



CANADIAN CANOLA INGREDIENTS

Beneficial Impacts on the U. S. Economy

SUMMARY

- > The economic spin-off of using Canadian canola as an ingredient in the U.S. food and feed chain is \$1.79 billion.
- > U. S. growers cannot produce enough canola to meet domestic demand. The U. S. food industry still counts on Canadian supplies for 69 to 81 percent of its canola meal and oil. Without a critical mass of supply from Canada, most U.S. processors would be forced to switch to other vegetable oils. This would leave U. S. growers unable to market their canola.
- > The majority of Canadian canola oil brought into the U. S. needs further processing. It is an ingredient that serves as a platform on which U. S. companies create further value on a massive scale. This results in job creation and economic growth.
- > Canadian canola imported already in meal form is used as a component of feed rations, where it adds 30 percent to the value of feed rations. Based on a three-year average of 1,423 thousand tonnes of meal imported per year, meal imports add \$71.4 million in value added to feed. Additionally, in the dairy industry, meal adds 2.2 lbs/cow per day of milk production. This results in an economic benefit of \$132 million.
- > If we conservatively assume any interruption of Canadian-sourced canola oil would cause a price rise of 5 cents per pound, and if we assume that this price rise would impact all of the 17 fats and oils consumed by Americans, the cost to U.S. grocery shoppers would be 1.76 billion per year, representing an inflation rate of roughly 9 percent for edible oils.
- > The states that benefit most from processing Canadian canola crude oil are:
 - Ohio (imported an average of 53,111 tonnes/year in crude averaged over the period 2005-07)
 - Iowa (imported an average of 34,264 tonnes/year in crude averaged over the period 2005-07)
 - Louisiana and (4) Tennessee (imported approximately 24,000 and 22,000 tonnes/year in crude for processing during 2005-2007).
- > Other states that import crude in significant quantities are North Carolina, Minnesota, Washington and Illinois.
- > Canola meal has taken almost 50 percent of the market share for dairy farms in Washington, Idaho, Oregon and California. These states import two-thirds of the meal brought in from Canada





CANADIAN CANOLA INGREDIENTS Needed Because American Growers Can't Meet Domestic Demand

Since canola was approved by the Food and Drug Administration in 1985 as being safe in human diets, canola oil consumption has grown from zero to 816,466 tonnes. American farmers have seized the opportunity and have dramatically increased acreage. Since 1992, American growers have ramped up production by 11-fold, increasing annual seed tonnage produced from 75,000 tonnes in 1992 to approximately 833,000 tonnes in 2007-08. Currently, the U.S. is seventh largest in the world in terms of both canola production and processing, up from ninth and eighth respectively one decade ago.

North Dakota accounts for over 80 percent of the 1 million canola acres planted in the United States. But recently, improvements in the genetics of winter canola have led to opportunities for the crop in more southerly states such as Oklahoma, Kansas, Arkansas, and Georgia – and soon growers may be able to take advantage of the canola opportunity in these states. With additional strong demand for canola oil due to its attractive profile as a biodiesel feedstock, canola acreage is expected to increase in all U.S. regions in the coming years.

Yet even at this pace - U. S. growers cannot produce enough canola to meet domestic demand. The U. S. food industry still must count on Canadian supplies to supplement U. S. grown canola for 69 to 81 percent of its meal and oil. *Without Canadian supplies to augment domestic production U. S. food processors would not have a "critical mass" of supply. Without supplementary supplies from Canada, most processors would be forced to switch to other oilseeds oil and this would in turn leave U. S. growers unable to market their canola.*

**TABLE 1 DOMESTIC DEMAND FOR CANOLA OIL IN THOUSAND MT VERSUS IMPORTS
(DATA FROM OIL WORLD – 2007 STATISTICS)**

Measurement	CANOLA OIL		
	2004-05	2005-06	2006-07
Domestic demand	700	895	1110
Imports required	515	726	810
% of demand met by imports	74%	81%	73%

**TABLE 2 DOMESTIC DEMAND FOR CANOLA MEAL IN THOUSAND MT VERSUS IMPORTS
(DATA FROM OIL WORLD – 2007 STATISTICS)**

Measurement	CANOLA MEAL		
	2004-05	2005-06	2006-07
Domestic demand	1754	2060	2190
Imports required	1335	1461	1520
% of demand met by imports	76%	71%	69%





CANADIAN CANOLA

Ingredients that Allow the American Food Industry to add \$1.79 Billion in Value

The majority of Canadian canola oil is brought into the U. S. in a raw form that needs further processing. It is important to stress that *Canadian canola is being used as ingredients and as such, the products serve as a platform on which U. S. companies create further value on a massive scale.* This results in job creation and economic growth both in traditional agricultural states and in the industrial heartland of the United States.

Table 1(a) gives relative amounts (in tonnes) of the various forms of canola imported into the US. Note that canola comes into the US in the form or (a) raw seed, (b) crude oil, (c) refined oil and (d) as meal for livestock consumption.

TABLE 1 (A) U. S. IMPORTS OF CANOLA PRODUCTS FROM CANADA – NATIONAL TOTALS

Canadian canola product	IMPORTS IN THOUSANDS OF TONNES			
	2004-05	2005-06	2006-07	3 yr average
Qty of seed imported ⁽¹⁾	430	617	670	572
Qty of crude oil imported ⁽²⁾	210	228	265	234
Qty of refined oil imported ⁽³⁾	332	368	446	382
Qty of meal imported ⁽⁴⁾	1,485	1,328	1,456	1,423

(1) From Canadian Grain Commission statistics

(2) Source: Statistics Canada

(3) Source: Statistics Canada

(4) Source: Statistics Canada

Once Canadian canola ingredients reach the U.S., Americans add value to it in any number of ways (see Table 1(b)). Raw seed is crushed, with the oil then refined and sent on for further processing into high quality, high value foods. Meal is added to livestock rations, primarily dairy, to increase productivity.

TABLE 1 (B) GENERAL PATHWAYS FOR CANADIAN CANOLA THROUGH THE US FOOD AND FEED NETWORK

Canola product imported from Canada	Value added by U. S. industry
Raw seed	<ul style="list-style-type: none"> > Value in crushing into raw crude > Value in further refining raw crude > Value in integrating refined product into baked goods, frying oil etc > Value in feeding meal to livestock for enhanced performance
Raw crude oil	<ul style="list-style-type: none"> > Value in further refining raw crude > Value in integrating refined product into baked goods, frying oil etc
Refined canola oil and meal	<ul style="list-style-type: none"> > Value in integrating refined product into baked goods, frying oil etc > Value in feeding meal to livestock for enhanced performance





Table 2 tracks the economic impacts that occur as American workers and processors incorporate canola into the food and feed chain.

Raw seed imported from Canada results in \$522.9 million in benefits as crush plants process the seed to produce meal and crude oil, and then ship the crude oil and meal for further processing. This further processing consists of a chain that ends with oil being used in edible consumer goods and meal in dietary formulations for animals. In this value chain, the oil is refined, where it gains approximately \$100/tonne in value, and then processed into baked goods, margarine etc. In this process, the value of the refined portion is doubled due to assignment of a value added (VA) factor of 2.0. (VA refers to the additional value or economic benefit added to a commodity as it is transformed into a more advanced or valuable good.) The meal is blended into feed rations where the value added is estimated to be 30 percent.

Crude oil imported from Canada, creates \$418.4 million in benefits when U.S. crushers turn the product into refined, bleached and deodorized oil (RBD). This again follows the pathway to consumer goods where its VA is 2.0. In the case of imports of Canadian refined canola oil, Once imports of Canadian refined canola oil hits the U.S. food production system, it becomes an important ingredient in baked goods, snack foods, frying oil, etc – adding a further \$644.8 million in value to the U.S. economy.

Canadian canola imported in meal form is used as a component of feed rations, where it adds 30 percent to the value of the rations. Using a three-year average of 1,423 thousand tonnes of meal imported per year, meal imports add \$71.4 million in value added to feed. Additionally, *in the dairy industry, meal increases milk production by one litre per cow per day. This results in an economic benefit of \$132 million.*

TABLE 2 – ECONOMIC SPIN-OFF OF USING CANADIAN CANOLA AS AN INGREDIENT IN THE U.S. FOOD AND FEED CHAIN

Factor	Economic activity due to canola sourced from Canada
Value added to Canadian canola seed imports – 3-yr average imports of 572,000 tonnes raw seed at price of \$338/tonne, processed into crude at \$744/tonne, meal at \$168/tonne and refined oil at \$844/tonne. Oil extraction at 0.42. – with refined oil being made into consumer goods at VA of 2.0	\$522.94 million
Value added to Canadian crude oil imports – refined oil produced from the 234,000 tonnes of Canadian crude oil imported (est. \$100/tonne VA for refined over crude), with refined oil being made into consumer goods at VA of 2.0	\$418.4 million
Value added to Canadian refined oil imports – Assumes 382,000 tonnes imported VA of 2.0X (includes margarine, salad and cooking oils and canola as an ingredient in other foods)	\$644.8 million

...continued





Factor	Economic activity due to canola sourced from Canada
Value added to Canadian meal in utilization as an ingredient in diet formulations – Assumes 1,423 k tonnes imported at \$168/tonne and VA of 30 percent	\$71.7 million
Documentable value added to dairy industry in Canadian meal imports - A series of studies have shown that the prime use for Canadian canola meal (dairy in the Pacific states/PNW) results in a value add of 2.2 lbs milk production per day in U.S. dairy production. Figure calculated assumes a benefit of 15 cents per pound in 1.312 million head herd of dairy cattle over 305 days.	\$132.0 million
Beneficial impact of Canadian canola on the U.S. economy	\$1.79 billion





PROCESSING CANADIAN CANOLA CRUDE OIL

Economic Growth in the U. S. Heartland

The economic benefits from Canadian canola accrue to states beyond the agricultural heartland. Canola helps build jobs and economic value in places like Ohio – where crushing and processing crude oil adds \$95 million in value added products.

The states that benefited the most from processing Canadian canola crude oil have been (1) Ohio (imported an average of 53,111 tonnes/year in crude averaged over the period 2005-07), (2) Iowa (imported an average of 34,264 tonnes/year in crude averaged over the period 2005-07), (3) Louisiana and (4) Tennessee (the latter two states importing approximately 24,000 and 22,000 tonnes/year in crude for processing during the same period). Other states that imported crude in significant quantities were North Carolina, Minnesota, Washington and Illinois.

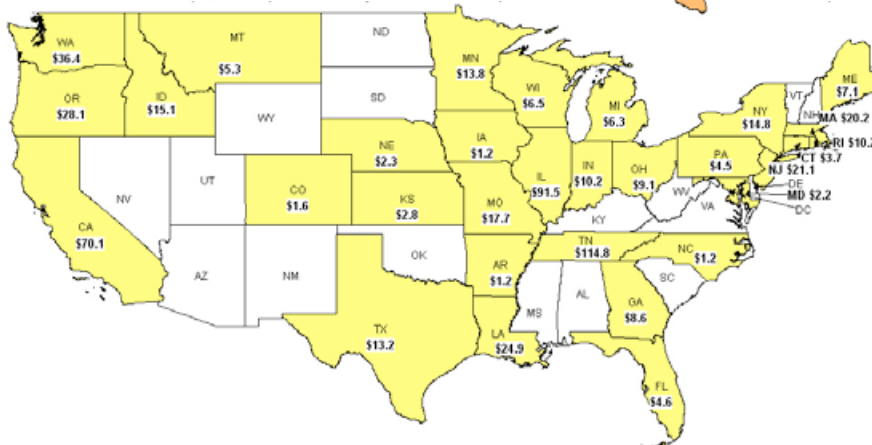
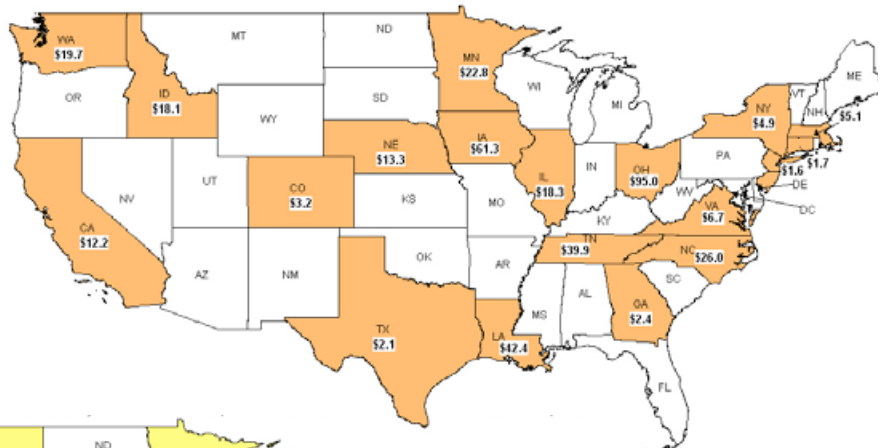
Facilities across the U.S. utilized these tonnages to create value. They refined and then further processed the raw crude from Canada. The initial value-add VA to process imported Canadian crude oil is estimated to be \$100/tonne – this being the additional value created when canola is refined. Once refined, the oil is used in end-uses such as baked goods, margarines, frying oil, etc – with additional value-add of 2.0X.

If we (a) use current figures for imports of Canadian crude canola oil on a state by state basis, (b) calculate the ultimate value added by Americans to that canola and (c) assign the value add on a state by state basis based on history of imports of crude oil, the positive impact on the economy can be summarized in Maps 1 and 2.

MAP 1

Estimated value in millions that U. S. workers add to imported Canadian canola crude oil as they crush, refine and process it.

Source: Industry Canada One-line Database



MAP 2

Estimated value in millions that U. S. workers add to imported Canadian canola refined oil as they process it

Source: Industry Canada One-line Database





PROCESSING CANOLA SEED SOURCED FROM CANADA

High Quality Jobs in North Dakota and Minnesota

The United States imported an average of \$184 million per year in canola seed in 2005-07. Of this, over 90 percent was destined for North Dakota, Minnesota and Montana. And of this, less than 10 percent was used for seeding purposes. The rest of the seed went to crush plants – primarily to North Dakota.

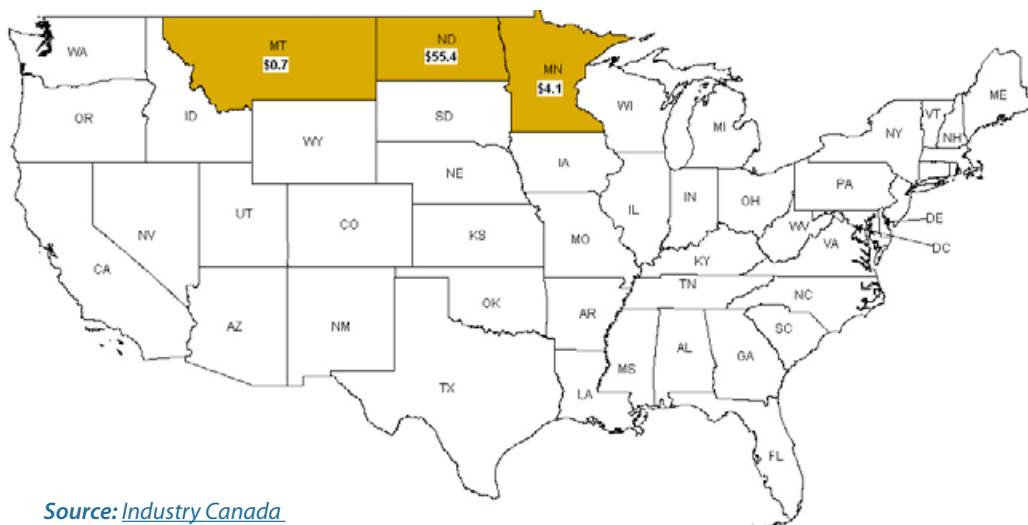
The economic value generated by crushing Canadian canola seed, and producing meal and refined oil in the three Border States is considerable, particularly in North Dakota where a plant in Velva crushes over 400,000mT per year.

This activity in North Dakota, Montana and Minnesota adds \$60,167,956 to their economies. This assumes the following

- > Three year average seed prices of \$338, crude oil at \$744, meal at \$168
- > An extraction rate of crude oil of 42 percent and meal at 58 percent
- > A “value add” on refined RBD of +\$100 over crude

MAP 3

Estimated value in millions that U. S. workers in North Dakota, Minnesota and Montana add to imported Canadian canola seed as they process it into meal and refined oil



*Source: Industry Canada
One-line Database*





HOW CANADIAN CANOLA MEAL PUTS \$132 MILLION INTO THE DAIRY FARMERS' POCKETS IN WASHINGTON, OREGON, IDAHO AND CALIFORNIA

Canadian canola meal is prized as a high quality livestock feed. Most recently, canola meal has taken almost 50 percent of the market share for dairy farms in Washington, Idaho, Oregon and California. These states import two-thirds of the meal brought in from Canada. Canola is valued so highly by the dairy industry because studies show that using canola meal instead of soybean or cottonseed meal resulted in 2.2 pounds per day more milk production from every cow fed the canola meal. At 15 cents per pound on a herd of 1.312 million cows, this average 2.2 lbs/day adds up over \$132 million/year in extra value for producers.

TABLE 3 CANOLA MEAL FROM CANADA – ADDS 2.2 LBS/DAY/COW

Study	Milk yield (lb/day)	
	Other meal	Canola
Ingalls and Sharma (1975)	50.7	52.2
Fisher and Walsh (1976)	53.7	50.7
Laarveld and Christensen (1976)	54.8	58.1
Sharma et al. (1977)	45.6	46.0
Sharma et al. (1977)	47.4	48.0
Papas et al. (1978)	53.5	55.5
Papas et al. (1978)	52.6	54.2
Papas et al. (1979)	48.0	48.9
Laarveld et al. (1981)	58.1	61.0
Sanchez and Claypool (1983)	73.6	83.0
DePeters and Bath (1986)	87.7	91.2
Vincent and Hill (1988)	62.8	63.0
Vincent et al. (1990)	55.3	58.8
McLean and Laarveld (1991)	63.7	67.6
McLeod (1991)	37.9	37.2
Emmanuelson et al. (1993)	46.3	48.2
Dewhurst et al. (1999)	52.9	54.0
Dewhurst et al. (1999)	52.2	56.2
Average Milk Yield	55.3	57.5





CANADIAN CANOLA OIL

Keeping the Cost of America's Shopping Cart Down by \$ 1.76 Billion Per Year

Food industry sources in the United States estimate that if Canadian canola oil were not available for them to incorporate into the oil complex, they could quickly adjust by substituting alternatives such as soybean oil. Crushing capacity and plant configurations are such that switching sources or types of oils is a relatively easy process. *They forcefully note that they would anticipate any loss of access to Canadian canola to rapidly drive up the price of edible oils to U.S. consumers.* One of the most knowledgeable experts indicates that the short term increase in price would be a minimum of 5 cents per pound, and possibly as high as 10 cents per pound.

This prediction is credible.

To estimate the "demand shock" that would occur if Canadian canola oil disappeared, it is useful to estimate the consumer implications of a sudden increase in demand for soy oil (the most immediately substitutable oil). A study outlined by the Food and Agricultural Policy Research Institute (University of Missouri, CNFAP 1694) noted that a 250,000,000 pound increase in demand for soybean oil would increase prices of oil by 2 cents per pound. Knowing that the U.S. imported approximately 1.5 billion pounds of canola oil in 2005/06, this would equate to a 12-cent-a-pound increase in prices to consumers

Soybean oil supply (the most likely substitute for Canadian canola oil) is already strained. The USDA projects world vegetable oil production in 2007-08 at 128.22 million metric tons, 5.1 percent larger than last year's production and 8.4 percent more than produced two years ago. But even with these impressive gains in supply, world consumption during the current year is forecast at 127.49 million tons - nearly 11 percent more than two years ago. Consumption of soybean oil in China during the current marketing year, for example, is expected to be 14 percent more than consumption last year and nearly 29 percent more than two years ago.

What would a five-cent-per-pound increase mean to American families in increased grocery costs?

Using domestic disappearance figures from 2005 and 2006 (October through November), Americans consume 15,979 thousand tonnes of edible oils and fats (composite of 17 oils and fats as recorded by Oil World). Of this, about 8,200 thousand tonnes are made up of soy oil.

If we conservatively assume any interruption of Canadian-sourced canola oil would cause a price rise of only 5 cents per pound, and if we assume that this price rise would impact all of the 17 fats and oils consumed by Americans, the cost to U.S. grocery shoppers would be 1.76 billion per year, representing an inflation rate of roughly 9 percent for edible oils.

