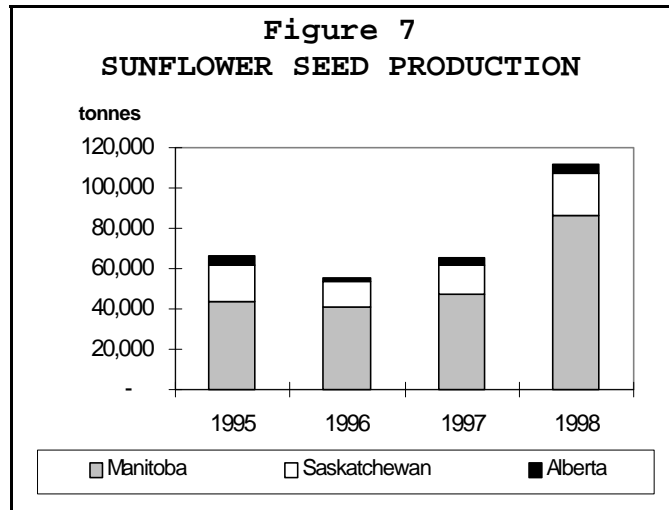
characteristics of linoleum, along with quality improvements, has seen the resurgence of demand for linoleum in some parts of Europe. In the last few years there has also been interest in using a linseed oil based concrete sealant.

Demand for flaxseed is also growing in several key niche markets, including the North American baking industry and the egg industry. The egg industry is feeding laying hens flaxseed based rations that effectively improves the dietary characteristics of the eggs. Hens fed a flaxseed based diet produce eggs with an improved omega-3 fatty acid profile. Health professionals have indicated the omega-3 fatty acids have benefits for humans.

New uses are currently being developed for flaxseed fibre. Approximately \$20 million of flaxseed fibre and tow were exported from western Canada to the United States in 1995. However, only 15 to 20 per cent of the available Canadian flaxseed straw is used for value added fibre processing -- the remainder is usually burned on the field. Transportation costs in moving the flaxseed straw from the field to the processing plant are the main constraint.

2.4 SUNFLOWER

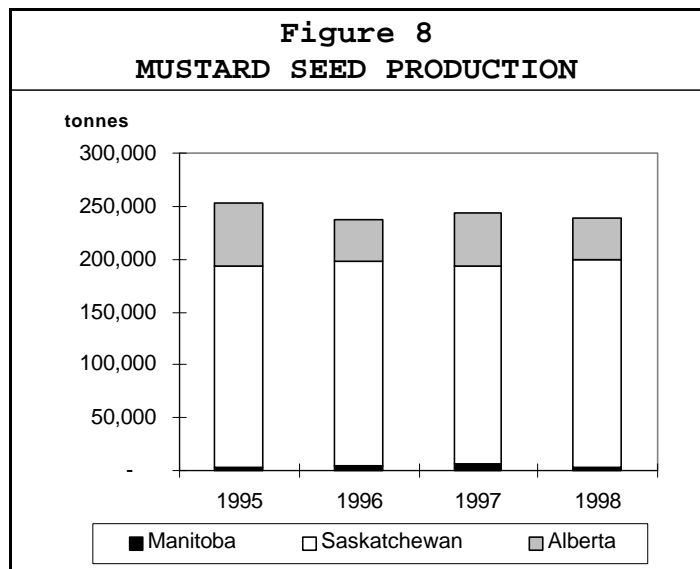
Commercial production of sunflower seed for oil also began as a result of the vegetable oil shortage during World War II. Production of this crop, mainly grown in Southern Manitoba, was stimulated when a crushing plant was established in that area in the mid-1940's. However, it has not become a major source of vegetable oil in Canada. The limited supply of sunflower seed is due to the susceptibility to disease of the sunflower plant, its agronomic requirements (120 to 130 day growing period and the need of specialized equipment) and the relatively high cost of its crop production.



After reaching, in 1986, a low of 26,100 hectares planted with production of 36,300 tonnes, both acreage and production have slowly increased. Since 1989 production has averaged about 75,000 tonnes per year. In some years, poor weather conditions and better returns from alternate crops (particularly cereals) have caused reductions in sunflower production. During the 1990s, sunflower production has expanded from Manitoba into Saskatchewan and to a lesser extent into Alberta, notably the irrigation region in the south.

2.5 MUSTARD

This oilseed/condiment crop has been grown in Canada since 1936 when the first 40 hectares were planted in southern Alberta. By the early 1990s, the area had increased to an average of about 200,000 hectares, producing an average of 250,000 tonnes of seed (see Table 1). As with other oilseed, the planted area is dependent on its economic competitiveness with alternative crops, such as cereals, while yields are largely dependent on climatic conditions. The largest portion of Canada's mustard seed crop is exported to Japan, the US, Europe and Bangladesh.



2.6 SAFFLOWER

The first record of commercial Canadian safflower production was in Barons, Alberta in 1943. Subsequent to wartime adaptation research in the 1940's, sporadic production followed in the 1950's through to the 1970's across the Prairie provinces. In the early 1980's mainly southern Manitoba and southern Saskatchewan with contracts and proximity to processing facilities in Culbertson, Montana, produced safflower. All of this historic production was with US varieties which were too late in maturing for most of this region and which had severe susceptibilities to crop-threatening diseases. Weed control problems also resulted in poor yields relative to alternative crops. From 1986, following severe disease and frost damage on US varieties in 1985, production shifted from Manitoba to mainly southern Saskatchewan.

In recent years, variety development research at Lethbridge, Alberta provided Saffire, the first Canadian safflower variety. This was followed in 1991 by the AC Stirling variety. However, current Canadian varieties are low in oleic acid and high linoleic acid and therefore more adequate for the birdseed market. Safflower expansion will depend on the availability of adapted high oleic varieties. With improvements in seedling establishment, high oil bearing varieties, active export efforts and/or a local oil processor becoming established, safflower acreages in the Prairies could increase to 20,000 to 50,000 hectares over the next decade.

3. THE PROCESSING SUB-SECTOR

3.1 BACKGROUND

The small oilseed processing industry that existed in Canada before World War II greatly benefited from the increased demand for edible and industrial vegetable oils. Many small processing facilities, built between 1930 and 1950, have ceased operations and have been replaced by fewer and larger plants. These plants take advantage of the economies of scale that their larger capacity and more modern equipment provide. Currently, most Canadian crushing plants are either relatively new or have been recently modernized and expanded. They incorporate the latest energy and labour saving technology as well as more efficient oil extraction methods.³

3.2 PROCESSING PLANTS

The oilseed processing industry in Canada currently consists of eleven plants owned by five companies (Table 5) which receive and crush oilseeds to obtain crude and crude degummed vegetable oils (from canola, soybeans, sunflower seed and flaxseed) as well as protein meals for animal feed. As of March 31, 1998, only nine plants (four of the firms) were operating.

Annual crush capacities are between 4.5 and 5.0 million tonnes of canola, 2.0 million tonnes of soybeans, 0.5 million tonnes of sunflower seed and 1.0 million tonnes of flaxseed.

Table 5 PROCESSING PLANTS				
	Canada	Soybeans	Sunflower	Flaxseed
ADM Agri-Industries Ltd.				
Windsor, Ontario	√	√	√	√
Lloydminster, Alberta	√			
CanAmara Foods				
Hamilton, Ontario	√	√		
Altona, Manitoba	√		√	√
Harrowby, Manitoba	√			√
Nipawin, Saskatchewan	√			
Fort Saskatchewan, Alberta	√			
Canbra Foods Ltd. - Lethbridge, Alberta	√			
Cargill Limited - Clavet, Saskatchewan	√			
Canadian Agra Corporation				
Ste. Agathe, Manitoba	(not operating as of February 28, 1999)			
Sexsmith Alberta	(not operating as of February 28, 1999)			
<i>Source: Industry sources</i>				

³ The text on the Processing Sub-sector was prepared by Barbara J. Bergh, Manager - Statistics & Administration, Canadian Oilseed Processors Association (COPA).

Oilseed Sector Profile

3.3 INDUSTRY STATISTICS

Table 6 shows some key statistics regarding the processing industry in Canada. In 1995, the latest year for which data is available, the oilseed crushing industry employed 1,173 people, up 23% from 1994. Salaries and wages totalled \$49 million in 1995, up 23% from 1994.

	1992	1993	1994	1995
Number of Employees	912	909	954	1,173
	(Units = millions)			
Salaries and Wages	\$34	\$36	\$40	\$ 49
Cost of Materials	\$759	\$884	\$1,072	\$ 1,414
Value of Shipments	\$974	\$1,066	\$1,413	\$ 1,781
Value-Added	\$202	\$172	\$330	\$ 354

Source: Statistics Canada

In 1995, the oilseed processing industry purchased materials and supplies, mainly oilseeds for processing, valued at \$1.4 billion, up 32% from the previous year.

The total value of shipments was \$1.8 billion in 1995, up 26% from 1994. The value-added component for the industry was \$354 million in 1995, up 7% over 1994.

3.4 METHODS OF PROCESSING

Two main methods of processing oilseeds are used in Canada to extract the oil from the meal:

- (1) Pre-press solvent extraction: which is used for higher oil content oilseeds such as canola, sunflower seed and flaxseed; and,
- (2) Direct solvent extraction: which is used for lower oil content oilseeds such as soybeans.

Except for the presence of the mechanical expeller in the pre-press solvent extraction process, the steps followed are basically the same.

In pre-press solvent extraction, the seeds are first flaked and heated for easier oil extraction, and then passed through a screw press. This squeezes out a large proportion of the oil, which is routed to a settling tank. The remaining oil cake is reground and sent to the solvent extractor, in which a solvent dissolves the oil from the meal. The oil is separated from the solvent by distillation. The solvent is recycled and the crude oil is sent on to be refined. Most Canadian canola oil is processed this way.

Oil extraction using the direct solvent method is essentially the same as described above, except that after the initial flaking and heating operation, the material is sent directly to the solvent extractor. Most Canadian soybeans are processed this way.

Oilseed Sector Profile

3.5 OILSEED CRUSHINGS

The two major oilseeds processed in Canada are canola and soybeans, plus considerably smaller amounts of sunflower seed and flaxseed. In 1997, canola crushings accounted for 62% of total oilseed crushings, with soybean crushings accounting for 34%.

In 1997, Canadian oilseed crushings were a record 4.6 million tonnes, up 7% over 1996. Canola crushings were 2.8 million tonnes in 1997, down 0.1% from the record crush of 2.9 million tonnes in 1996. Soybean crushings in 1997 totalled a record 1.5 million tonnes, 19% over 1995.

In 1997, Canada accounted for 9% of total world rapeseed/canola crushings, compared with 7% for flaxseed, 1% for soybeans and less than 1% for sunflower seed.

Table 7					
OILSEED CRUSHINGS					
	1993	1994	1995	1996	1997
Canola	2,041	2,328	2,547	2,851	2,848
Soybeans	1,056	1,054	1,169	1,295	1,539
Sunflower :	47	51	45	32	32
Flaxseed	16	29	72	74	151
TOTAL	3,160	3,462	3,833	4,252	4,570

Sources: Statistics Canada and Oil World

3.6 COMPOSITION OF CANADIAN OILSEEDS

The oil and meal contents of the different oilseeds vary considerably. Canola is crushed mainly for its oil while soybeans are processed primarily for the meal. The ten year average oil and meal content of Canada's major oilseeds are shown in Table 8.

Growing conditions can influence these percentages from year to year. Differences in oil and meal content have a marked influence on the oil extraction processes most suitable for each oilseed and on the marketing of the resulting products. Each year, the Canadian Grain Commission (CGC) analyses these crops for their quality factors. Their publications are usually available a month or two after harvest. (Copies of CGC publications are available directly from the Commission at the address given in Appendix "B".)

Table 8		
OIL AND MEAL OUTPUT		
	Oil	Meal
Canola	41.0%	61.2%
Soybeans	17.6%	77.0%
Sunflower :	41.0%	40.0%
Flaxseed	36.2%	65.2%

Oilseed Sector Profile

3.7 VEGETABLE OILS

In 1997, total vegetable oil production in Canada was a record 1.6 million tonnes, up 4% from the previous record of 1.5 million tonnes in 1996. In 1997 canola oil accounted for 77% of total vegetable oil production and soybean oil for 17%.

Canada is a net exporter of vegetable oils. In 1997, exports were 1.0 million tonnes and imports were 0.3 million tonnes for a positive trade balance of 0.7 million tonnes. Canola oil exports accounted for 93% of total vegetable oil exports in 1997, with 56% of canola oil exports being destined for the United States; 15% Hong Kong, 13% South Korea, 8% China and 5% Japan.

In 1997, Canada accounted for 43% of total world rapeseed/canola oil exports, compared with 10% for linseed oil exports and less than 1% for soybean and sunflower oil exports.

	1993	1994	1995	1996	1997
	'000 tonnes				
Canola oil	847	974	1,072	1,195	1,194
Soybean oil	178	187	202	233	267
Sunflower oil	20	21	19	14	13
Linseed oil	5	10	25	25	51
Other oils	26	27	28	28	29
TOTAL	1,076	1,219	1,346	1,495	1,554

Sources: Statistics Canada and Oil World

	1993	1994	1995	1996	1997
	'000 tonnes				
IMPORTS					
Canola oil	6	13	13	48	79
Soybean oil	22	10	32	63	64
Sunflower oil	12	13	13	19	14
Linseed oil	2	3	5	5	12
Cotton oil	13	12	14	16	18
Coconut oil	18	21	24	16	13
Olive oil	10	10	12	23	28
Palm kernel oil	22	18	18	12	14
Palm oil	12	25	14	9	8
Other oils	18	22	20	21	26
TOTAL	135	147	165	232	276
EXPORTS					
Canola oil	477	543	638	838	879
Soybean oil	5	29	23	49	52
Sunflower oil	1	1	1	3	-
Linseed oil	1	-	7	10	13
Other oils	6	5	7	8	6
TOTAL	490	578	676	908	950

Source: Statistics Canada and COPA estimates

	1993	1994	1995	1996	1997
	'000 tonnes				
Canola oil	398	447	441	385	406
Soybean oil	192	170	204	250	281
Sunflower oil	31	33	31	30	27
Linseed oil	6	13	23	20	50
Other oils	113	130	123	117	130
TOTAL	740	793	822	802	894

Source: Canadian Oilseed Processors Association

Oilseed Sector Profile

In 1997, a record 0.9 million tonnes of vegetable oils were used domestically in Canada, up 9% from the previous record of 0.8 million tonnes in 1995. Canola oil accounted for 45% of total domestic use of vegetable oils in 1997, compared with 31% for soybean oil and 3% for sunflower oil.

Canola, soybean and sunflower oils are generally refined to produce salad and cooking oils, shortening oils, and oils for margarine, while linseed oil is used for industrial purposes such as in paint manufacturing. Refining removes the natural impurities to improve colour, flavour and shelf life. Total refining capacity in Canada is 1.5 million tonnes annually.

Table 12 REFINING PLANTS
ADM Agri-Industries Ltd. Windsor, Ontario Lloydminster, Alberta
Canada Starch Company Inc. - Cardinal, Ontario
CanAmera Foods Montreal, Quebec Toronto, Ontario Altona, Manitoba Nipawin, Saskatchewan Wainwright, Alberta
Canbra Foods Ltd. - Lethbridge, Alberta
Gainers Inc. - Edmonton, Alberta
Monarch Fine Foods - Rexdale, Ontario
Canadian Agra - Sexsmith, Alberta (closed)
J.M. Schneider Inc. - Kitchener, Ontario
<i>Source: Industry Sources</i>

During the refining process, the crude oil may be degummed, a process which removes the hydrateable gums by a water-degumming operation. The gum byproducts are used in the manufacturing of soap or as a food supplement, or are further processed to extract lecithin. Afterwards, either the crude or the crude degummed oil is treated with phosphoric acid and mixed with sodium hydroxide in a continuous centrifugal alkali-refining operation.

The refined oil is then bleached to remove colour pigments and chlorophyll and is winterized if necessary. This last step prevents clouding when the oil is cooled. Hydrogenation is an optional process which is used to adjust the consistency of the oil according to the physical properties desired, i.e. degree of hardening required by final products such as margarine and shortening.

The bleached oil, hydrogenated oil or various combinations of these oils are then deodorized to remove flavours and odours. The resulting oils are used to produce finished products such as salad/cooking oils, margarine and shortening. As shown in the Table 13, a record 1.2 million tonnes of deodorized vegetable oils were produced in Canada in 1997, up 10% from the previous record production of 1.1 million tonnes in 1996.

Table 13 DEODORIZED VEGETABLE OIL PRODUCTION					
	1993	1994	1995	1996	1997
	'000 tonnes				
Canola oil	527	604	669	830	882
Soybean oil	176	156	197	213	268
Sunflower oil	17	11	7	10	7
Other veg oils	52	51	52	47	55
TOTAL	772	822	925	1100	1212
Of which:					
Margarine oil	156	145	153	148	126
Shortening oil	278	298	316	326	365 ^e
Salad oil	338	379	456	626	721 ^e
^e = COPA estimate					
<i>Source: Statistics Canada</i>					

Canola oil accounted for 73% of total deodorized vegetable oil production in Canada in 1997, compared with soybean oil 22% and sunflower oil 1%. In 1993, the percentage accounted for by canola oil was 68%, soybean oil was 23% and sunflower oil was 2%.

Oilseed Sector Profile

In 1997, margarine oil accounted for 10% of total deodorized vegetable oil production, with shortening oil accounting for 30% and salad oil accounting for 59%. In 1993, margarine oil accounted for 20%, shortening oil 36% and salad oil 44%.

3.8 VEGETABLE OIL MEALS

Total vegetable oilmeal production in Canada in 1997 was a record 3.0 million tonnes, up 7% from the previous record of 2.8 million tonnes in 1996. Canola meal accounted for 58% of total oilmeal production and soybean meal for 39% in 1997.

Historically, Canada was a net importer of vegetable oilmeals. Starting in 1992, however, Canada became a net exporter. In 1997, exports were 1.2 million tonnes and imports were 0.7 million tonnes (of which 98% were soybean meal imports from the US), for a positive trade balance of 0.5 million tonnes. Canola meal exports accounted for 92% of total vegetable oilmeal exports in 1997, with 84% of canola meal exports being destined for the United States, 6% for Japan, 4% for South Korea, 2% for Thailand and 1% France.

	1993	1994	1995	1996	1997
	'000 tonnes				
Canola meal	1,249	1,431	1,596	1,768	1739
Soybean meal	813	814	908	1,001	1176
Sunflower meal	17	18	16	12	11
Linseed meal	10	18	46	47	95
TOTAL	2,089	2,281	2,566	2,828	3,021

Sources: Statistics Canada and Oil World

	1993	1994	1995	1996	1997
	'000 tonnes				
IM PORTS					
Canola meal	-	-	-	2	8
Soybean meal	654	720	798	688	646
Sunflower meal	1	-	1	-	-
Linseed meal	3	3	4	4	2
Other meals	6	7	5	3	3
TOTAL	664	730	808	697	659
EXPO RTS					
Canola meal	888	964	1,123	1,196	1,144
Soybean meal	33	18	23	68	62
Sunflower meal	5	1	-	1	-
Linseed meal	2	3	32	3	28
Other meals	13	7	3	6	4
TOTAL	941	993	1,181	1,274	1,238

Source: Statistics Canada

	1993	1994	1995	1996	1997
	'000 tonnes				
Canola meal	372	468	473	570	592
Soybean meal	1,436	1,516	1,676	1,619	1757
Sunflower meal	13	17	17	11	11
Linseed meal	11	18	46	48	69
TOTAL	1,832	2,019	2,212	2,248	2,429

Source: COPA

Oilseed Sector Profile

Canada accounted for 42% of total world rapeseed/canola meal exports in 1997, compared with 18% for linseed meal exports and less than 1% for soybean and sunflower meal exports.

In 1997, a record 2.4 million tonnes of vegetable oilmeals were used domestically in Canada, up 8% from the previous record of 2.2 million tonnes in 1996. Canola meal accounted for 24% of total domestic use of vegetable oilmeals in 1997, compared with 72% for soybean meal.

3.9 ECONOMIC VALUE OF THE INDUSTRY

The oilseed crushing industry makes a large and positive contribution to the Canadian economy; it is a processing industry and as such it provides enhanced strength to the economy through value-added contributions and the financial multiplier effect. The direct economic benefits of the oilseed processing industry to the economy arise from: farm returns on seed purchases; value-added from crushing; value-added from refining, packaging and retailing; and an estimated multiplier effect.

The value of the processing industry as a domestic market outlet for producers was approximately \$1.5 billion in 1997. Calculations based on Statistics Canada's data indicate that the value-added benefit of a crushing enterprise alone is equal to about \$50 per tonne, while the benefit from refining, packaging and retailing is approximately \$100 per tonne. Based on a 1997 crush of 4.6 million tonnes, the value-added benefit of the crushing industry was \$230 million in 1997. In addition, the amount of crude canola, soybean and sunflower oils which were further refined in Canada in 1997 (1.2 million tonnes) contributed \$370 million to the processing industry. The total value-added benefit of crushing and refining was, therefore, approximately \$600 million in 1997.

Table 17	
ECONOMIC VALUE OF THE INDUSTRY	
1997	
Direct Economic Benefits	
Farm returns from seed purchases by crushers	\$1,530 million
Value-added from crushing	\$230 million
Value-added from refining, packaging and retailing	\$370 million
Estimated multiplier effect	\$1,200 million
Total Direct Economic Benefits	\$3,330 million
Contribution to the Canadian Balance of Payments	
Domestic oil sales value	\$660 million
Domestic meal sales value	\$600 million
Total Import Replacement	\$1,260 million
Export oil sales value	\$830 million
Export meal sales value	\$310 million
Total Export Earnings	\$1,140 million
Total Contribution to the Balance of Payments	\$2,400 million

Beyond the value-added benefit is the multiplier effect created by expenditures on oilseed products; this is estimated by economists to be 3; \$2 of additional activity generated for each \$1 of value-added activity at the processing level. Thus, a multiplier effect of \$1.2 billion can be added to the estimated \$600 million value-added figure for 1997. The total of the direct economic benefits of the industry, as discussed above, was \$3.3 billion in 1997 (Table 17).

Oilseed Sector Profile

In addition to the direct economic benefits, the development of domestic supplies of edible oils and protein meals contributes positively to the Canadian balance of payments by reducing import requirements. This positive contribution was estimated to be, in 1997, the equivalent of \$1.3 billion. Exports of oils and meals also yield a positive contribution to the Canadian balance of trade. In 1997, this contribution was equal to \$1.1 billion. The total contribution to the Canadian balance of payments by the processing industry was \$2.4 billion in 1997.

4. THE MARKETING SUB-SECTOR

Historically, oilseeds tend to be a higher value crop than cereals providing farmers with an alternative in crop production and market diversification. For Western producers, canola, flaxseed and sunflower seed are considered as mayor cash crops, such as soybeans are for Eastern producers. While decisions on how much of each crop to plant are independently made by each producer, the actual marketing of the crops and products is conducted in a much more structured fashion. There are several organizations involved. The membership, mandate and operating procedures (including marketing practices) of these organizations vary considerably. The following is a brief analysis on how the major oilseed products are normally marketed.

4.1 OILSEEDS MARKETING

4.1.1 Canola Seed

Canola products are sold both domestically and abroad. In the early 1990s, out of an estimated total crop of 3.9 million tonnes of canola seed, about half (1,900 million tonnes) were crushed domestically with the other half being exported. Starting in 1993, increased production of seed led to increased seed exports which peaked at 3.9 million tonnes in 1994. Since 1994, the crushing capacity for canola seed has more than doubled and canola seed exports have decreased. Therefore, since 1995, the industry has directed its new market development towards market for value added products: canola oil and canola meal, while undertaking market maintenance in its important seed markets particularly of Japan and Mexico. Forecasts for future years indicate that exports of seed will be around 2.5 million tonnes range while domestic processing is expect to be between 4.0 - 5.0 million tonnes.

For canola seed, preliminary exports for 1998 were 3.1 million tonnes. Historically, Japan is the major market for canola seed followed, since the late 1980's, by Mexico and the United States. (Table 18).

The majority of the canola seed produced in Canada is destined to be crushed for oil and meal extraction, either domestically or in other countries. A small portion (less than 2%) of the crop is grown under strict phytosanitary conditions

Table 18					
CANOLA SEED EXPORTS BY MAJOR MARKETS					
	(tonnes)				
	1994	1995	1996	1997	Preliminary 1998
Japan	1,556,251	1,883,881	1,430,830	2,019,127	1,507,452
Mexico	406,814	443,914	470,056	490,453	532,825
China, P. Rep.	119,426	143,453	20,148	-	472,303
United States	409,708	200,932	266,683	319,721	355,034
Hong Kong	-	16	-	-	153,894
Morocco	-	49,067	-	-	26,399
Israel	-	-	-	-	10,182
Poland	-	-	18,339	-	10,128
Germany	147,823	159,183	159,758	20	557
Other Countries	1,129,977	554,352	50,368	73,466	1,470
TOTAL	3,769,999	3,434,799	2,416,182	2,902,788	3,070,244
<i>SOURCE: Statistics Canada, TIERS</i>					

Oilseed Sector Profile

and sold, at premium prices, as seed for planting.

The marketing of canola seed is mainly handled through private companies or through producer co-operatives. These companies and coops are actively engaged in international marketing through a network of business contacts, agents, representatives, etc. Some of the largest companies and coops have their own elevators and have marketing, storage and distribution infrastructures. Others are considerably smaller and more regional or local in nature.

Prices for canola seed are determined on the futures market of the Winnipeg Commodity Exchange (WCE). The WCE offers a place for buyers, sellers and users of canola seed to exchange canola seed contracts under a structured environment. Future contracts are based on 20 tonne lots of non-commercially clean No. 1 canola, Free on Board (FOB) in the PAR region (with in a 150 km radius of Saskatoon, Saskatchewan). The WCE has four additional delivery regions:

- CENTRAL - non-PAR locations in Saskatchewan,
- EASTERN - locations in Manitoba,
- WESTERN - locations in Alberta and
- PACIFIC - Vancouver, B.C.

To account for the transportation differences between Saskatoon and the Pacific region, contracts are discounted in the Central and Eastern regions and receive a premium in the Western and Pacific regions. The contract prices on the WCE are primarily influenced by crop supply and demand of canola seed in Canada, its quality characteristics, and the international supply of canola seed and rapeseed. International factors, such as demand, supply and prices of competing commodities (e.g. soybeans), also have an effect on determining the price of canola seed on the WCE.

On October 28, 1994, the *Marché à Terme International de France* (MATIF) launched a “double zero” (00) rapeseed futures contract for the European market. This has provided the world with a second pricing source for canola and canola quality rapeseed. According to MATIF, the “double zero” rapeseed futures contract is becoming the European reference for its oilseed industry ⁽³⁾.

Oilseed Sector Profile

4.1.2 Soybeans

In 1985, domestic production of soybeans increased to the point of achieving self-sufficiency, although Canada is still highly dependent on imports of soybean meal to meet domestic requirements of protein meals for animal feed (Table 19).

Canada exports about 25% of its soybean crop, mostly to Europe, the United States and Asia Pacific (Japan, Hong Kong, Singapore, Malaysia, etc). Exports to Asia Pacific in particular, are Special Quality White Hilum Soybeans for human consumption through the soyfood market (Table 20).

The marketing of soybeans is mainly handled through private companies. These companies have access to a marketing, distribution and storage infrastructure. Unlike canola, producer co-operatives have lesser significance in the marketing of soybeans.

Prices of soybeans and soybean products are set internationally. The Chicago Board of Trade (CBOT) operates the largest futures exchange that determines the price of soybeans worldwide. The international price for

	(tonnes)				
	1994	1995	1996	1997	1998
Newfoundland	0	1	0	4	2
Nova Scotia	-	-	0	-	179
New Brunswick	199	199	272	211	595
TOTAL ATLANTIC CANADA	199	200	273	215	776
Quebec	102,633	161,272	140,485	78,527	135,793
Ontario	421,999	397,341	287,369	271,487	336,162
TOTAL CENTRAL CANADA	524,633	558,613	427,854	350,014	471,955
Manitoba	137,003	159,412	153,289	123,017	166,108
Saskatchewan	36,835	45,361	54,173	101,004	37,409
Alberta	7,886	21,239	29,956	40,744	56,943
British Columbia	13,894	12,952	22,136	34,146	41,442
TOTAL WESTERN CANADA	195,617	238,964	259,553	298,910	301,903
TOTAL CANADA	720,449	797,777	687,680	649,139	774,634

SOURCE: Statistics Canada, TIERS

	(tonnes)				
	1994	1995	1996	1997	1998
United States	185,535	133,542	90,796	64,215	150,031
Iran, Isla. Rep.	-	-	-	-	102,500
Norway	-	28,285	86,285	120,842	96,000
Spain	32,448	143,423	35,485	34,783	91,422
Germany	1,728	8,273	8,029	666	89,622
Netherlands	73,647	70,311	54,993	87,495	71,209
Japan	16,289	31,314	51,339	69,050	68,846
Malaysia	13,312	20,212	21,160	19,258	49,421
Portugal	18,233	57,829	-	30,600	47,578
China, P. Rep.	674	2,092	2,369	6,301	37,936
Denmark	38	38	34	7,766	26,250
Hong Kong	24,721	31,128	35,391	26,290	25,737
Singapore	20,897	26,134	18,666	18,938	16,186
Israel	-	19	41	76	9,117
Belgium	317	62,414	48,854	61,062	8,654
Korea, South	-	67	3,766	2,326	6,003
Other Countries	79,599	48,428	18,939	74,721	18,412
TOTAL	467,437	663,509	476,147	624,390	914,924

SOURCE: Statistics Canada, TIERS

Oilseed Sector Profile

soybeans is affected by world events and international economic and agronomic factors as well as livestock production cycles.

4.1.3 Flaxseed

Most of Canada's flaxseed is grown for the export market, where it is crushed into oil and meal. Only a relatively small amount of seed is crushed domestically.

The marketing, pricing and transportation of flaxseed is very similar to canola. Many of the companies and co-operatives involved with other Canadian grains also deal in flaxseed. Pricing for flaxseed is done on the Winnipeg Commodity Exchange.

Table 21					
FLAXSEED EXPORTS BY MAJOR MARKETS					
	(tonnes)				
	1994	1995	1996	1997	Preliminary 1998
Belgium	289,468	391,126	332,965	372,270	275,576
United States	143,219	186,734	202,308	223,851	171,301
Netherlands	72,757	103,122	110,634	94,896	162,027
Japan	78,151	92,851	77,143	85,759	61,750
United Kingdom	23,981	30,908	14,523	32,358	55,887
Germany	56,521	45,118	10,910	64,134	31,697
Egypt	-	-	6,227	13,678	21,249
Romania	-	-	-	-	17,695
Other Countries	21,843	41,944	12,777	10,440	6,979
TOTAL	685,940	891,803	767,488	897,386	804,161

SOURCE: Statistics Canada, TIERS

4.1.4 Sunflower Seed

Most of the sunflower seed produced in Canada is consumed by the crushing industry, packaged as bird seed or exported to the US & EU. Its volume is much lower than other oilseeds and most of the acreage is grown under contract with processors and dealers. Exports of sunflower seed are about 30 percent of production, with the largest destination being the United States (Table 22).

Table 22					
SUNFLOWER SEED EXPORTS BY MAJOR MARKETS					
	(tonnes)				
	1994	1995	1996	1997	1998
United States	25,958	37,533	18,262	24,725	31,967
Germany	1,260	12,634	2,476	2,217	3,347
Netherlands	129	5,639	1,865	740	2,073
Romania	-	-	-	-	1,794
Turkey	1,276	2,128	1,052	532	1,052
Venezuela	79	471	280	516	780
Japan	72	636	480	534	755
Lebanon	-	-	-	157	578
Mexico	61	103	20	44	553
Other Countries	4,044	16,433	3,710	4,156	2,644
TOTAL	32,881	75,578	28,147	33,622	45,546

SOURCE: Statistics Canada, TIERS

Oilseed Sector Profile

4.1.5 Mustard Seed

Canada is the world's largest exporter of this commodity. Only a small percentage of mustard is crushed locally while some is ground to produce mustard flour, largely for export. The majority of Canadian mustard seed is exported to the US, Europe and Japan for use as a condiment (Table 23). Bangladesh, Canada's number two export destination, crushes mustard seed to produce a hot edible oil preferred in the Indian sub-continent.

Table 23					
MUSTARD SEED EXPORTS BY MAJOR MARKETS					
	(tonnes)				
	1994	1995	1996	1997	1998
United States	63,847	59,412	71,256	58,167	54,914
Belgium	22,229	26,271	15,039	34,196	28,974
Bangladesh	112,691	28,300	43,306	26,999	16,494
Germany	10,944	5,234	6,469	3,656	9,818
Japan	9,305	13,126	9,228	11,862	7,479
Switzerland	15,379	7,111	8,742	7,135	6,303
Netherlands	13,622	11,356	5,678	6,018	5,798
Thailand	303	247	836	1,767	2,326
France	4,516	7,368	3,844	3,846	1,350
India	-	19	120	20	1,346
Other countries	8,016	9,203	8,817	7,372	8,996
TOTAL	260,852	167,647	173,334	161,038	143,798

SOURCE: Statistics Canada, TIERS

In general mustard seed is marketed through private companies and cooperatives with prices determined internationally. Mustard seed is mostly grown under contract to processors and/or dealers. Being a Western Canadian crop, mustard seed is controlled by many of the same organizations and regulations affecting canola and flaxseed. The notable exception is that no large association is involved in assisting in the marketing functions and in coordinating the mustard seed industry policy positions.

4.1.6 Safflower Seed

Most of the safflower seed currently produced in Canada is sold to the US for use in the higher paying birdseed market and to a lesser degree, in the domestic birdseed market.

Table 24					
SAFFLOWERSEED EXPORTS BY MAJOR MARKETS					
	(tonnes)				
	1994	1995	1996	1997	1998
United States	322	505	1,081	713	586
Netherlands	-	-	-	-	190
Belgium	-	-	-	-	53
Spain	-	-	-	-	23
Portugal	-	-	-	-	15
Germany	23	-	-	14	-
Denmark	14	-	-	-	-
Dominica	14	-	-	-	-
TOTAL	373	505	1,081	727	866

SOURCE: Statistics Canada, TIERS

Oilseed Sector Profile

4.2 PROCESSED OILSEED PRODUCTS MARKETING

The estimated Canadian deodorizing capacity is 929,000 tonnes per year. Deodorized oils in Canada are primarily utilized in three main products: margarine oil, shortening oil and salad oil.

Canola oil has the overwhelming market share (about 80%) of the salad oils and also is the leading source (57%) of shortening oil. Soyoil predominates in the production of margarine oil. This utilization trend is quite stable.

4.2.1 Oils and Meals

For the salad oil market, canola oil's nutritional properties allows it to dominate the market. Of the commercially available edible oils, canola oil contains the lowest levels saturated fat (6%), the second highest level of monounsaturated fats (58%) and the highest level of the essential fatty acid, linoleic acid (10%). In 1986, the canola oil was awarded GRAS (Generally Recognized As Safe) status in the US, opening a potentially large market for the oil. In the next year, a pure canola oil brand, *Puritan Oil*, won the "Food Product of the Year" from the American Health Foundation. The following year, this brand was recognized by the American College of Nutrition who granted its "Product Acceptance Award".

The major market and growing market for canola oil is the United States (Table 25). In 1996, canola oil represented 8% of the edible oil consumption, up from 4.5% the year earlier. Increasing demand for canola oil is being shown by the Peoples Republic of China. The dominate market for canola meal is the Unites States (Table 26).

	1994	1995	1996	1997	Preliminary 1998
United States	367,703	364,564	432,979	403,527	407,912
Hong Kong	4,114	18,144	94,869	106,163	165,836
Korea, South	5,241	3,342	4,329	101,684	43,198
Taiwan	-	349	2,965	7,935	31,807
China, P. Rep.	18,687	17,238	59,377	98,937	29,669
Japan	3,616	10,685	3,132	37,002	17,683
Malaysia	-	14	-	20	13,895
India	9,988	2,178	8,504	7,170	13,084
Mexico	-	7,512	10,380	2,150	7,457
Other Countries	10,508	9,806	9,935	16,121	9,071
TOTAL	419,857	433,833	626,470	780,708	739,612

SOURCE: Statistics Canada, TIERS

	1994	1995	1996	1997	Preliminary 1998
United States	717,097	766,565	911,612	966,156	1,244,065
United Kingdom	-	14,148	-	-	-
Ireland	26,989	4,851	-	5,309	4,170
Belgium	2,016	8,467	-	-	-
Denmark	-	-	-	-	10,500
France	4,940	24,532	41,262	9,500	-
Norway	34,694	18,098	-	-	-
Other Countries	178,639	297,003	245,842	165,552	167,393
TOTAL	964,375	1,133,666	1,198,717	1,146,518	1,426,128

SOURCE: Statistics Canada, TIERS

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For canola oil and canola meal, marketing channels are generally similar to those described for the seed but the price discovery mechanism is based on the soybean and soybean meal contracts on the Chicago Board of Trade (CBOT). Price discovery is done using the CBOT futures market for either soybean or soybean meal. Since the CBOT is in US dollars, industry must also hedge against fluctuation in the Canadian exchange rate. Since, canola meal contains almost 70 percent of the protein level of soybean meal; therefore, the price of canola meal is about 70 percent that of soybean meal. This factor is used in hedging canola meal contracts on the CBOT. Canadian soybean and soybean meal are mostly for domestic consumption, are marketed in similar way than canola oil and meal for domestic consumption and are priced based on CBOT prices.

4.2.2 Margarine and Other Further Processed Products

Margarine oil experienced a dramatic increase in demand during the 1970s much of it at the expense of more traditional dairy products such as butter. Starting in the 1980s and continuing in the 1990s, the rate of growth for margarine decreased considerably due to a combination of factors: effective marketing strategies by the dairy industry, nutritional concerns on the part of consumers, increase in demand for “natural” foods and interest in gourmet cooking. In addition, provincial regulations, demanding the use of distinctive coloration for margarines, negatively impacted on margarine sales in the large markets of Eastern Canada.

By 1997 all provinces, except Quebec, have foregone regulating margarine products and adopted national standards. This should be beneficial to oilseeds processors and to soybean and soybean meal sector especially.

5. ORGANIZATIONS

5.1 CANOLA

The national industry organization for canola and canola products is the Canola Council of Canada (CCC). The CCC is a non-profit industry association that represents the common interest of all participants of the Canadian canola industry including canola growers, domestic crushers and exporters as well as some end users. The CCC promotes the use and awareness of canola and its value added products. The CCC accomplishes these goals through its various program areas: research, crop production demonstrations, market development and information services.

The CCC's objective is "the advancement of canola and canola products worldwide." To accomplish this goal, the CCC undertakes a wide range of activities. On the international scene, the CCC:

- assists industry members with incoming and outgoing missions (to develop new markets and to provide technical support to established clients);
- assists industry members with technical seminars (such as, using canola meal in animal rations and trading aspects for canola products);
- promotes the use of canola products by hosting domestic and international training activities, and
- assists industry members with in trade fairs, international conferences and other major international events to promote canola products.

To ensure continual improvement in canola products, the CCC conducts research activities including:

- collaborating closely with the POS Pilot plant and other research institutions on applied research,
- coordinating with industry members to provide the necessary research results to have canola and its products accepted by regulatory agencies, and
- conducting market studies which assist in directing the above activities.

Through its crop production program, the CCC actively researches and promotes the introduction of better agronomical practices to increase productivity at the farm level. The CCC's success is due principally to the unique blend of industry, producers, governments and the close cooperation between these diverse interests.

In each of the major producing provinces, there are canola growers organizations whose aims are to further the interests of the canola growers and the canola crop. These organizations are the Manitoba Canola Growers Association, the Saskatchewan Canola

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Growers Association (policy issues), Saskatchewan Canola Development Commission, the Alberta Canola Producers Commission and the Ontario Canola Growers Association. To nationally coordinate producer interests and to respond to their agronomic needs, these associations have formed the Canadian Canola Growers Association. All producer organizations are strong supporters and take key membership roles in the Canola Council of Canada.

5.2 SOYBEANS

The soybean growers have shown a high degree of cohesion and organizational ability. In 1949, the Ontario Soybean Growers' Marketing Board (OSGMB) was founded. The Board today represents 30,000 producers and negotiates certain aspects of the pricing arrangements for Ontario soybeans, while the handling, crushing and exporting of soybeans and soybean products are handled by private companies. The Board's objective is "to enhance the marketing of Ontario soybeans". The Board's powers include:

- licensing producers, dealers and grain merchandisers and brokers;
- establishing license fees and negotiating with dealers and handlers charges for handling, cleaning and drying.

Processors, crushers and brokers have agreed to pay to the producer the equivalent of the U.S. soybean price adjusted for quality, transport, handling, insurance and monetary exchange. The OSGMB negotiates the factors involved in these activities. All trading for the domestic, export and seed markets is done via private companies at current prices based on the price establishment methodology agreed to with the OSGMB. Although the OSGMB has the power to purchase and sell soybeans it has never exercised this right. Any changes to the operating policies of the OSGMB take place at the direction and with the agreement of soybean producers.

The OSGMB provides several important services. On behalf of the producers, the Board gathers and disseminates market and price information. The OSGMB maintains marketing records from which it compiles an average price to the producers by crop year. It gathers the information from which federal and provincial stabilization payments are determined. The OSGMB promotes the use of soybeans and soy products domestically and in key markets abroad. Through the Board, producer funds are channelled into various research projects, such as improved soybean varieties, or for new uses such as roasted soybeans in animal feed rations. Finally, the OSGMB is an active lobbyist of the federal and provincial governments on a variety of issues of concern to the industry.

In the mid 1990s, a group of food quality soybean exporters from Ontario, Quebec Manitoba and British Columbia came together to form the Canadian Soybean Export Association (CSEA). This Association deals with items of interest to Canadian exporters and explores existing and potential markets for premium priced high quality soybeans for soy foods production. This Association is made up of industry, government and OSGMB personnel.

5.3 FLAXSEED

The Flax Council of Canada (FCC) is a single organization, representing the producers, grain handlers, shippers, exporters and end-users of flax. Established in 1986 with full representation from all agricultural and industrial flax interests, the FCC promotes the advancement of flax and flax products. The FCC is located in Winnipeg, Manitoba.

The Council focuses the resources of the entire Canadian flax industry on flax market development, market and production research and crop promotion. Through its marketing initiatives and communication programs, the FCC creates worldwide market opportunities for flax. The FCC has a strong research and technical emphasis, supporting flax-related research both with direct funding and indirectly as a coordinating forum.

The FCC's role is to:

- identify opportunities and challenges facing flax and flax products.
- be a catalyst for the success of the Canadian flax industry.

The Council's vision, through the year 2000, is to "Be a respected, market-focussed, research -oriented organization that:

- Promotes flax for industrial and nutritional (human and livestock) markets, and Solin for the vegetable oil market;
- Develops markets that will demand the production from 5 million acres annually;
- Strengthens Canada's position as the lowest-cost producer and most respected supplier of flax and flax products."

The Flax Growers of Western Canada is a producer organization that represents the interests of producers.

5.4 OILSEED PROCESSORS

The Canadian Oilseed Processors Association (COPA) is a non-profit industry association which represents all of the oilseed processing companies in Canada. COPA members include: ADM Agri-Industries Ltd., CanAmara Foods, Canbra Foods Ltd., and Cargill Grain Ltd.

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The objectives of COPA include:

- to promote the processing of oilseeds in Canada and the further processing of oilseed products into refined oil, protein meal and other finished products;
- to provide a forum for the discussion and study of matters pertaining to the processing industry;
- to broaden the scope of both domestic and export market opportunities for Canadian value-added oilseed products;
- to make recommendations and presentations to governmental bodies and other authorities on all matters pertaining to the processing industry;
- to promote research on oilseed products;
- to maintain an authoritative centre of information;
- to inform the public of issues of concern in connection with the processing industry;
- to inform the public of the contribution of the Canadian oilseed crushing industry to the economy of Canada and
- to assist the members of the Association in maintaining effective relationships with all persons directly or indirectly involved in the oilseed processing industry in Canada.

APPENDIX "A"

THE ROLE OF THE FEDERAL GOVERNMENT

The federal government provides support for the oilseed sector through various departments and agencies. Such assistance is usually coordinated through Agriculture and Agri-Food Canada (AAFC).

i) Research:

Although most sectorial research is presently conducted by private industry, the Research Branch of Agriculture and Agri-Food Canada still carries out substantial basic research in its own establishments. These facilities are involved, in cooperation with industry, in extensive plant breeding efforts to develop new oilseed varieties more adaptable to Canadian growing conditions and more competitive in the marketplace. In addition, the Branch collaborates with industry in conducting joint funded projects. Also, the Branch has facilities dedicated to the development of new and improved food products.

The POS Pilot Plant in Saskatoon, jointly funded by government and industry, is a food research and technology facility. The facility bridges the gap between basic laboratory research and industry's new product and process technology implementation. The facility is used extensively by industry to test new processes under commercial conditions but before risking significant financial investment.

At the national level, the National Research Council of Canada is the principal science and technology agency of the Canadian federal government. With 16 research institutes located in eleven major centres across the country, NRC works to foster regional economic innovation in all industrial sectors, including agriculture.

One of NRC institutes, the Plant Biotechnology Institute (PBI), located in Saskatoon, is involved in biotechnology. PBI's biotechnology research benefits agriculture and industrial processing by diversifying crops and crop products, with increasing concern and care for the environment. In partnership with industry, PBI produces new, exploitable biotechnology for Canada to advance knowledge and broaden markets for tomorrow. Their mission is to perform, assist and promote strategic research in plant biotechnology, to improve and diversify Canadian industry, and to strengthen Canada's competitive position in the global economy.

These efforts are in addition to those made by industry associations, such as the Canola Council of Canada and the Ontario Soybean Growers Marketing Board. Such organizations provide financial assistance to research projects, which will enhance the marketability of their products. Universities and provincial governments and the private sector also provide a vital link in these endeavours.

ii) Standards:

The Canadian Grain Commission, under the authority of the Canada Grain Act, establishes grade standards for oilseeds. These standards are monitored basically through moisture content and visual inspections for compliance with maximum tolerances of immature, damaged or treated seed and admixtures according to grade. In addition, the Commission

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monitors non-visual characteristics, such as oil and protein content. The Commission continually adapts its visual and non-visual tests to ensure that buyers of oilseed products receive those products with the quality characteristics needed for their intended use.

The Canadian General Standards Board (CGSB), a part of the Federal Government of Canada (Public Works and Government Services Canada), is mandated to provide a range of standardization and conformity assessment services in support of government procurement and other government requirements. CGSB is an active participant in the National Standards System of Canada, a federation of organizations providing standardization services to the Canadian public. The National Standards System is managed by the Standards Council of Canada (a Canadian government agency). CGSB is accredited by the Standards Council of Canada as a standards development organization and an ISO 9000 registrar.

. The Canadian Food Inspection Agency (CFIA) monitors the health, safety and quality of Canada's agricultural, fish and food products, and oversees the arrival of plants, animals and food products from around the world. The goal at the Canadian Food Inspection Agency is to help build a thriving and competitive agri-food and seafood industry.

Health Canada's mission is to help Canadians maintain and improve their health. The emphasis is on disease prevention and health promotion. One area of importance is to ensure that Canadians have access to safe food products. CFIA and Health Canada, as well as other federal agencies, work closely together to confirm that Canadian foods and food inputs are healthy and safe.

iii) Marketing:

Federal officials are involved in negotiating access and reducing tariff and non-tariff barriers in foreign markets. Examples of such activities are the federal role in continuing negotiations in implementing the WTO and monitoring the North American Free Trade Agreement as well as other regional agreements.

The federal government assists provincial and sectorial organizations and private industry marketing efforts at all levels. Outgoing missions are used to visit potential markets while incoming missions bring potential buyers to Canada. Other forms of assistance are addressed as the need arises. To receive such assistance, the oilseed sector organizations (see section E) prepare a sectorial marketing strategy for the Agriculture Industry Marketing Strategy (AIMS). The objective of the AIMS process is to encourage Canadian agri-food sectors to develop and implement market responsive strategies that increase the sales of agri-food products and serve as a framework for industry/government collaboration.

Officials of Department of Foreign Affairs and International Trade, Canadian Embassies and other departments are engaged in market research, in monitoring market developments and in keeping abreast of potential opportunities for products. This information is disseminated to industry. Finally, the federal government is also involved in extensive data gathering and publishing of statistical information to assist the industry in their policy and marketing decisions. Ongoing liaison with the oilseed industry is vital.

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The Canadian International Development Agency (CIDA) facilitates the efforts of the people of developing countries to achieve self-sustainable economic and social development in accordance with their needs. In doing so, CIDA has occasionally been able to assist with the introduction of Canadian oilseed products into such countries.

APPENDIX "B"

Oilseed Sector Profile

Oilseed Industry Directory