# Canola Socio-Economic Value Report

**_Canola Council of Canada[1]_**

**_January 27, 2006_**

[1] Study conducted by *Mark Goodwin Consulting Ltd.*

# Socio-Economic Value Report on the Canadian Canola Industry
# For the Canola Council of Canada

**Highlights**

- Some 52,000 farmers grow canola – **largely as full time farmers and in ‘family farm’ businesses.** They are facing challenges in the economics of production, with input costs rising faster than on other farms. They depend on canola to generate between 1/3 and ½ of their revenues.

- Canola adds over **$11 billion in economic activity** to the Canadian economy.

- Domestically, canola generates economic activity of **$1.4 billion in Ontario and Quebec** (primarily in the processing sector), and **$7.5 billion in western Canada**.

- The world is our market. **Canola exports bring over $2 billion** back to our Canadian economy, and represent 75% of our annual production. Exports have gone from making up 1 percent of our total exports to the rest of the world in 2000, to 4 percent in 2004.

- Canadians have recently begun to turn to fats higher in saturates (lard, tallow, butterfat, palm, etc.) and are **consuming less canola** oil – likely owing to recent confusion about fatty acid profiles and human health.

- Canola production generates over **214,000 jobs in eastern and western Canada** as a result of production of the crop, transportation to export, crushing, refining and inclusion in the panoply of foods.

- Taxes generated by the activities in the canola sector directly add up to **$104.1 million per year**.

## Sections

# Value of Economic Activity in the Canola Value Chain in Canada

For the purpose of this section, five year averages using the years 2000 to 2004 were used to calculate production, prices and total sales numbers. These were then used to derive values at each stage of the chain of production for canola.

Value realized at each stage of the canola chain is broken into steps as follows;

- Value of the seed produced by growers and sold to processors or exporters
- Value added to the seed by the domestic crushers through crushing and production of oil/meal
- Value created by the refining and packaging industry
- Value created by the addition of canola as an ingredient in other foodstuffs
- Value created by handling canola seed (taking it from the producer and then shipping it to domestic customers or port terminals – realized by grain companies and rail shippers)

The crop inputs sold to canola producers for use in the crop are also calculated. The indirect economic activity arising from the creation of this technology (seed biotech, chemical research) is also assessed. These are not rolled into the totals for the chain since these technologies are assumed to crystallize into economic benefits when the gross value of the crop is compiled.

## I. Economic benefits of canola exceed $11 billion

### A. Domestic usage of canola - value chain estimates

**Value of seed produced by growers and sold to exporters and crushers**

Producers attained an average total domestic crop of 6.44 million tonnes/year during the period from 2000 to 2004. The average value of that production was $2.119 billion annually in sales that the growers made to both to exporters and crushers.

Economic value captured by growing the crop = $2,119,000,000/year

**Value added by crushers to the seed produced**

Of the 6.44 million tonne average crop, a five-year-average 2.927 million tonnes/yr was crushed domestically at nine crushing facilities in four provinces. This 2.927 million tonnes resulted in oil yields of 1.222 million tonnes of oil and 1.752 million tonnes of meal. The average prices (five year weighted) for this oil and meal were $685/tonne and $207/tonne respectively.

Main costs incurred to process these tonnages were estimated by Stats Canada in 2001 and reported in 'Oilseed Sector Profile', published by the Grains and Oilseeds Division of AAFC. These were based on a workforce of 1,004 persons, and costs of fuel and electricity of $56,000,000 in Canada's crushing facilities. These numbers required updating. To accomplish this, the Canadian Oilseed Processors Association (COPA) was consulted. Assuming that the total costs at these facilities need to be prorated for the portion of the crop that was canola, and that costs have risen in the four years since 2001, the following adjustments were made; (i) costs were prorated to 65 percent of totals (approximately 65 percent of the crush is canola), (ii) an enlarged payroll of 1,200 workers was assumed, and (iii) electricity/fuel costs were inflated by 44 percent. Based on this, the new value-add number for canola based on the five year average would be $50.24/tonne for crushing. Over the 2.979 million tonnes crushed, the net value added over the five years 2000 to 2005 for the crush component (oil and meal) would be $147,144,000/yr.

Economic value created in crushing = $147,144,000/year

**Value added created by refining and processing industry**

COPA reports that 1.0 million tonnes of crude oilseed was further refined during the year 2004. This total was divided up between canola, soybean and sunflower oil. During that year, market share of each of these oils, as measured by domestic disappearance rates documented in Oil World Update 2003-04, were 31 percent, 25 percent and 4 percent respectively. Assuming that the refining profile matches the consumption ratio, 52 percent of the 2004 refining total of 1 million tonnes – or 520,000 tonnes of refined canola oil was produced. COPA's figures show that the net value-added of refined/packaged for the sum of canola, sunflower and soybean oil was $330,000,000. This means that for 2004, the value created by further refinement of crude oil was 52 percent of $330,000,000, or $171,600,000.

Economic value created in refining = $171,600,000

**Value created in packaging and selling canola as ingredients in grocery stores and restaurants**

Stats Canada averages for food dollar expenditures show that of the 70 billion spent in food by households, 80 percent was spent in grocery stores and eaten at home and 20 percent at restaurants.
Within that total food budget, the domestic disappearance of canola oil was 457,000 tonnes (five year average from 2000 to 2004).

There are four main entry points for canola into the food chain;

- Margarine
- Salad and cooking oil
- Baking/shortening/forms that are used by bakers and food processors to make biscuits, cookies, salad dressing etc.
- Fryer use (restaurants, etc)

For the purposes of this study, a 'consumer canola basket' is proposed, composed of crusher estimates on use patterns in canola in a variety of foodstuffs and uses. These are given in Table 1B. Multipliers used are based on the 'mark up' value of the canola that is in the product, taking into account the estimated proportion of the product that canola constitutes by weight.

Economic value created through use of canola in 'canola basket' foodstuffs = $607, 651,517

## B. Export chain values and estimates

**Value added handling of canola seed by grain companies**

Annual reports of publicly traded companies involved in handling grain (SWP and Agricore United) put the 'pipeline margin' for grains (elevator to port) at an average of $21.17/tonne in 2004. Assuming this figure to be stable, then the 2000 to 2004 average export crop of 3.436 million tonnes would generate $72,741,000 for the grain companies in terms of grain handle within the elevator systems.

Economic value created in grain handling = $72,741,000

**Value added in crop production input distribution**

Using average margins for elevator companies and dealers of 12 percent for crop protection products and seed, 6 percent for fertilizers, and budgeted costs of $15/acre for seed, $30/acre for fertilizer and $21/acre for crop protection products, total margins realized by the sales of crop protection products is $1.80/acre for seed, $1.80 for fertilizer, and $2.50/acre for crop protection. Using an average 10.7 million acre crop (five year average 2000 to 2004), the total value added realized by crop production inputs from dealer sales would be $78,110,000.

Economic value created in distribution of crop inputs = $78,110,000

There is additional value-add for the economy in terms of seed and crop protection technology. Numerous biotech companies and public agencies breed for input or output traits for canola. This work is done primarily in Canada. In the 1990's this was accomplished by small firms. But of late, fewer, larger companies have been doing the bulk of the breeding.

Crop protection chemicals are researched outside of Canada with respect to primary synthesis but field research is conducted in the country by five multi-national companies, with approximately 70 researchers/technical services personnel.

The seed breeding and biotech community add value through the development of propriety traits to canola. The best way to quantify the value added to canola by these traits is to assess what the market will pay for the seed variety or hybrid expressed as the difference between the prices paid to contract seed producers compared to the price charged to the seed dealer. Using a price to dealer of $130/25 kg bag, and a price of production of $0.88/kg, the gross value captured by seed technology companies is $108/bag, or $10.80 per acre. Costs assigned against this gross margin are not available as they are competitively sensitive. Using a cost of $7/bag, the net margin captured by seed companies would be $3.80 per bag.

Economic value created in seed/crop protection development = $115,000,000

**Value added handling of canola seed by grain companies**

The two main railways in Canada are CN and CP. CN generated $1.258 billion in total net income in 2004. Of all freight, agricultural freight was 16 percent of their business. Of this, oilseeds were 24 percent. Thus a reasonable figure for revenue generated would be $48 million.

CP Rail, with 16,000 employees, indicates that 11 percent of their business is in transporting grain (in terms of total carloads). The grain revenues for 2004 were $25,000,000. Of that total, $5.5 million in revenue came from transporting canola.

Economic value created in rail sector = $53,500,000

**Value added handling of canola seed at terminals**

Ninety percent of canola is exported through the Ports of Vancouver and Prince Rupert, with the bulk of exports going through Vancouver. The other 10 percent is exported through Thunder Bay. A small amount is cleared through inland facilities in the prairies, Ontario and Quebec.

Of all the grain tonnage going through the Port of Vancouver, 22 percent is canola (Canada Grains Council Stats). According to a paper presented by their President and Chief Executive Officer to the Canada Marine Act Review Panel, total volume of grain at Vancouver represents about 16 percent of the ports business, and 4 percent of the profits generated. Using a figure of 1.2 billion in annual contributions to GDP (Vancouver), and $100 million (Thunder Bay), the canola crop contributes about $10.6 million in value.

Of all tonnage going through Thunder Bay and other ports (Prince Rupert, Bay/Lake/St Lawrence, 10 and 1 percent are canola (Canada Grains Council Stats). These ports handle a fraction of the grain that Vancouver handles, and of that, canola represents a smaller proportion.

Economic value created by canola at port = $10,600,000

## II. Western provinces benefit most from canola, but all of Canada derives value from processing

Although canola production might be assumed to be beneficial primarily in the prairies where the crop is grown, there are economic benefits of both a direct and indirect nature in Ontario, B.C., Quebec and the Maritimes. In these regions, economic activity is created through value added in the food processing or transportation/administration sectors. Ontario is the location for the Port of Thunder Bay, where a portion of the crop is sent for export, and the province is also the location of two crushers. In B.C., the Port of Vancouver is the chief point of export for overseas shipments.

It is relatively straightforward to assign economic numbers regarding primary production (and through most of the chain) on the proportion of the crop grown by province. This figure can be derived from provincial acreage and production figures.

This is also the best approach to the economic benefits of the crush for the crop as well, since canola is freight sensitive. Two key crushers are actually located on provincial borders (Lloydminster and Harrowby) and these locations provide economic and social benefits to both provinces. Additionally, crush plants have located receiving stations in more remote locations and thus the crush from this area enjoys employment and value added aspects even though they are remote from a crush plant. On the advice of canola specialists, crush benefits and value added numbers are evenly distributed according to the regional proportion of the national production numbers.

**Table 1(a). Direct economic benefits, value added and multipliers to the Canadian economy from Canola production**

| Factor | Thousands of C$ | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ontario | Manitoba | Saskatchewan | Alberta | BC | Quebec/Mar | Total Canada |
| Gross earnings by producers as a result of sales to crushers/exporters[1] | 13,788 | 525,086 | 861,030 | 700,057 | 12,672 | 5,715 | 2,118,539 |
| Gross value of oil produced (thousands of $C 5 yr avg)[2] | 4,974 | 189,411 | 310,593 | 252,527 | 4,571 | 2,057 | 764,206 |
| Gross value of meal produced (thousands of $C 5 yr avg)[3] | 2,343 | 89,217 | 146,297 | 118,946 | 2,153 | 970 | 359,960 |
| Value added from crushers[4] | 957 | 36,447 | 59,766 | 48,593 | 880 | 396 | 147,082 |
| Value added from refining [5A] | 2,148 | 81,791 | 134,121 | 109,046 | 1,974 | n/a | 330,000 |
| Value in food stores/restaurants of 'canola basket' (Includes margarine, salad and cooking oils and canola as an ingredient in other foods. See Assumptions Table(follows) | 200,525 | 18,230 | 18,230 | 60,765 | 60,765 | 249,137 | 607,652 |
| Value added by grain companies in processing/moving canola to rail or crush[6] | 473 | 18,029 | 29,564 | 24,037 | 435 | 100 | 72,741 |
| Value realized by rail companies in moving canola to terminal or port[7] | 140 | 14,329 | 17,538 | 16,105 | 129 | 200 | 48,500 |
| Value realized by loading to ship at port[8] | 525 | 0 | 0 | 0 | 9,975 | | 10,500 |
| Estimated multiplier effect of value added components[9] | 437,114 | 1,369,825 | 2,222,496 | 1,899,205 | 173,659 | 498,675 | 6,616,028 |
| **Economic impact of canola for the Canadian economy** | **662,987** | **2,342,366** | **3,799,634** | **3,229,280** | **267,213** | **757,250** | **11,075,208** |

[1] Five year average production multiplied by price from Canola Council of Canada website based on 6.44 million tonne/yr average 2000-2005

[2] Five year average production, with all provinces assumed as having equal proportion of crush, crush of 1.222 thousand tonnes/yr and price of $685

[3] Five year average production with all provinces assumed as having equal proportion of crush benefit, tonnage at 1.752 thousand tonnes/yr and price of $207

[4] Five year average based on expenses of $57.4 million/yr (payroll), $81 million/yr energy, $962.9 million/yr (canola seed)
[5A] Based on COPA 2004 estimate of value added on a 1 million tonne per year refining/packaging crush.
5b Based on estimates for breakdown of domestic use patterns (margarine vs salad oil vs goods that contain canola)

[6] Based on annual reports of grain companies' assessment that average profit on grain handle in 2004 was $21.17/tonne

[7] Based on annual reports of CN and CP rail, assessing $48 million in net for CN and $5.5 million in net from CP for oilseed portion of ag shipments
[8] Based on figures on net profits presented by CEO of Port of Vancouver Authority and Thunder Bay website, with 95%/5% assignment to BC and Ont respectively
9 Multiplier was set at 2.0 as per Oilseed Sector Profile – AAFC 2004

**Table 1(b). Assumptions for Value in food stores of "canola basket' (Includes margarine, salad and cooking oils and canola as an ingredient in other foods. Consumption based on domestic disappearance of 457,000 tonnes (Five year average 2000-2004)**

| Use | MT of Oil | % of Total | Price | VA | Total |
|---|---|---|---|---|---|
| Seafood | 647 | 0.14% | $ 685 | 2.0 | $ 886,395 |
| Confectionery | 4,421 | 0.97% | $ 685 | 3.0 | $ 9,085,544 |
| Frozen Cakes, Pies & Pastries | 4,529 | 0.99% | $ 685 | 3.0 | $ 9,307,143 |
| Margarine | 12,617 | 2.76% | $ 685 | 2.0 | $ 17,284,693 |
| Other Food Products | 13,285 | 2.91% | $ 685 | 2.0 | $ 18,200,634 |
| Commercial Bakeries | 22,063 | 4.83% | $ 685 | 2.0 | $ 30,226,053 |
| Fruit & Vegetable Canning | 23,659 | 5.18% | $ 685 | 2.0 | $ 32,412,493 |
| Cookie & Cracker | 26,311 | 5.76% | $ 685 | 3.0 | $ 54,070,066 |
| Snack Foods | 28,360 | 6.21% | $ 685 | 3.0 | $ 58,280,440 |
| Mayo, Dressing, & Sauce | 33,342 | 7.30% | $ 685 | 2.0 | $ 45,678,865 |
| Canola oil on shelf | 64,916 | 14.20% | $ 685 | 2.0 | $ 88,934,917 |
| Animal Food | 69,618 | 15.23% | $ 685 | 1.8 | $ 85,838,446 |
| Deep frying/restaurants | 153,232 | 33.53% | $ 685 | 1.5 | $ 157,445,828 |

**Total ………………………………………………………………………………… $607,651,517**

## III. Canola contribution to GDP and to farm gate receipts.

The Canadian Gross Domestic Product was $1.02 trillion in 2004. Of this total, 2.3 percent was generated by the agriculture industry. The direct and indirect wealth generated by canola averages at $11 billion. Thus, economic activities related to canola are responsible for approximately 1 percent of the national GDP.

With respect to total farm gate receipts, canola contributed 4.7 to 5.8 percent of total farm gate receipts and 11.9 to 14.7 percent of crop farm gate receipts over the four years between 2000 and 2004. (see Table 2(a)). Farm receipts ranged from $1.5 to $2.1 billion from canola sales (Table 2(b)).

### Table 2. Farm gate receipts and canola

#### (a) Proportions

| Crop | Percentage | | | | | Weighted average |
|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 | |
| Canola as a percentage of total recpts | 4.7% | 4.7% | 4.9% | 5.5% | 5.8% | 5.2% |
| Canola as a percentage of crop receipts | 11.9% | 12.7% | 12.2% | 14.1% | 14.7% | 13.1% |

## Table 2(b) Farm gate receipts in C$ from all sources (Source – CANSIM Stats Canada)

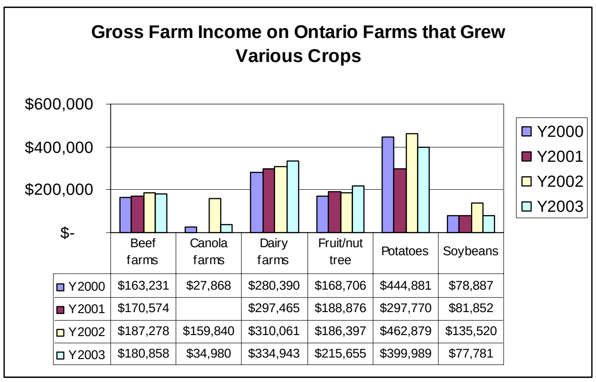
| Crop | $ Thousands | | | | |
|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | 2004 |
| **Total farm cash receipts** | **32,960,524** | **36,320,804** | **36,177,397** | **34,457,751** | **36,543,064** |
| **Crops** | **13,062,085** | **13,590,638** | **14,558,764** | **13,426,352** | **14,505,555** |
| All wheat | 3,056,988 | 3,483,636 | 3,409,086 | 2,526,393 | 3,023,237 |
| Oats | 196,413 | 273,962 | 307,737 | 244,503 | 230,957 |
| Barley | 582,992 | 728,622 | 551,935 | 435,491 | 550,553 |
| All rye | 15,285 | 16,210 | 12,182 | 12,440 | 28,857 |
| Flaxseed | 148,743 | 162,780 | 239,835 | 192,160 | 198,322 |
| Canola | 1,560,025 | 1,723,047 | 1,778,264 | 1,890,755 | 2,135,819 |
| Corn for grain | 676,073 | 630,884 | 819,167 | 786,685 | 794,690 |
| Soybeans | 677,947 | 534,483 | 587,657 | 758,346 | 672,603 |
| Dry peas | 269,772 | 304,475 | 252,978 | 253,495 | 325,645 |
| Mustard | 63,763 | 48,650 | 59,089 | 88,643 | 102,440 |
| Sunflower | 31,237 | 33,142 | 47,733 | 54,958 | 31,041 |
| Lentils | 244,542 | 187,180 | 131,930 | 156,347 | 246,146 |
| Canary seed | 34,383 | 50,462 | 82,578 | 75,858 | 72,405 |
| Chick peas | 63,113 | 149,057 | 126,822 | 57,973 | 24,661 |
| Dry beans | 123,029 | 101,474 | 139,089 | 142,593 | 125,871 |
| Other crops (e.g. hort, spices, special crops etc) | 5,272,934 | 5,410,907 | 5,808,984 | 5,741,467 | 5,938,315 |
| Deferred grain receipts | 44,846 | -248,333 | 203,698 | 8,245 | 3,993 |
| **Livestock** | **17,089,735** | **18,964,226** | **18,189,692** | **16,188,096** | **17,157,101** |
| Cattle and calves | 6,874,942 | 7,891,897 | 7,654,114 | 5,162,544 | 5,070,201 |
| Pigs | 3,355,238 | 3,827,869 | 3,284,628 | 3,396,945 | 4,263,152 |
| Milk and cream | 4,029,833 | 4,142,313 | 4,135,287 | 4,480,779 | 4,591,194 |
| Sheep and lambs | 86,740 | 97,016 | 101,425 | 100,862 | 85,372 |
| Poultry | 1,631,396 | 1,784,840 | 1,711,758 | 1,785,070 | 1,845,344 |
| Eggs | 511,052 | 547,878 | 574,980 | 566,033 | 565,941 |
| Other livestock products | 600,534 | 672,413 | 727,500 | 695,863 | 735,897 |
| **Payments** | **2,808,704** | **3,765,940** | **3,428,941** | **4,843,303** | **4,880,408** |
| Net Income stabilization account | 456,221 | 441,711 | 615,685 | 723,065 | 934,140 |
| Crop insurance | 610,636 | 1,041,246 | 1,493,118 | 1,806,025 | 884,695 |
| Income disaster paymts | 421,853 | 626,682 | 386,925 | 440,331 | 237,260 |
| Provincial stabilization | 411,180 | 516,476 | 395,673 | 711,321 | 626,335 |
| Other programs (Ad hoc) | 908,814 | 1,139,825 | 537,540 | 1,162,561 | 2,197,978 |

## Income Levels of Canola Producers

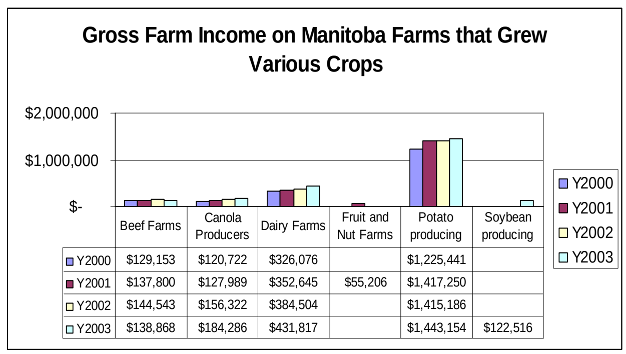
Income levels are assessed on the basis of (a) gross farm income and (b) net farm income + salaries paid. The latter is a good measure of farm income for canola since the enterprise remains a family oriented business and thus salaries paid are commonly paid within the farming family.

## I. Gross incomes by farm – wide variations from year to year and from region to region (probably weather/soil edaphic based)

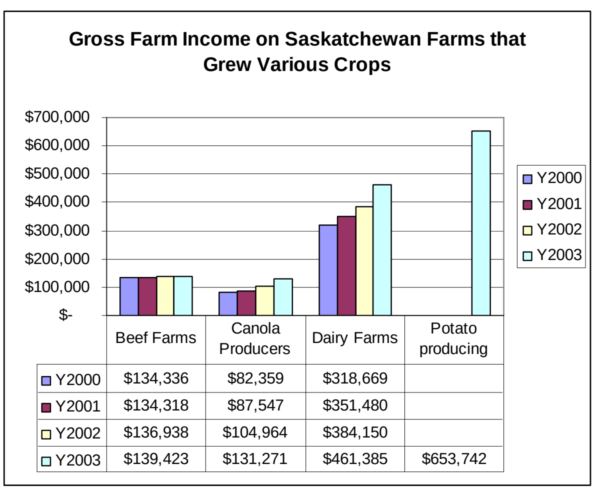
Gross incomes were retrieved from Stats Canada data, with data extracted from Gross Farm income from CRA data during the 2000, 2001, 2002 and 2003 federal fiscal years. On farms that produced canola, gross farm income varied somewhat from year to year and from province to province. Note that incomes are not presented for years when smaller acreage may pose confidentiality issues and so these values are suppressed. Gross farm incomes for canola were $80 to 130 thousand for Saskatchewan, $120 to 180 thousand in Manitoba, $115 to 150 thousand in Alberta and $27 to 160 thousand in Ontario. Note that these numbers are gross figures and they do not take into account the significant outlays of expenses of production. Note that canola production generates less gross income than capital intensive enterprises, or enterprises that are influenced by marketing boards (e. g. potato and dairy respectively).



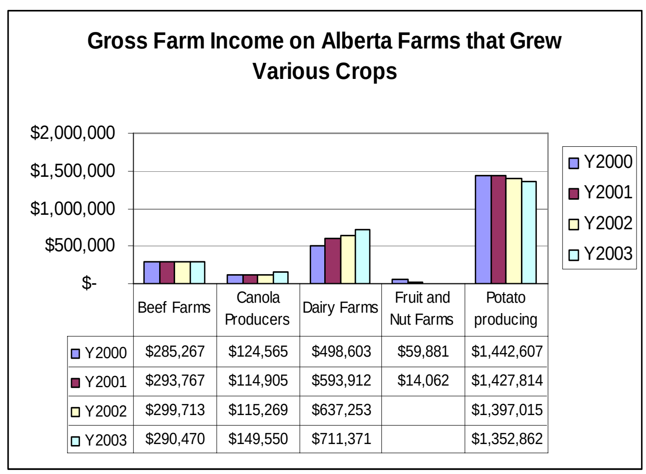

| | Beef farms | Canola farms | Dairy farms | Fruit/nut tree | Potatoes | Soybeans |
|---|---|---|---|---|---|---|
| Y2000 | $163,231 | $27,868 | $280,390 | $168,706 | $444,881 | $78,887 |
| Y2001 | $170,574 | | $297,465 | $188,876 | $297,770 | $81,852 |
| Y2002 | $187,278 | $159,840 | $310,061 | $186,397 | $462,879 | $135,520 |
| Y2003 | $180,858 | $34,980 | $334,943 | $215,655 | $399,989 | $77,781 |




| | Beef Farms | Canola Producers | Dairy Farms | Fruit and Nut Farms | Potato producing | Soybean producing |
|---|---|---|---|---|---|---|
| Y2000 | $129,153 | $120,722 | $326,076 | | $1,225,441 | |
| Y2001 | $137,800 | $127,989 | $352,645 | $55,206 | $1,417,250 | |
| Y2002 | $144,543 | $156,322 | $384,504 | | $1,415,186 | |
| Y2003 | $138,868 | $184,286 | $431,817 | | $1,443,154 | $122,516 |




| | Beef Farms | Canola Producers | Dairy Farms | Potato producing |
|---|---|---|---|---|
| Y2000 | $134,336 | $82,359 | $318,669 | |
| Y2001 | $134,318 | $87,547 | $351,480 | |
| Y2002 | $136,938 | $104,964 | $384,150 | |
| Y2003 | $139,423 | $131,271 | $461,385 | $653,742 |



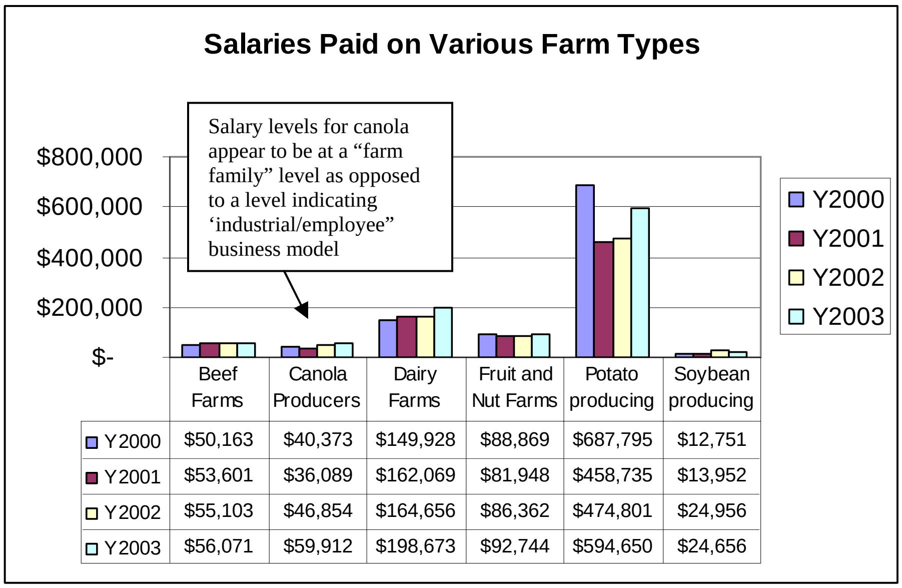

| | Beef Farms | Canola Producers | Dairy Farms | Fruit and Nut Farms | Potato producing |
|---|---|---|---|---|---|
| Y2000 | $285,267 | $124,565 | $498,603 | $59,881 | $1,442,607 |
| Y2001 | $293,767 | $114,905 | $593,912 | $14,062 | $1,427,814 |
| Y2002 | $299,713 | $115,269 | $637,253 | | $1,397,015 |
| Y2003 | $290,470 | $149,550 | $711,371 | | $1,352,862 |

***Chart 1. Gross farm income by farm type for selected farm enterprises***

## II. Net income on canola farms – illustrates a ‘family farm/fulltime’ approach to the business

A better measure of the health of the income received on farms that grow canola is the sum of (a) net operating income plus (b) salaries. This number takes account of fixed and operating costs and removes them from income excepting for salary line items. This data too is from Stats Canada data sourced from the CRA.

The scale of salaries paid in canola production indicates that the industry is still a family operation, with the farm family income stream arising from both net operating income and salaries. This may not be true for potatoes, where salary levels paid appear to indicate a more industrial approach to the business, with a salary pay out indicative of multiple employees.




| | Beef Farms | Canola Producers | Dairy Farms | Fruit and Nut Farms | Potato producing | Soybean producing |
|---|---|---|---|---|---|---|
| Y2000 | $50,163 | $40,373 | $149,928 | $88,869 | $687,795 | $12,751 |
| Y2001 | $53,601 | $36,089 | $162,069 | $81,948 | $458,735 | $13,952 |
| Y2002 | $55,103 | $46,854 | $164,656 | $86,362 | $474,801 | $24,956 |
| Y2003 | $56,071 | $59,912 | $198,673 | $92,744 | $594,650 | $24,656 |

*Chart 2. Salaries paid by farm type for selected farm enterprises*

The family farm nature of canola production also shows up in figures that calculate the income earned by off farm jobs versus on farm sources (net farm income plus salaries). This data shows that canola producers are clearly committed to full time farming, with only a small proportion of total income derived from off-farm work.

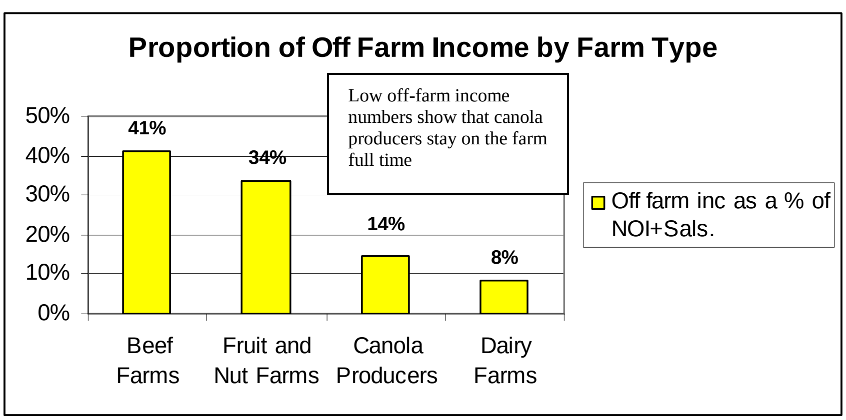



*Chart 3. Proportion of off-farm income by farm type for selected farm enterprises*

When calculating net operating income in combination with salaries paid, the average Canadian canola producer was challenged to keep the farm on a stable financial footing. By this measure, canola producing farms ranked about the same as soybean producing farms, exclusive of government payments for the latter.

***Table 3. Net operating income plus salaries for selected farm enterprises***

| NOI plus salaries | Y2000 | Y2001 | Y2002 | Y2003 | 4 Yr Avg |
|---|---|---|---|---|---|
| Beef Farms | 22,876 | 27,447 | 28,006 | 19,615 | 24,486 |
| Canola Producers | 26,803 | 34,861 | 20,748 | 34,597 | 29,252 |
| Dairy Farms | 113,204 | 125,800 | 131,269 | 139,957 | 127,557 |
| Fruit and Nut Farms | 37,223 | 41,888 | 36,016 | 56,522 | 42,912 |
| Potato producing farms | 297,858 | 328,002 | 363,228 | 296,659 | 321,437 |
| Soybean producing farms | 26,939 | 31,834 | 25,348 | 24,163 | 27,071 |

## III. Some challenges with input costs

Over the same four year period, all producers have faced increases in input expenditures. In canola, total expenditures were up by 36, 43 and 69 percent for chemicals, fertilizers and seed respectively. These figures reflect gross purchases by farms that grew canola. Even when taking into account the increase in acreage, the proportionate rise in costs for canola are still significantly higher than others.

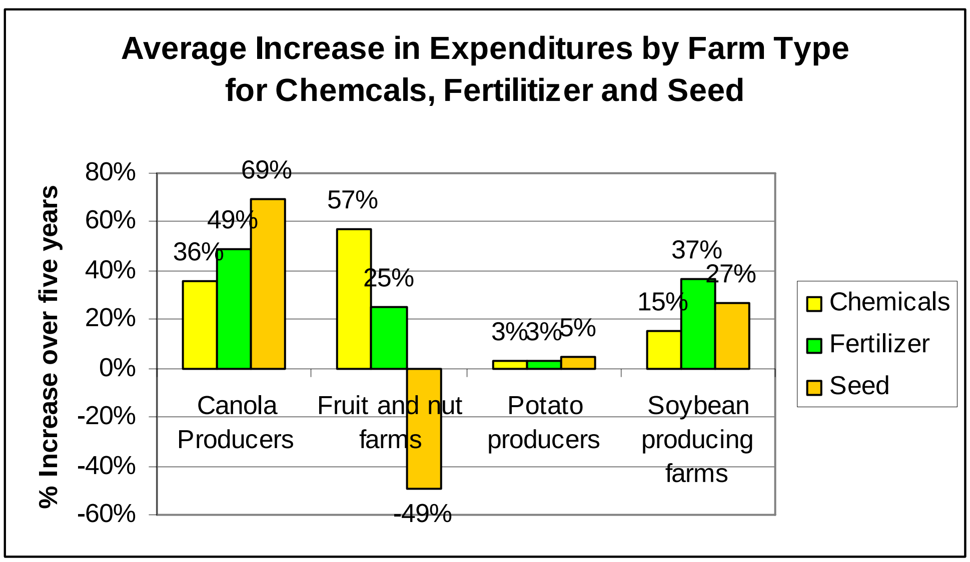



***Chart 4. Average increase in expenditures for selected farm inputs for various farm enterprises***

***Table 5. Average expenditures in C$ by farm enterprise***

| Farm type | Y2000 | Y2001 | Y2002 | Y2003 |
|---|---|---|---|---|
| Beef Farms | 15,695 | 17,963 | 17,323 | 18,744 |
| Canola Producers | 32,473 | 30,931 | 53,126 | 47,980 |
| Dairy Farms | 25,692 | 28,272 | 26,819 | 32,610 |
| Fruit and Nut Farms | 11,708 | 12,540 | 12,438 | 14,277 |
| Potato producing farms | 235,881 | 267,197 | 284,125 | 245,607 |
| Soybean producing farms | 22,595 | 23,860 | 22,174 | 28,738 |

## IV. Canola generates a significant portion of income for 52,000 farm families

Canola is a vital part of the production for grains and oilseeds producers. Some 52,000 producers who grew canola as part of their rotation generated between 1/3 and one-half of their income from the crop.

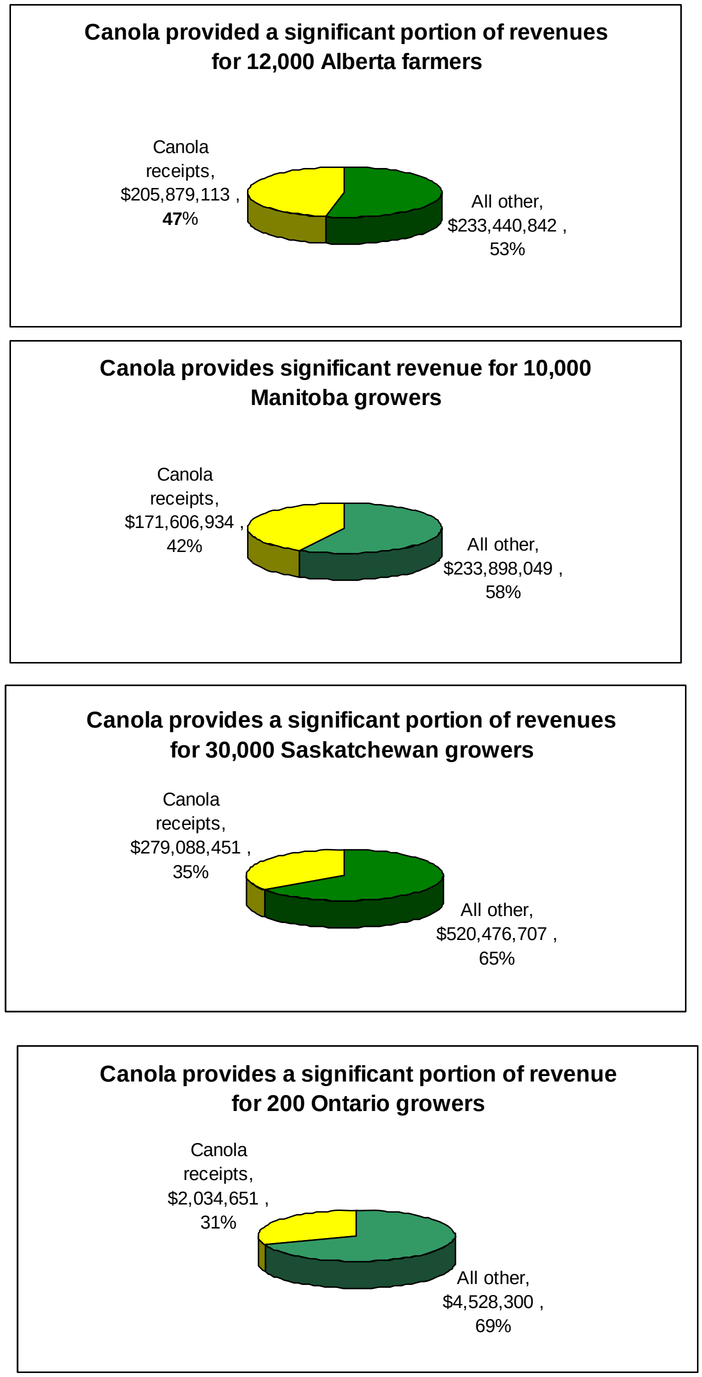



***Chart 5. Income generated by canola on farms that grew the crop***

## Canola and Canada's Trade Balances

Trade balances and export patterns were assessed using data from the Strategis database, which was originally sourced from Statistics Canada and the U.S. Census Bureau (U.S. Department of Commerce). Figures for 2004 were checked using Oil World Statistics.

During the four years between 2000 and 2004, Canada exported an average of $401.3 billion annually (all goods and services). Our trade balance was positive in all four years and averaged $53.2 billion.

Canola's contribution to exports rose during the years 2000 to 2004 – attaining levels of $2.3 billion during 2004. The crop averaged just over 1 percent of our total trade in the first two years of the period, but rose to more than 4 percent during the last two years. In absolute numbers, exports tripled from a level of just under $705 million in 2000 to over $2.3 billion in 2004.

Canola seed, oil and meal exports also rose in terms of the absolute and proportional contribution made to the agricultural trade picture. Using the broadest definition of agricultural products (all organic products and byproducts of organic products including alcohol, tobacco, but excluding fish/marine products), canola exports tripled in terms of the contribution the crop made to Canada's agricultural exports. In 2000, canola made up 11 percent of our agricultural trade balance. By 2004, it made up over one-third of the figure.

The crop is an essential component of our trade patterns with our key trade partners within the NAFTA area (the United States and Mexico) and in Asia– especially Japan.

Within NAFTA, sales of the crop to the U.S. rose 75 percent from 2000 to 2004, and in that year constituted 18.3 percent of the positive trade balance of agricultural products flowing between the countries. Sales to Mexico have also increased, rising from small amounts to nearly a half a billion dollars by 2004.

In Asia, where our trade deficits with China and Japan are $17 and $4 billion respectively, canola is a reliable export that contributes to the balance for Canada. Canola constituted 14.6 percent of the total trade balance with Japan. In China, where our trade balance was an immense $17.4 billion in deficit, canola exports grew tenfold in the four years between 2000 and 2004. The crop represented 31 percent of the agricultural trade balance Canada with China in 2004.

In terms of trade partnerships with other countries, canola sales to Pakistan made up 23.6 percent of the total trade with the country.

Raw seed is only one component of the trading relationships pertaining to canola. Processed oil and meal exports add value to canola so that a higher price can be extracted from the international market. Exports have averaged in excess of $735 million per year during the period 1995 through 2004. These data are presented in Chart 6 (oil), Chart 7 (meal) and in Table 8 (oil + meal).

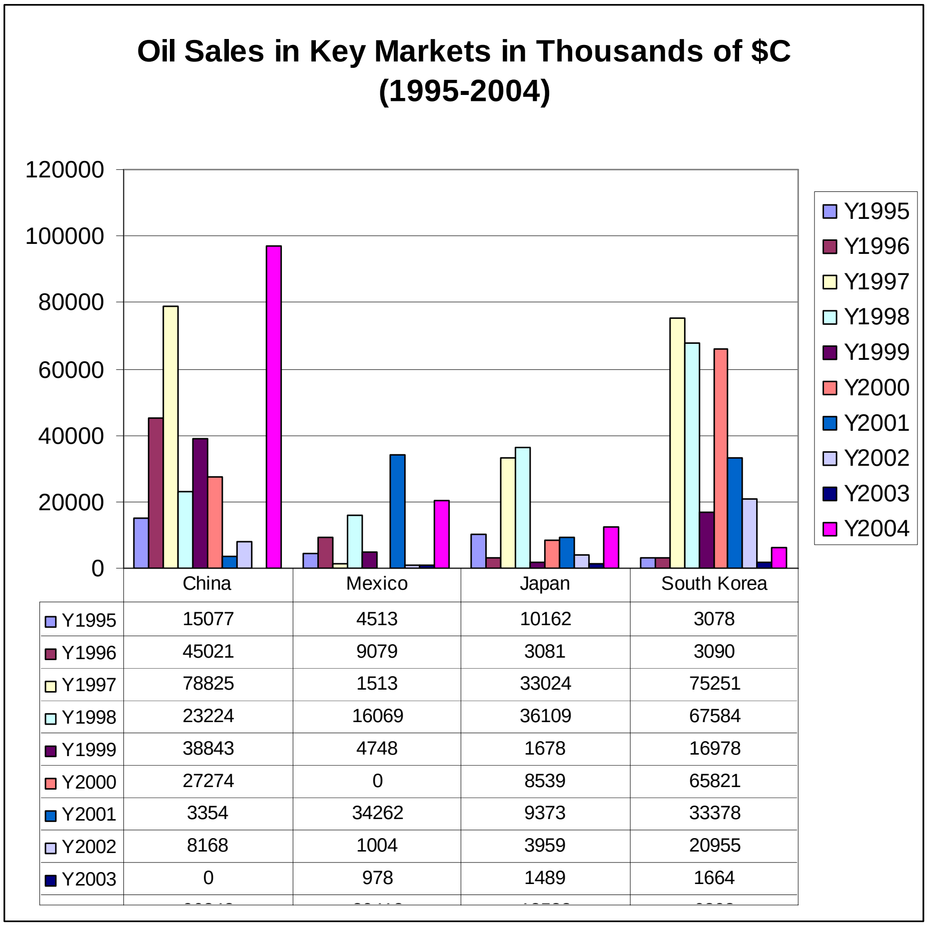
*Table 6. Contribution of canola to total exports and trade balances (all goods) with selected trading partners (Green figures represent the percentage that canola contributes to the trade balance where the trade balance is negative for Canada)*

| Country | Measurement | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| USA | Total canola sales (Net in C$ 000) | 465,429,345 | 448,577,896 | 427,452,421 | 484,790,236 | 815,251,664 |
| USA | Canola as % of Ttl T Bal | 0.4% | 0.3% | 0.3% | 0.4% | 0.6% |
| USA | Canola as % of ttl exports | 0.1% | 0.1% | 0.1% | 0.1% | 0.2% |
| Japan | Total canola sales (Net in C$ 000) | 9,669,246 | 12,215,103 | 636,554,306 | 708,202,475 | 700,717,089 |
| Japan | Canola as % of ttl exports | 0.1% | 0.1% | 7.6% | 8.7% | 8.2% |
| Japan | Canola as % of Ttl T Bal | 0.1% | 0.2% | 9.0% | 12.5% | 14.6% |
| Mexico | Total canola sales (Net in C$ 000) | 264,531 | 33,340 | 187,294,268 | 247,133,449 | 458,067,733 |
| Mexico | Canola as % of ttl exports | 0.0% | 0.0% | 7.7% | 11.2% | 15.3% |
| Mexico | Canola as % of Ttl T Bal | 0.0% | 0.0% | 1.8% | 2.5% | 4.4% |
| China | Total canola sales (Net in C$ 000) | 27,324,965 | 3,353,882 | 32,940,443 | 157,566,030 | 260,159,157 |
| China | Canola as % of ttl exports | 0.7% | 0.1% | 0.8% | 3.3% | 3.9% |
| China | Canola as % of Ttl T Bal | 0.4% | 0.0% | 0.3% | 1.1% | 1.5% |
| Pakistan | Total canola sales (Net in C$ 000) | 12,648 | 12,566 | 18,000 | 179,316,167 | 20,164,073 |
| Pakistan | Canola as % of Ttl T Bal | 0.0% | 0.0% | 0.0% | 660.0% | 23.6% |
| Pakistan | Canola as % of ttl exports | 0.0% | 0.0% | 0.0% | 59.3% | 6.1% |
| Korea, South | Total canola sales (Net in C$ 000) | 65,821,791 | 33,378,019 | 26,116,349 | 9,610,751 | 11,227,791 |
| Korea, South | Canola as % of ttl exports | 2.8% | 1.7% | 1.3% | 0.5% | 0.5% |
| Korea, South | Canola as % of Ttl T Bal | 2.2% | 1.3% | 0.9% | 0.3% | 0.3% |
| **TOTAL (ALL COUNTRIES)** | **Total canola sales (Net in C$ 000)** | **704,827,903** | **565,439,309** | **1,346,408,457** | **1,855,758,634** | **2,332,318,776** |
| **TOTAL (ALL COUNTRIES)** | **Canola as % of Ttl T Bal** | **1.3%** | **0.9%** | **2.8%** | **4.1%** | **4.1%** |
| **TOTAL (ALL COUNTRIES)** | **Canola as % of ttl exports** | **0.2%** | **0.1%** | **0.3%** | **0.5%** | **0.6%** |

*Table 7. Contribution of canola to total exports and trade balances (agricultural goods) with selected trading partners (Green figures represent the percentage that canola contributes to the trade balance where the trade balance is negative for Canada)*

| Country | Measurement | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| USA | Total canola sales (Net in C$ 000) | 465,429,345 | 448,577,896 | 427,452,421 | 484,790,236 | 815,251,664 |
| USA | Canola as % of Ag T Bal | 12.7% | 9.2% | 8.7% | 13.2% | 18.3% |
| USA | Canola as % of ag exports | 3.3% | 2.7% | 2.5% | 3.1% | 5.1% |
| Japan | Total canola sales (Net in C$ 000) | 9,669,246 | 12,215,103 | 636,554,306 | 708,202,475 | 700,717,089 |
| Japan | Canola as % of Ag T Bal | 0.5% | 0.5% | 28.3% | 31.6% | 28.8% |
| Japan | Canola as % of ag exports | 0.5% | 0.5% | 27.7% | 30.9% | 28.3% |
| Mexico | Total canola sales (Net in C$ 000) | 264,531 | 33,340 | 187,294,268 | 247,133,449 | 458,067,733 |
| Mexico | Canola as % of Ag T Bal | 0.1% | 0.0% | 72.6% | 153.4% | 75.7% |
| Mexico | Canola as % of ag exports | 0.0% | 0.0% | 24.4% | 33.8% | 38.6% |
| China | Total canola sales (Net in C$ 000) | 27,324,965 | 3,353,882 | 32,940,443 | 157,566,030 | 260,159,157 |
| China | Canola as % of Ag T Bal | 6.7% | 0.6% | 233.1% | 425.7% | 31.0% |
| China | Canola as % of ag exports | 4.4% | 0.4% | 12.7% | 46.2% | 22.3% |
| Pakistan | Total canola sales (Net in C$ 000) | 12,648 | 12,566 | 18,000 | 179,316,167 | 20,164,073 |
| Pakistan | Canola as % of Ag T Bal | 0.1% | 0.1% | 3.9% | 96.5% | 64.8% |
| Pakistan | Canola as % of ag exports | 0.0% | 0.1% | 0.1% | 89.0% | 43.4% |
| Korea, South | Total canola sales (Net in C$ 000) | 65,821,791 | 33,378,019 | 26,116,349 | 9,610,751 | 11,227,791 |
| Korea, South | Canola as % of Ag T Bal | 23.9% | 14.6% | 11.9% | 7.5% | 5.1% |
| Korea, South | Canola as % of ag exports | 1.0% | 0.4% | 0.4% | 0.2% | 0.2% |
| **TOTAL (ALL COUNTRIES)** | **Total canola sales (Net in C$ 000)** | **704,827,903** | **565,439,309** | **1,346,408,457** | **1,855,758,634** | **2,332,318,776** |
| **TOTAL (ALL COUNTRIES)** | **Canola as % of Ag T Bal** | **11.0%** | **7.2%** | **22.9%** | **40.7%** | **34.4%** |
| **TOTAL (ALL COUNTRIES)** | **Canola as % of ag exports** | **3.1%** | **2.2%** | **5.3%** | **7.7%** | **8.9%** |

**Number of codes selected: 28**10 - Cereals0101 - LIVE HORSES, ASSES, MULES AND HINNIES 0102 - LIVE BOVINE ANIMALS0103 - LIVE SWINE0104 - LIVE SHEEP AND GOATS 0105 - LIVE POULTRY AND TURKEYS11 - Products of the Milling Industry; Malt, Starches, Inulin and Wheat Gluten12 - Oil Seeds, Oleaginous Fruits, Industrial or Medicinal Plants, Straw and Fodder13 - Lac, Gums, Resins and Other Vegetable Extracts 14 - Vegetable Plaiting Material and Other Similar Vegetable Products 15 - Fats, Oils, Their Cleavage Products and Waxes 1601 - SAUSAGES AND SIMILAR PRODUCTS OF MEAT, MEAT OFFAL OR BLOOD; FOOD PREPARATIONS 602 - PREPARED/PRESERVED MEAT, MEAT OFFAL OR BLOOD (OTHER THAN SAUSAGES)1603 - EXTRACTS AND JUICES OF MEAT, 17 - Sugars and Sugar Confectionery18 - Cocoa and Cocoa Preparations 19 - Preparations of Cereals, Flour, Starch or Milk (Including Bread and Pastry)02 - Meat and Edible Meat Offal2 - Preparations of Vegetables, Fruit, Nuts or Other Parts of Plants 21 - Miscellaneous Edible Preparations22 - Beverages, Spirits and Vinegar23 - Residues and Waste from the Food Industries, and Prepared Animal Fodder24 - Tobacco and Manufactured Tobacco Substitutes 04 - Dairy Produce, Eggs, Honey and Other Similar Edible Products of Animal Origin06 - Live Trees and Other Plants (Incl. Cut Flowers and Ornamental Foliage) 07 - Edible Vegetables and Certain Roots and Tubers 08 - Edible Fruits and Nuts09 - Coffee, Tea, Maté and Spices




| | China | Mexico | Japan | South Korea |
|---|---|---|---|---|
| Y1995 | 15077 | 4513 | 10162 | 3078 |
| Y1996 | 45021 | 9079 | 3081 | 3090 |
| Y1997 | 78825 | 1513 | 33024 | 75251 |
| Y1998 | 23224 | 16069 | 36109 | 67584 |
| Y1999 | 38843 | 4748 | 1678 | 16978 |
| Y2000 | 27274 | 0 | 8539 | 65821 |
| Y2001 | 3354 | 34262 | 9373 | 33378 |
| Y2002 | 8168 | 1004 | 3959 | 20955 |
| Y2003 | 0 | 978 | 1489 | 1664 |

*Chart 6(a) Oil sales in selected markets 1995 through 2004*

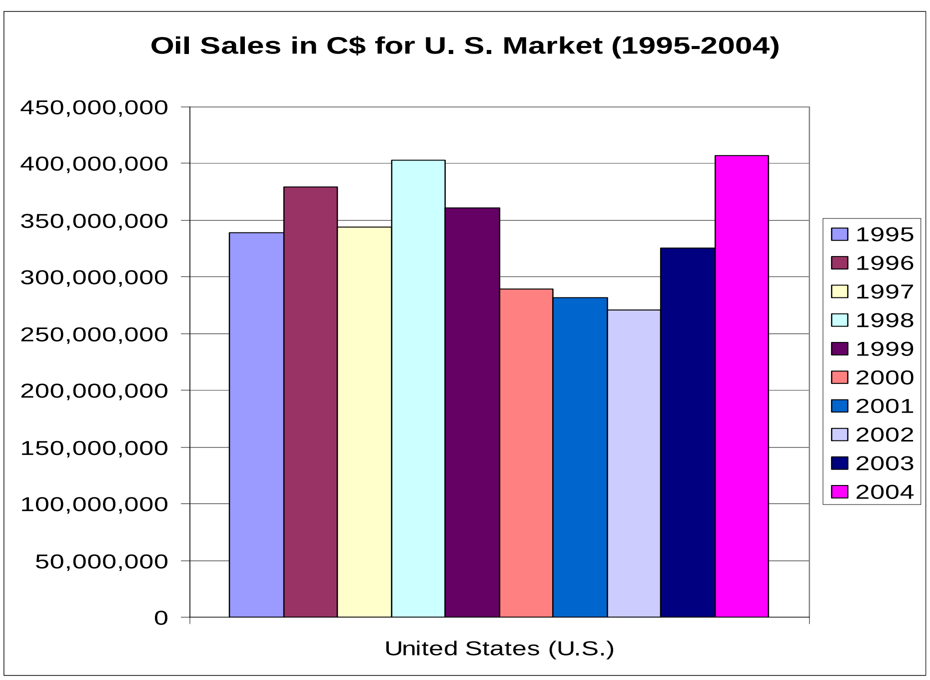



*Chart 6(b) Oil sales in selected markets 1995 through 2004*

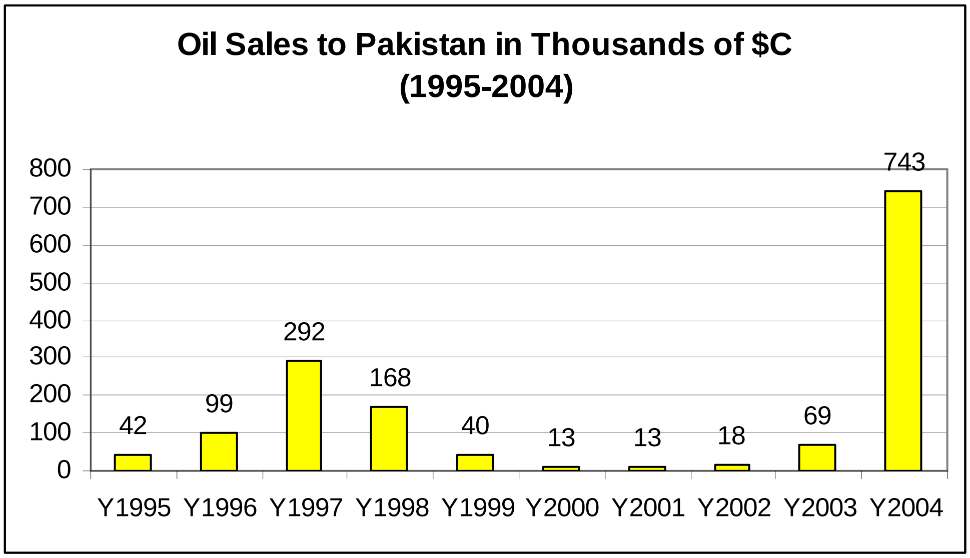



*Chart 6(c) Oil sales to Pakistan 1995 through 2004*

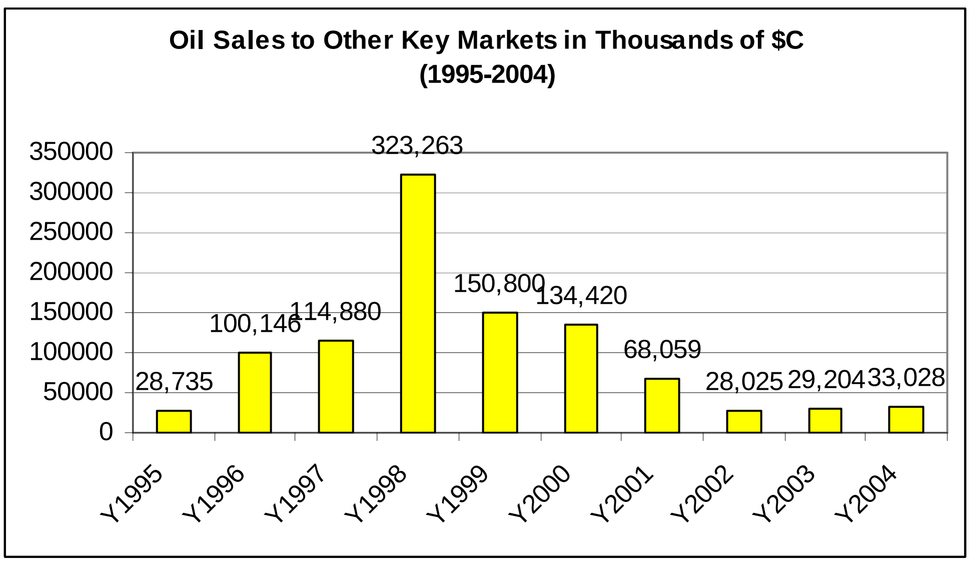



*Chart 6(d) Oil sales to Other Key Markets 1995 through 2004*

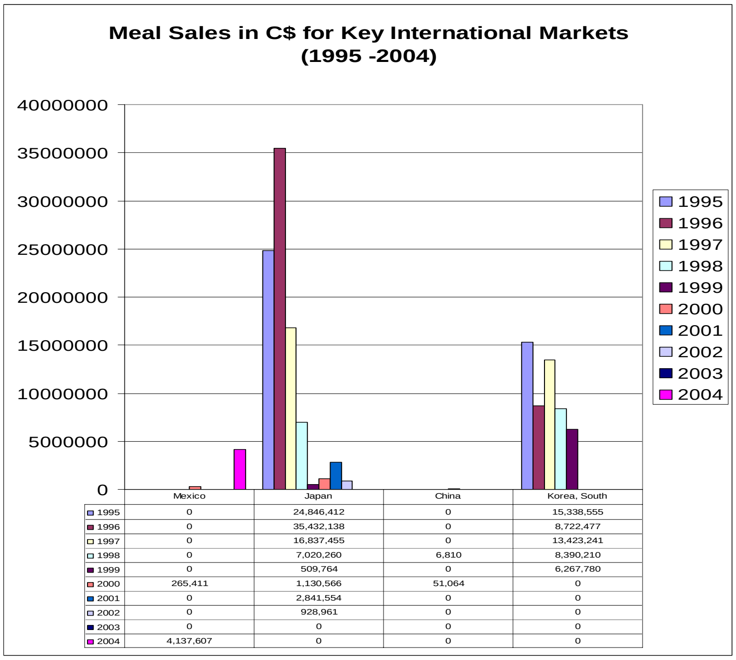



***Chart 7(a) Meal sales to Selected Key Markets 1995 through 2004***

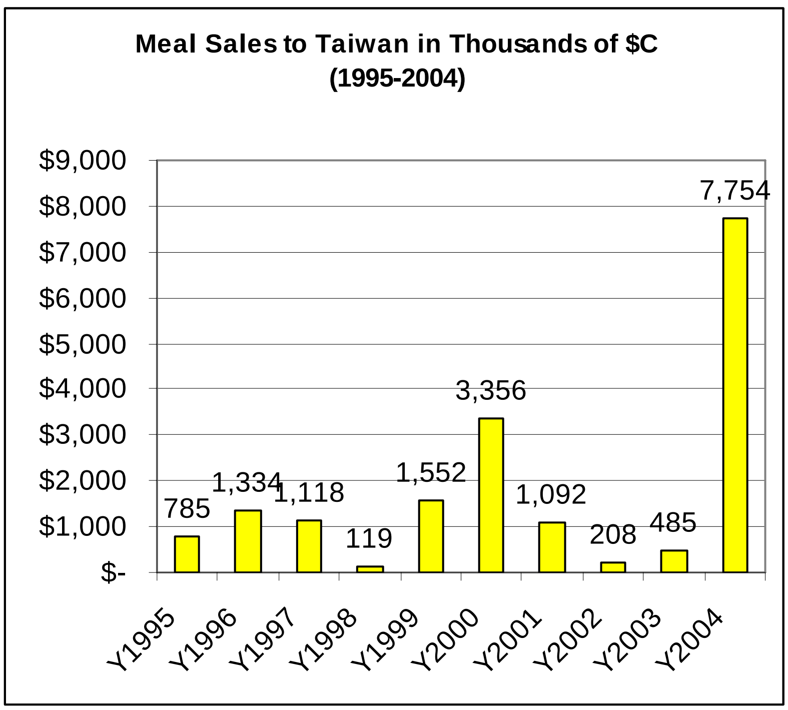



***Chart 7(b) Meal sales to Taiwan 1995 through 2004***

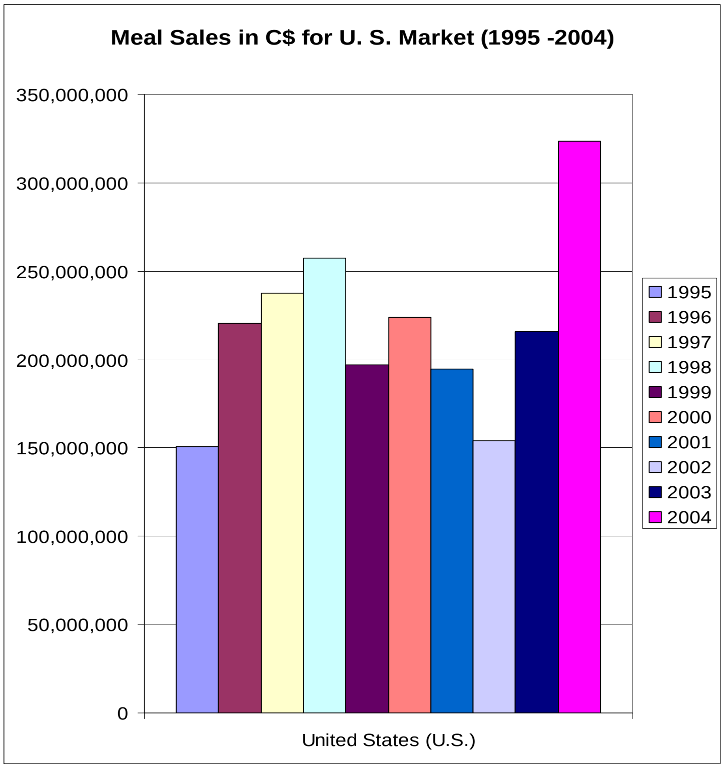



***Chart 7(c) Meal sales to the U.S.  1995 through 2004***

***Table 8. Combined oil and meal sales by selected market***

| Country | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|
| **China** | 15,077,812 | 45,021,137 | 78,825,981 | 23,231,055 | 38,843,769 | 27,324,965 | 3,353,919 | 8,167,761 | 0 | 439,596,017 |
| **Japan** | 35,008,492 | 38,513,719 | 49,862,061 | 43,130,036 | 2,188,703 | 9,669,246 | 12,215,103 | 4,887,806 | 1,489,203 | 336,187,967 |
| **Korea, South** | 18,416,439 | 11,812,202 | 88,675,211 | 75,974,924 | 23,245,536 | 65,821,791 | 33,378,019 | 20,955,217 | 1,664,246 | 10,340,698 |
| **Mexico** | 4,512,619 | 9,079,122 | 1,513,765 | 16,068,872 | 4,748,237 | 265,411 | 34,262 | 1,003,026 | 978,229 | 20,412,116 |
| **Pakistan** | 42,210 | 98,957 | 292,936 | 169,137 | 39,663 | 12,648 | 12,566 | 18,000 | 69,029 | 743,890 |
| **Taiwan** | 785 | 1,334 | 1,118 | 119 | 1,552 | 3,356 | 1,092 | 208 | 485 | 7,754 |
| **USA** | 489,439,536 | 599,717,396 | 581,562,353 | 660,018,597 | 558,105,105 | 513,409,946 | 476,081,738 | 425,042,913 | 541,302,425 | 407,141,811 |
| **TOTAL (ALL COUNTRIES)** | 615,867,835 | 827,302,847 | 932,028,759 | 1,161,465,805 | 792,571,678 | 753,280,833 | 594,024,894 | 489,618,184 | 585,000,316 | 575,955,080 |

## Domestic Use of Canola Oil and Meal

Data was accumulated from Oil World statistics in order to calculate domestic disappearance of various oil classes within Canada on a year by year basis. Domestic disappearance was calculated using the residual of balances considering production, imports, exports, opening balances and ending stocks. Numbers are presented on the basis of an October through September year – the cycle for which consistent reporting was available through the years of interest.

Figures show a recent dramatic increase in the amount of tallow, lard and butterfat consumed domestically. Forecasts for the year ending 2005 indicate that Canadians will consume an additional 106 thousand *tonnes* of lard, tallow and butterfat. The last three years have also seen a revival in palm oil use, with its consumption domestically *tripling* in the past 36 months. Chart 8(b) depicts this rise.

This may be a reaction to recent dissemination of confusing information regarding health profiles of different oil and fat sources. The domestic oil market is essentially flat, with consumption constant over the years examined. Therefore, some of these increases appear to have come at the expense of canola. Consumption of canola oil domestically in 2005 was 70 percent of the level in 2000.

Charts 10, 11 and 12 give overall oil consumption by category. Of interest is the decline in margarine consumption per person (Chart 12). Although margarine consumption is steady over years, the consumption in terms of kg consumed per person per year is declining. Again this may be due to confusion and misinformation regarding the health profile of oil types.

Meal consumption in Canada rose approximately 10 percent between 1999 and 2004. Both pea and soy meal rose in tonnage consumed but canola meal consumed domestically was only 80 percent of 1999 levels in 2004.

***Table 8. Consumption in thousands of tonnes (Canada) –Source 'Oil World'***

| Oil | 1999/2000 | 2000/2001 | 2001/2002 | 2002/2003 | 2003/2004 | 2004/2005 |
|---|---|---|---|---|---|---|
| Soybean | 282 | 323 | 382 | 417 | 341 | 355 |
| Cotton | 43 | 30 | 32 | 39 | 29 | 20 |
| Peanut | | | 0 | 2 | 2 | 0 |
| Sunflower | 55 | 55 | 55 | 40 | 49 | 60 |
| Canola | 600 | 551 | 465 | 398 | 450 | 421 |
| Sesame | | | 1 | 1 | 1 | 1 |
| Corn | 46 | 49 | 35 | 34 | 45 | 45 |
| Olive | 23 | 25 | 24 | 25 | 27 | 30 |
| Palm | | | 6 | 8 | 12 | 17 |
| Palm kern | | | 9 | 10 | 9 | 12 |
| Coconut | 15 | 13 | 13 | 15 | 14 | 14 |
| Butter fat | 66 | 70 | 75 | 74 | 81 | 81 |
| Lard | 113 | 115 | 120 | 121 | 126 | 131 |
| Fish | 23 | 48 | 41 | 35 | 34 | 37 |
| Linseed | 38 | 30 | 29 | 25 | 23 | 15 |
| Castor | | | 1 | 2 | 2 | 2 |
| Tallow | 95 | 88 | 92 | 136 | 155 | 168 |
| Other | 15 | 16 | | | | |
| **Total** | **1414** | **1413** | **1380** | **1382** | **1400** | **1409** |

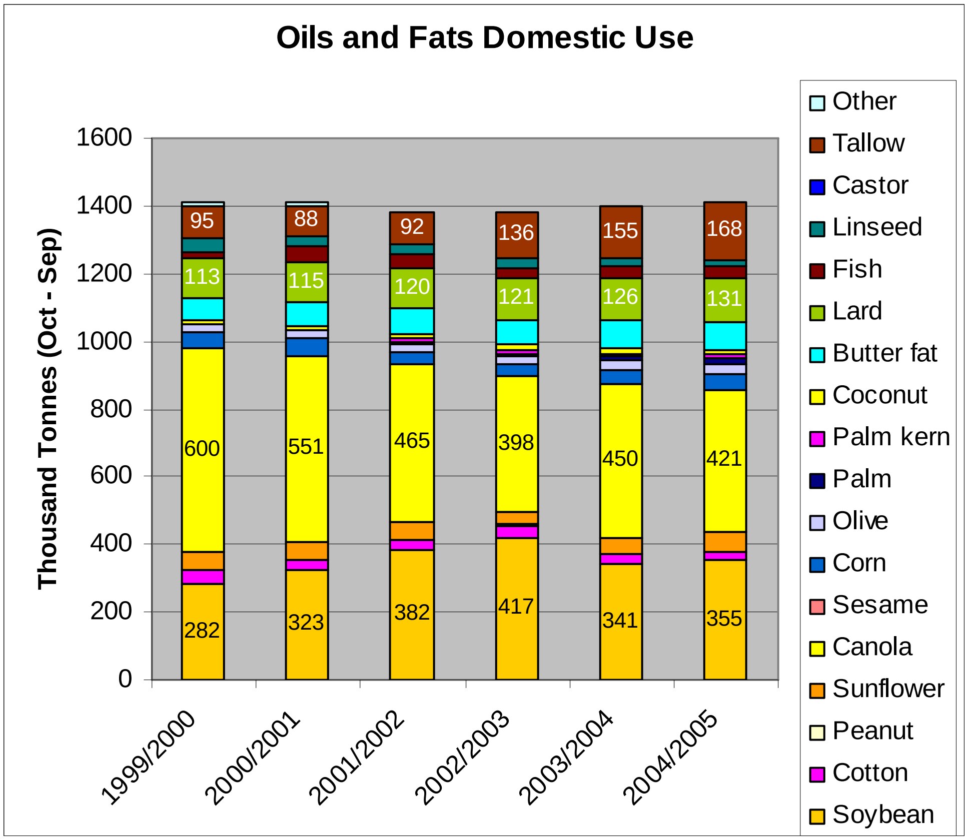



*Chart 8(a). Domestic consumption of oils and fats by Canadians (from data in Table 8)*

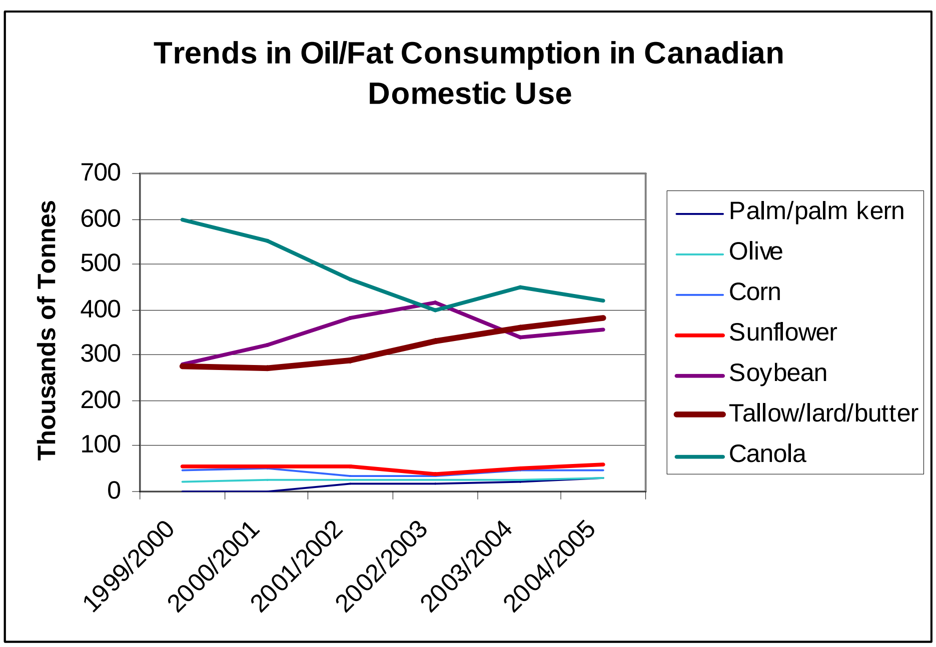



*Chart 8(b). Trends noted with seven key oil/fat sources in Canadian domestic consumption (from data in Table 8)*

*Table 9. Consumption patterns of oils and fats/market share (Canada) from Oil World*

| Oil | 1999/2000 | 2000/2001 | 2001/2002 | 2002/2003 | 2003/2004 | 2004/2005 |
|---|---|---|---|---|---|---|
| Soybean | 20% | 23% | 28% | 30% | 24% | 25% |
| Cotton | 3% | 2% | 2% | 3% | 2% | 1% |
| Peanut | 0% | 0% | 0% | 0% | 0% | 0% |
| Sunflower | 4% | 4% | 4% | 3% | 4% | 4% |
| Canola | 42% | 39% | 34% | 29% | 32% | 30% |
| Sesame | 0% | 0% | 0% | 0% | 0% | 0% |
| Corn | 3% | 3% | 3% | 2% | 3% | 3% |
| Olive | 2% | 2% | 2% | 2% | 2% | 2% |
| Palm | 0% | 0% | 0% | 1% | 1% | 1% |
| Palm kern | 0% | 0% | 1% | 1% | 1% | 1% |
| Coconut | 1% | 1% | 1% | 1% | 1% | 1% |
| Butter fat | 5% | 5% | 5% | 5% | 6% | 6% |
| Lard | 8% | 8% | 9% | 9% | 9% | 9% |
| Fish | 2% | 3% | 3% | 3% | 2% | 3% |
| Linseed | 3% | 2% | 2% | 2% | 2% | 1% |
| Castor | 0% | 0% | 0% | 0% | 0% | 0% |
| Tallow | 7% | 6% | 7% | 10% | 11% | 12% |
| Other | 1% | 1% | 0% | 0% | 0% | 0% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

+

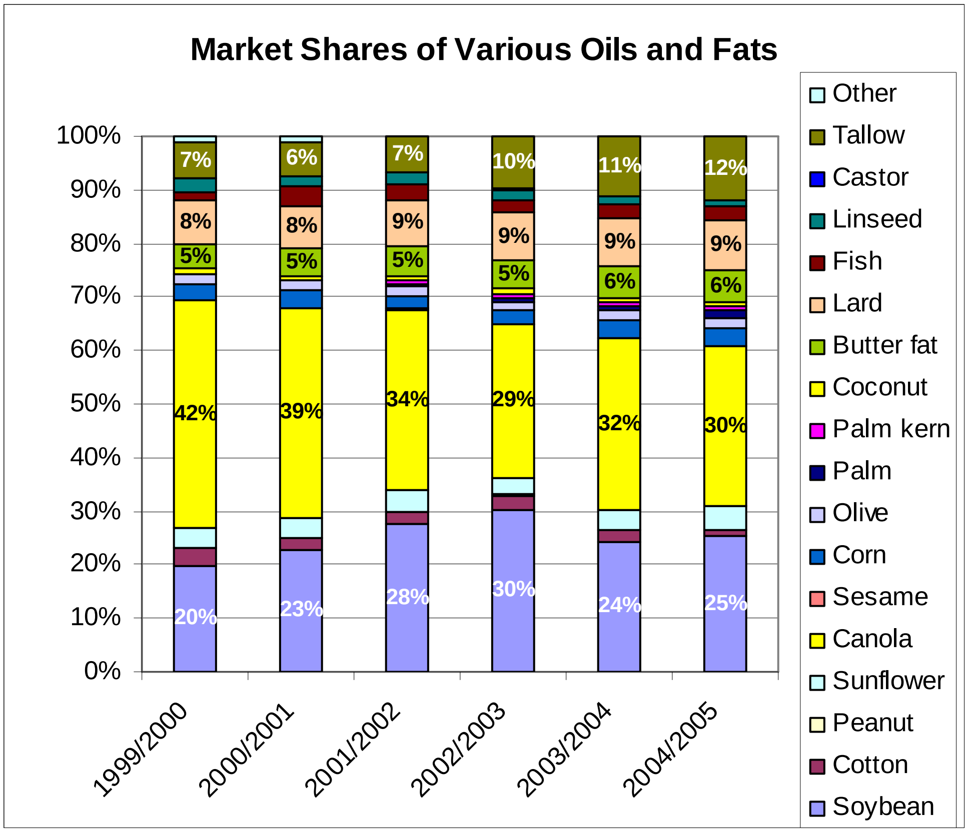
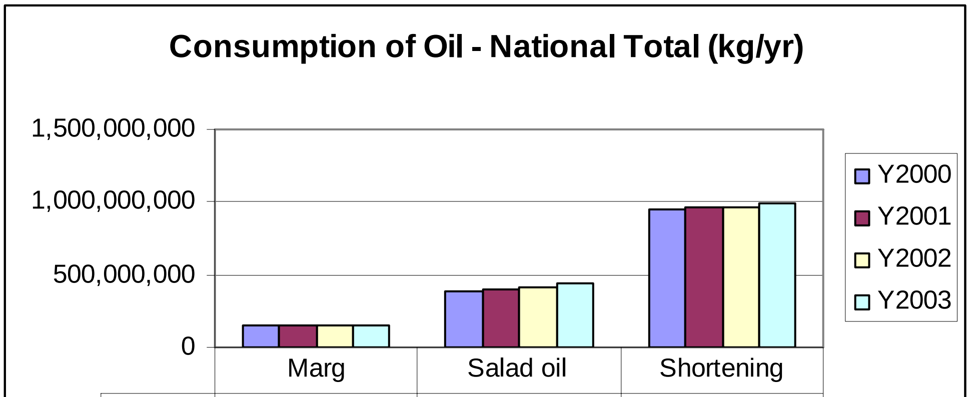
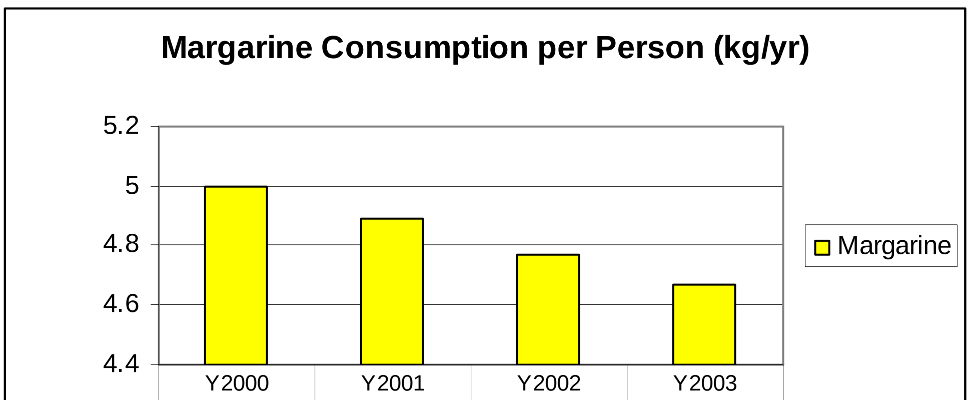



***Chart 9. Domestic consumption of oils and fats by Canadians – market share (from data in Table 8)***



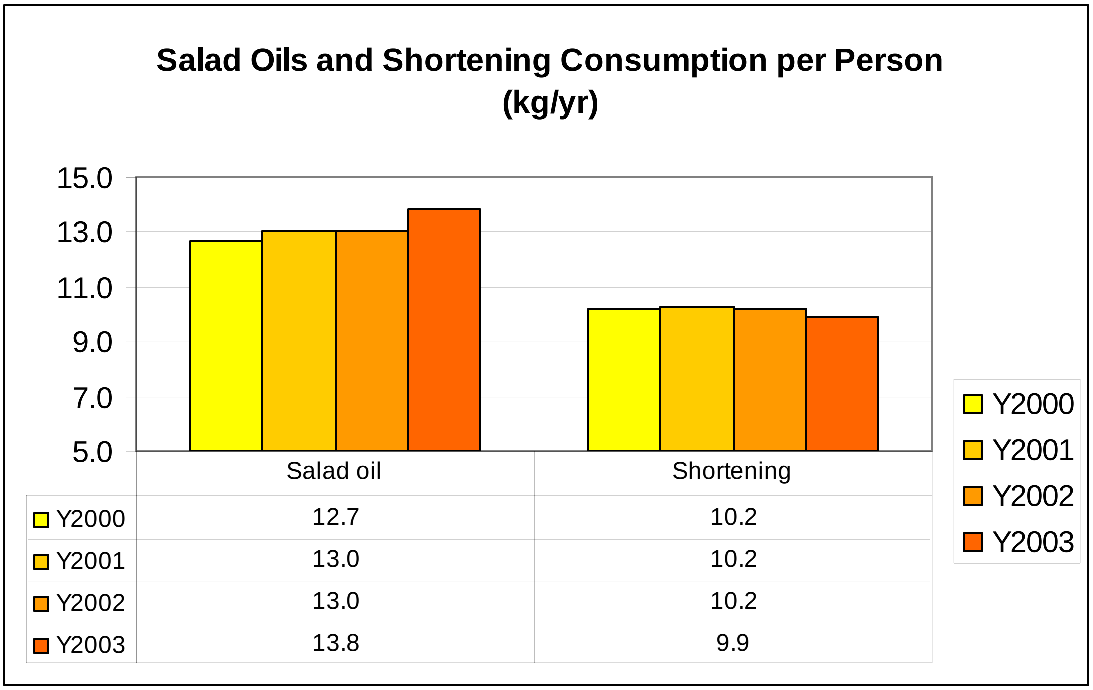

| | Marg | Salad oil | Shortening |
|---|---|---|---|
| Y2000 | 153,937,340 | 391,000,844 | 945,175,268 |
| Y2001 | 152,254,174 | 404,765,699 | 962,096,931 |
| Y2002 | 150,104,502 | 409,089,837 | 966,081,384 |
| Y2003 | 148,327,713 | 438,313,157 | 992,874,587 |

***Chart 10. Domestic oil consumption (Marg=margarine, Salad oil=hot and cold household use, shortening=use for cookies, pastries, etc)***
***Source CANSIM database***




| | Y2000 | Y2001 | Y2002 | Y2003 |
|---|---|---|---|---|
| Margarine | 5 | 4.89 | 4.77 | 4.67 |

***Chart 11. Margarine consumption in Canadian households (Source CANSIM database)***




| | Salad oil | Shortening |
|---|---|---|
| Y2000 | 12.7 | 10.2 |
| Y2001 | 13.0 | 10.2 |
| Y2002 | 13.0 | 10.2 |
| Y2003 | 13.8 | 9.9 |

*Chart 12 - Salad oil and shortening consumption in Canadian households (CANSIM)*

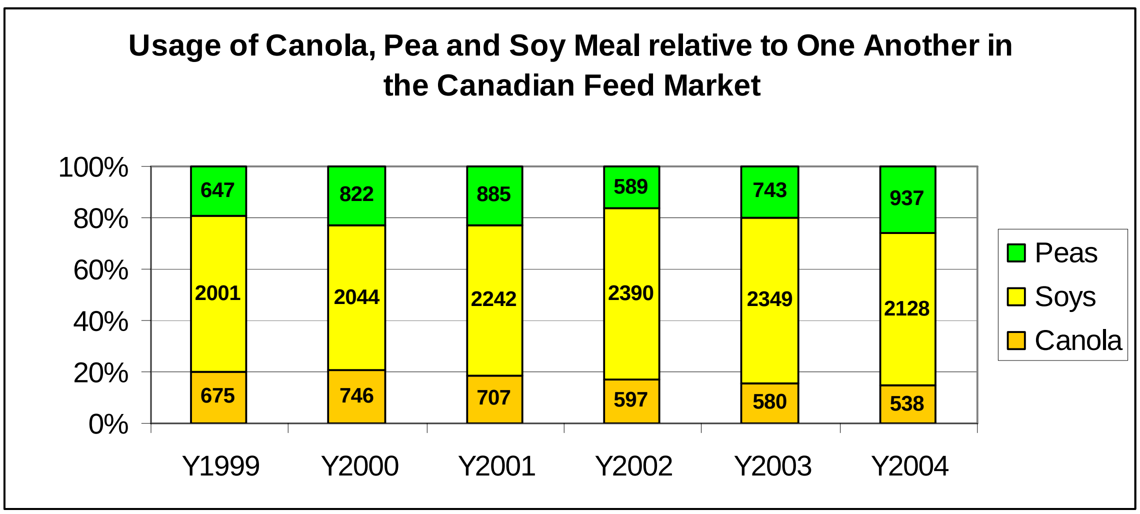



*Chart 13. Domestic consumption of major feed meal categories in Canada*

## Canola and Jobs

Canola generates jobs in four chief areas; (a) direct jobs for producers, (b) jobs in handling the raw seed in both the export chain and in the early crush chain, (c) in the food processing/restaurant portion of the chain where the product is presented to the final consumer and (d) in the ripple effect realized when all of the people in the first four components of the chain purchase goods and services with the dollars they have earned through the canola production of the chain.

There are 52,700 primary producers of canola.

The grain companies, independent farm dealers, agronomist and life sciences researchers who handle the product from these producers all owe portions of or all of their jobs to the canola produced on the farm.

The portion of grain handling/front line support agronomists/workers that can be attributed to canola make up 600 positions.  Life sciences innovations from large companies (six major corporations) and a number of small firms constitute 820 positions. These positions include higher salaried individuals who live and/or work in both rural and urban centres (e. g. Saskatoon, Guelph, Winnipeg, Lethbridge, Calgary, Regina and Edmonton). Small biotech firms add 290 positions estimated in Alberta, 450 positions in Saskatchewan and 80 positions in Manitoba. These estimates were drawn from 'Canadian Biotechnology Statistics' authored by Stats Canada. It assumes that (a) 22 percent of 15800 biotech positions in Canada are related to agriculture, that (b) the bulk of the agricultural positions located in Saskatchewan, Alberta and Manitoba are either in whole or mainly engaged in canola breeding/biotech and (c) 5 percent of the 950 ag-biotech jobs in Ontario relate to canola.

Rail companies employ 38,470 in North America. A little over 1 percent of their total freight is canola. Thus, jobs assignable to this category total 462.

There are 1200 persons working at oil crushers in Canada. Sixty five percent of their work is related to canola. Job total from this source is 780.

Export terminals located in Vancouver and Thunder Bay employ 21,000 people. Sixteen percent of their work is related to grains and oilseed and of that, 22 percent is canola seed. Thus, 739 people are employed in these positions, largely well payed, unionized jobs.

There are 254,000 Canadians working in different components of the food processing sector and another 1,023,000 in the restaurant and catering business. Specific allocation of canola streams within this complex is nearly impossible. However it is reasonable to conduct an accounting of the national consumption rate of all foodstuffs (880 kg/person/yr) by Canadians, allocate consumption of canola consumed per person (9.1 kg/person/yr as oil and 0.5 kg/person/yr as meat derived from meal) and then use this figure to 'credit' canola within the grocery and restaurant businesses. Assuming this, then the food processing/grocery and restaurant sectors can thank canola for 3,048 and 12,389 jobs. These positions vary from minimum wage fast food positions to higher paid positions in management or owner operated businesses.

The multiplier effect of agricultural industries has been put at 1.9 to 2.4 for a number of different industries. If we accept a conservative multiplier for canola as being 2.0, then the calculated effect generates 143 thousand jobs. Note as well that the use of canola in many foodstuffs means that there is a broad set of geographies where jobs are resulting from canola's use in the final ingredients or meals.

*Table 10. Employment impact of canola on the Canadian economy*

| Jobs | Quebec and Maritimes | Ontario | Manitoba | Saskatchewan | Alberta | BC | Total |
|---|---|---|---|---|---|---|---|
| Producers/farm families | | 200 | 10,000 | 30,000 | 12,300 | 200 | 52,700 |
| Scientists, breeders, geneticists and agronomists | | 45 | 80 | 450 | 290 | n/a | 865 |
| Grain companies/farm services | | 2 | 114 | 342 | 140 | 2 | 600 |
| Rail companies | 2 | 2 | 88 | 263 | 108 | 2 | 462 |
| Crushers/refining | | 3 | 148 | 444 | 182 | 3 | 780 |
| Terminals | | 40 | 0 | 0 | 0 | 702 | 742 |
| Food processors/grocery retailing | 1,478 | 1,479 | 91 | 91 | 305 | 305 | 3,048 |
| Restaurant trade/catering | 4,583 | 4,584 | **372** | 372 | 1,239 | 1,239 | 12,389 |
| Multiplier (Set at 2.0) | 12,126 | 12,694 | 21,785 | 63,923 | 29,128 | 4,906 | 143,155 |
| **Total jobs** | **18,189** | **19,049** | **32,678** | **95,884** | **43,691** | **7,359** | **214,741** |

## Canola and the Generation of Tax Revenue

Input/output analysis was conducted on the sector, using a model demand shock of $100 million. The impact on tax revenue at the federal and provincial levels was calculated by Stats Canada staff for the purposes of this portion of the study. The figures derived were then extrapolated over the $2 billion in basic production.

From this analysis it is concluded that **canola generates $104.1 million dollars in taxes** - provincial governments being the largest beneficiary. See Chart 14.

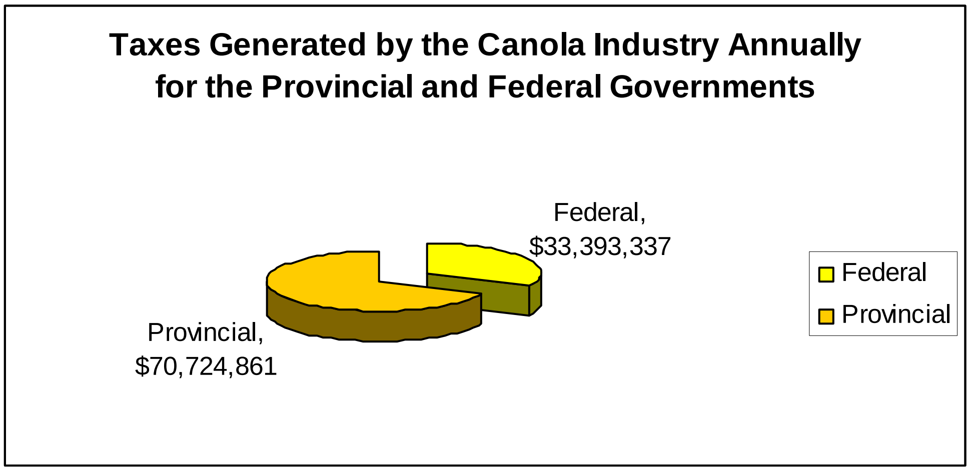



***Chart 14. Canola industry generates taxes***

## Input/Output Analysis Results and Cross Check

Demand shock analysis is a tool used by input/output analysts to examine the "ripples" in an economy that would occur as a result of a sudden increase in demand for the product.

To 'cross check' the bottom up numbers accumulated for this project, Statistics Canada generated a $100 million dollar demand shock on the oilseed sector. The data generated was used to calculate the value of the induced and indirect activity generated downstream from the initial $2 billion in canola seed produced.

***Table 11 - Results of a simulated $100 million demand shock in the canola industry extrapolated over the entire industry***

| Impact on expenditures for further processing | Per $100 million | Impact over all canola |
|---|---|---|
| GDP at basic prices | $83,589,000 | $9,194,742,000 |
| Total federal | $1,670,000 | $33,393,000 |
| Total provincial | $3,536,000 | $70,725,000 |
| Direct employment | 738 | 81,230 |
| Total employment | 1,770 | 194,709 |

GDP at basic prices generates $83,589,000 in activity for every $100 million in production domestically. This adds up to $9,194,742,000 in the model when taken over the entirety of the $11 billion versus the $9.9 billion from the bottom up approach.

Taxes generated (already discussed in the previous section) total to about $104.1 million.

Employment contribution due to canola, according to the model, is 194,709 – versus the bottom up number of 214,000.