

CANADA'S CANOLA INDUSTRY

**MAINTAINING AND EXPANDING CANOLA PRODUCTION AND
DEMAND
BY MEETING CUSTOMER REQUIREMENTS**

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1999 marks the 25th anniversary of the introduction of the first canola variety in Canada. Canola continues to be one of the most profitable crops to grow, is a major contributor to the incomes of Canadian farmers and a major contributor to Canada's net trade balance.

The markets for canola oil, meal and products have grown steadily over the past 25 years with demand and production reaching an average of six million tonnes in recent years. Annual canola exports are now valued at over two billion dollars. The growth will continue and predictions suggest Canada will need to produce 7 to 7.5 million tonnes of canola to meet the demand by the year 2000. Beyond 2000 it's anyone's guess, but based on current demand trends, production will need to climb even higher as demand for canola our domestic crushing industry continues to grow.

One big indicator of future demand for canola is the fact that world population growth is forecast at 1.6% per year. Edible oil consumption, however, is expected to grow at a rate of 2.5% per year.

Also consider that China has 1.3 billion consumers, equal to the populations of Europe, North America, Japan and the ASEAN countries. The ASEAN is the Association of Southeast Asian Nations, an organization established to promote political, economic, and social co-operation among its seven member countries: Brunei, Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam. If China increased consumption of oil by one kg per capita per year, the 1.2 billion kg increase in consumption would equal Canada's total annual production of canola oil.

The markets for any oilseed are determined by the uses of the two main components, the oil and the protein meal. Canola oil is widely used to produce salad and cooking oils. Its strength here is largely due to its stability at room temperature, its bland flavour, light colour and delicate aroma.

Lowering serum cholesterol levels by replacing saturated fats in our diets with unsaturated fats is what the ideal oil is all about in many countries. That search led to recognition of canola oil's nutritional properties. It is high in monounsaturates,

moderate in polyunsaturates and low in saturates. It is a source of the essential fatty acids linoleic and linolenic acid. The nutritional strength of canola is illustrated by its comparative fatty acid profile and, in particular, the fact that it has the lowest level of saturated fat of any vegetable oil.

Canola oil also exhibits functional properties that allow it to be widely used in the salad oil, margarine, baking and frying industries. Hence, many of the margarines, cookies, sauces, cereals, salad dressings, etc. we consume in Canada are canola oil based, or have canola oil as one of the ingredients. With the development of specialty oils such as low linolenic, high laurate and high erucic, canola oil is now used in cosmetics, pharmaceuticals, as a replacement in the confectionery industry, in bio- degradable greases, as a slip agent in plastic bags, tanning industry, inks and even as a massage oil.

The other identity of canola relates to the protein meal which is used in livestock, poultry and swine feeds. Based on nutrient content alone, canola meal is worth, on a unit weight basis, 65% to 70% of the value of 44% protein soybean meal for feeding poultry and about 70% to 75% of the value of soybean meal for feeding swine and ruminants. This is another area where considerable research is underway to close the quality gap with canola meal's competitors.

| Canadian Canola Seed | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| Supply & Demand | | | | | |
| ('000 tonne) | | | | | |
| | 1980-81 | 1994-95 | 1995-96 | 1996-97 | 1997-98 |
| Beginning Stocks | 1,477 | 330 | 589 | 1,030 | 563 |
| Production | 2,483 | 7,233 | 6,434 | 5,062 | 6,198 |
| Imports | 1 | 42 | 97 | 103 | 141 |
| Total Supply | 3,961 | 7,604 | 7,121 | 6,196 | 6,901 |
| Exports | 1,372 | 3,912 | 2,804 | 2,519 | 2,964 |
| Domestic Crush | 1,003 | 2,513 | 2,753 | 2,712 | 3,239 |
| Seed, Feed & Waste | 237 | 591 | 534 | 401 | 366 |
| Total Demand | 2,612 | 7,016 | 6,091 | 5,632 | 6,569 |
| Ending Stocks | 1,349 | 589 | 1,030 | 563 | 334 |
| Stocks/Use | 51.6 | 8.4 | 16.9 | 10.0 | 5.1 |

The total utilization of canola seed has reached a level where 6.0 million tonnes annually is the minimum. During the 1997/98 crop year, nearly 3 million tonne were exported and 3.2 million tonne were processed in Canada. It should be similar for the 98/99 crop year. For the past three years, crush has exceeded exports, and

the gap is growing. If we fail to maintain supply and export markets continue to grow, one or both areas will suffer.

As growers have been steadily increasing total production, the crushing industry has been expanding. The oilseed processing industry in Canada currently consists of 11 plants, owned by five companies, which receive and crush oilseeds to obtain crude and crude degummed vegetable oils (from canola, soybeans, and flaxseed) and protein meals for animal feed. One of the plants is not in operation and its future is uncertain at this time.

Annual crush capacities for all 11 plants total approximately 4.5 million tonnes of canola. Canola crush capacity is forecast to reach 5.0 million tonnes by the turn of the century.

Crushing Plants: Locations & Capabilities

| | Canola | Soybeans | Sunflower | Flaxseed |
|---|---------------|-----------------|------------------|-----------------|
| ADM Agri-Industries Ltd. | | | | |
| Windsor ON | xx | xx | Xx | xx |
| United Oilseed Products Inc. Lloydminster AB | xx | -- | -- | -- |
| CanAmera Foods | | | | |
| Hamilton ON | xx | xx | -- | -- |
| Altona MB | xx | -- | Xx | xx |
| Harrowby MB | xx | -- | -- | xx |
| Nipawin SK | xx | -- | -- | -- |
| Fort Saskatchewan AB | xx | -- | -- | -- |
| Canbra Foods Ltd. Lethbridge AB | xx | -- | -- | -- |
| Canadian Agra Foods Sexsmith, AB | xx | -- | -- | -- |
| Ste. Agathe | xx | -- | -- | -- |
| Cargill | | | | |
| Clavet, SK | xx | -- | -- | -- |
| Total | 13,700 | 2,500 | 1,500 | 2,500 |

Note: xx -- denotes crush capability maintained confidential; -- denotes no crush capability for that commodity

Annual crush capacities for the ten plants total 3.5 million tonnes of canola. With the expected expansion of existing crushing capacities, and with the new plant in Manitoba coming on line sometime in 1997, canola crush is forecasted to reach a level of between 4 and 5 million tonne over the next 5 years.

Two main methods of processing oilseeds are used in Canada:

- 1) pre-press solvent extraction, which is used for higher oil content oilseeds, such as canola, sunflower 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 method, the steps followed are basically the same. In canola pre-press solvent extraction, the seeds are first flaked and heated, and then passed through a screw press. This squeezes out a large proportion of the oil. The remaining oil cake is sent to the solvent extractor, in which the solvent removes the oil from the meal.

A third method, press extraction, will be used at the Ste. Agathe plant, if and when it come on line. Although this method produces an oil untouched by solvent and a protein meal higher in energy because of higher residual oil levels, it is yet to be proven an economic return can be obtained and sustained, through premiums paid for the products.

Refining removes the natural impurities to improve colour, flavour and shelf life. Total refining capacity of canola oil in Canada is over 1 million tonnes annually. It is spread across the country in close proximity to both canola oil production and the Canadian population. Virtually all the seed processors are now integrated into oil refining as well. The only exceptions are the Cargill facility in Saskatchewan, one of the CanAmera facilities in Manitoba which now has a refinery under construction, and the new Canadian Agra facility in Manitoba not yet in production. Oil refining has paralleled crude oil production capacity and is expected to grow as crush capacities expand.

In the mid 1970's, when the industry began converting to canola from rapeseed, our market share was just over 30% of all the vegetable oils deodorized in Canada. By 1981, the share had surpassed the 50% mark. By 1991, canola oil supplied 65% of the deodorised vegetable oil market in Canada. We are now around the 75% market share level. It out-distances its nearest competitor: soybean oil, by 3 to 1.

Canola Share in Canadian Oil Production (%)

| | Margarine Oils | Shortening Oils | Salad Oils | All Deodorized Vegetable Oils |
|-------------|---------------------------|----------------------------|-----------------------|---|
| 1976 | 32.8 | 16.2 | 50.2 | 31.0 |
| 1981 | 36.2 | 46.4 | 70.5 | 50.7 |

| | | | | |
|-------------|------|------|------|------|
| 1986 | 38.2 | 49.4 | 79.8 | 58.3 |
| 1991 | 47.3 | 59.4 | 79.1 | 64.6 |
| 1996 | 48.8 | 64.3 | 87.5 | 75.4 |
| 1997 | 42.5 | 57.1 | 87.4 | 72.8 |

Over the past 10 years, canola oil's market share has also grown in the U.S., from zero to between 7 and 8%. In 1987, Puritan oil received the American Health Foundation's "Food Product of the Year" award, and in January 1989, the American College of Nutrition presented their first-ever "Product Acceptance" award to Puritan oil.

Canola oil is also very popular in Japan. Its presence and dominance in Japanese diets is due to Japan's import of canola seed as compared to the import of oil from Canada. The consumption of edible oil in Japan entered a low growth phase in the last half of the 1980's and no substantial increases in the volume of oilseed crushing occurred. However, one commodity that did sustain high growth was canola. The greatest reason for that was the recognized improvement in the quality of the protein meal in canola. Rapeseed meal was traditionally a fertilizer for Japanese tea, tobacco and citrus farms, however, canola meal allowed the Japanese industry to direct a large proportion of the production to the Japanese feed industry.

Japan : Domestic Production of Edible Oil (%)

| | Soyoil | Canola Oil | Other |
|------|---------------|-------------------|--------------|
| 1976 | 45.3 | 26.4 | 28.3 |
| 1981 | 43.9 | 33.7 | 22.4 |
| 1986 | 42.4 | 36.6 | 21.0 |
| 1991 | 36.6 | 45.0 | 18.4 |
| 1996 | 37.3 | 44.5 | 13.4 |

Source: M.A.F.F.

Canola oil's penetration of Japan's domestic production of edible vegetable oils has continued to grow since the 1970's, primarily at the expense of oils other than soybean. Canada's penetration of the Japanese market comes as a result of seed exports, rather than oil exports because of an import tariff in Japan on vegetable oils prevents the import of any oil in significant quantities.

The Mexican market for canola has also developed dramatically over the past 10 years. As of 1993/94, canola became the second most important oil in Mexico. That level represents nearly 25% of the Mexican consumption of vegetable oil.

| | | |
|----------------------------|--|---------------------|
| Canola Seed Exports | | (000 tonnes) |
|----------------------------|--|---------------------|

| | 1980/1 | 1994/5 | 1995/6 | 1996/7 | 1997/8 |
|---------------|---------|---------|---------|---------|---------|
| Japan | 1,146.5 | 1,654.8 | 1,678.5 | 1,734.4 | 1,829.4 |
| United States | 0.3 | 288.0 | 271.6 | 265.2 | 391.2 |
| Europe | 110.5 | 1,138.7 | 322.2 | 162.5 | 11.4 |
| Mexico | 20.7 | 494.5 | 530.8 | 355.8 | 593.0 |
| Other | 94.1 | 336.0 | 0.8 | 1.5 | 138.7 |
| Total | 1,372.1 | 3,912.0 | 2,803.8 | 2,519.4 | 2,963.7 |

While the U.S. is a significant market for seed, it is the major market for our canola oil exports.

| Canola Oil Exports | (000 tonnes) | | | | |
|--------------------|--------------|--------|--------|--------|--------|
| | 1980/1 | 1994/5 | 1995/6 | 1996/7 | 1997/8 |
| US | 3.4 | 368.0 | 390.1 | 424.4 | 418.9 |
| India | 106.4 | 2.2 | 8.5 | 5.6 | 2.0 |
| Hong Kong | 14.5 | 1.1 | 35.4 | 85.7 | 35.2 |
| China | 0.7 | 28.1 | 36.9 | 42.5 | 21.7 |
| Others | 73.1 | 24.0 | 39.1 | 83.0 | 31.9 |
| Total | 198.1 | 423.4 | 510.0 | 641.2 | 509.7 |

Canola meal is readily marketable into Canada, the Pacific Rim and U.S. Both Japan and the U.S. are significant export markets for meal. In just five years ago, the volume of canola meal used in Mexico represented under 5% of the national consumption of protein meals. It now represents over 10%. During this growth in market penetration, canola meal has displaced corn gluten, fish meal and soybean meal.

| Canola Meal Disposition | | | | |
|-------------------------|---------|---------|---------|---------|
| (000's tonnes) | | | | |
| Exports | 1994/5 | 1995/6 | 1996/7 | 1997/8 |
| Europe | 83.3 | 54.9 | 40.8 | 20.0 |
| Japan | 142.8 | 111.1 | 118.2 | 24.3 |
| Indonesia | 11.9 | 31.9 | -- | 11.1 |
| Taiwan | 5.0 | 5.8 | 4.8 | 0.8 |
| South Korea | 55.4 | 71.6 | 34.9 | 49.8 |
| United States | 736.8 | 874.3 | 849.3 | 1,223.0 |
| Others | 32.3 | 54.6 | 36.9 | 88.0 |
| Total Exports | 1,067.5 | 1,204.2 | 1,084.9 | 1,417.0 |
| Domestic Use | 496.5 | 511.8 | 564.1 | 526.4 |
| TOTAL UTILIZATION | 1,564.0 | 1,716.0 | 1,649.0 | 1,943.4 |

As noted, the potential supply-demand picture for the year 2000 is about 7.5 million tonnes, and perhaps higher. It's anticipated that the U.S. will continue to be the major market for oil and meal. Japan will continue to be a major buyer of our seed. However, in the case of oil, industry watchers expect increasing volumes to move into Japan, the Pacific Rim, India, Pakistan, Singapore and Taiwan. Remember, these countries represent nearly 60% of the world population and their oil consumption is increasing rapidly. Major growth is expected for canola meal in Korea, Taiwan, Thailand and domestically.

So the 64 million dollar question is how do we ensure stable supply of canola into the next millennium?

One of leading forces working with all facets of the industry to help ensure a stable supply is the Canola Council of Canada. I will conclude my talk today by telling you a little about the Canola Council of Canada, its role in the canola industry and the work it is funding.

The Council is a national, non-profit association, funded by the members of the Canadian canola industry. Its mission is to encourage the improvement, development and expanded production and use of Canadian canola seed and products.

The members include canola growers, canola processors, canola exporters, grain handling companies, crop input suppliers, governments, and food and feed manufacturers.

The Canola Council of Canada is funded from three major sources:

1. a voluntary industry levy paid by Canadian crushers and exporters;
2. funds provided to specific programs from industry members of which one of the largest is canola grower check-off commissions, and;
3. government programs, both federal and provincial.

Council funding is allocated to four areas of activity: research; agronomic extension; market access issues and information services. The allocations are made with one purpose in mind: the advancement of the canola industry in all its aspects.

However, the Council currently directs the lion's share of its efforts and funds toward improving the yields of canola and returns to Canadian canola growers. The Council has a budget of nearly \$5.0 million dollars per year and currently approximately 70 to 75% of the budget will be spent on research and agronomic extension funding.

This includes the running of Canola Production Centres, where new and proven agronomic practices and technologies are demonstrated to farmers, and the funding of research into improving canola varieties and canola products. A team of Council agronomists manage the centres and conduct a wide variety of trials each year to pinpoint techniques and technologies that will help boost production and profitability.

But there are two ways to boost canola supply, through increased yields and increased acreage. The Council is working to improve both.

Part of the reason for the continued pressure on acreage required is the need to rotate crops. The recommended rotation for canola is 1 in 4 years on the same field to prevent the build-up of pests. One area of work at the CPCs, combined with sizeable funding by the Council of public research, is the testing and development of new novel-trait varieties with disease, insect and herbicide resistance. As these make their way into growers' hands, the reduced threat of disease and insects could allow shortening of rotations to, say, 1 in 3 or even 1 in 2 years.

At present with a four-year rotation and 40 million acres suitable for canola production, we can sustain a long-term maximum of 10 million acres of canola. But if we can reduce the rotation to 1 in 3 years, that means there will be over 13 million acres available to grow canola. Naturally, if we were able to reduce rotation requirements even further, we would surpass our potential requirements.

Biotechnology appears to hold one of the solutions. Over 50% of canola grown this past year was in novel-trait varieties and this will likely grow to 75% in a short time. All current novel-trait varieties grown in Canada have been approved for import by the U.S. and Japan, our two key markets as outlined. Mexico does not have clear guidelines in place to review novel-traits, however, they have indicated no objection to date. So it is important to realize over 90% of our market has accepted the new traits.

The industry continues to maintain a system where new novel traits and new transformations of previously approved traits, are subject to identity preserved programs until approvals are in place in our major markets. It remains important to provide this security to our customers. Whether it be the current concerns of European consumers, rising concerns in Japan, or the discussions related to an international protocol on bio-safety, it is important to have a system in place to ensure only traits approved in our primary market regions are being produced commercially in Canada.

The entire process is proving to be both controversial and political. Politics are overriding scientific reviews and endorsements related to health and safety in Europe and other countries. Consumers in some countries are asking for mandatory labelling. The United Nations, through their protocol on bio-diversity, is suggesting

advanced informed agreements be obtained by every exporting nation for every novel trait in every crop that is being sold into every importing nation.

The canola industry, through the Canola Council, is responding to this new reality by requesting that all novel-trait varieties brought forward for registration have documented proof of their approval in our key markets. Without that documented approval, the variety would not be registered for full, commercial production.

The Canola Council is also pouring considerably funds into research. Some of the areas currently funded are:

- use of exogenous enzymes to increase the feeding value of canola;
- resistance to brown girdling root rot;
- enhancement of chlorophyll clearing;
- insect tolerance;
- fungal pathogen resistance;
- heat tolerance;
- management of herbicide-tolerant canola;
- development of integrated pest management (IPM) systems;
- pest bio-control;
- disease and insect management; and
- reduction in saturated fatty acids.

As you may have heard, the U.S. soybean industry has developed a variety with 5% saturated fat. It will soon be commercially available. The Canola Council has directed matching funds with various industry players to develop a 6%, or lower, saturated fat canola within the next five years without penalizing seed or oil yield.

The Council is also active in market development and dissemination of information. For example, the Council maintains an extensive Web site ([http://www.canolacouncil.org](#)). Information for growers includes: the entire Canola Growers Manual, Canola Production Centre trial results, research summaries, a canola meal feeding guide, and a widely used discussion group where farmers and industry interact.