



## **Focus on Canola**

### **Canola: Canada's Oil**

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Canola was developed in Canada and gets its name from the combination of Canada and oil. Through the plant breeding of rapeseed, canola was developed as an edible oil and animal supplement. Students will learn more about this “Made in Canada” commodity through a video, a reading activity and online sorting activity.

#### **Subject Levels/ Suggested Grade**

ADST: Food Studies 9

Food Studies 10-12

Culinary Arts 10-12

Written by Holly Johnson, BCAITC Education Specialist (2022-2023)

Grade and Subject	Curricular Competencies	Content Connections
<b>ADST: Food Studies 9</b>	<ul style="list-style-type: none"> <li>Evaluate the personal, social, and environmental impacts.</li> <li>Evaluate how the land, natural resources, and culture influence the development and use of tools and technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Health, economic, and environmental factors that influence availability and choice of food in personal, local, and global contexts.</li> </ul>
<b>Food Studies 10</b>	<ul style="list-style-type: none"> <li>Evaluate the influences of land, natural resources, and culture on the development and use of tools and technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Food trends, including nutrition, marketing, and food systems.</li> <li>Simple and complex global food systems and how they affect food choices, including environmental, ethical, economic, and health impacts.</li> </ul>
<b>Food Studies 11</b>	Critically evaluate how competing social, ethical, economic, and sustainability considerations impact choices of food products, techniques, and equipment.	
<b>Food Studies 12</b>	Critically evaluate how competing social, ethical, economic, and sustainability considerations impact choices of food products, techniques, and equipment.	
<b>Culinary Arts 10</b>	<ul style="list-style-type: none"> <li>Explore the impacts of culinary decisions on social, ethical, and sustainability considerations.</li> <li>Evaluate the influences of land, natural resources, and culture on the development and use of culinary ingredients, tools, and technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Food products available locally via agriculture, fishing, and foraging.</li> </ul>
<b>Culinary Arts 11</b>	<ul style="list-style-type: none"> <li>Analyze and evaluate how land, natural resources, and culture influence the development and use of culinary ingredients, tools, and technologies</li> </ul>	<ul style="list-style-type: none"> <li>B.C. agricultural practices.</li> </ul>
<b>Culinary Arts 12</b>	<ul style="list-style-type: none"> <li>Examine and critically evaluate how culinary decisions impact social, ethical, and sustainability considerations.</li> <li>Analyze and evaluate how land, natural resources, and culture influence the development and use of culinary ingredients, tools, and technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Social, economic, and environmental effects of food procurement decisions.</li> </ul>

## Teacher Background

British Columbia produces about 0.5% of Canada's total canola crop. About 20 million tonnes of canola is grown in Canada annually. Canola is one of the most widely grown crops in Canada. This cool season field crop is grown in the Peace River region of British Columbia. Two types of canola are grown in BC, and they are harvested and grown using the same machinery as other cereal crops. Once canola is harvested and a combine separates the seeds, it gets trucked to a processing plant where the oil is extracted and the meal is processed.

## Materials

- [Canola Photo](#)
- Computer/Projector
- [What's in the Field? Canola Video](#)
- Student Handouts
  - *Canola: Canada's Oil*
  - *Canola Numbers* Student Handout
- *Canola Numbers Answer Key*
- Devices with access to the internet, one for each student or pair of students
- [Online Canola Products Sort](#)
- Post-it notes

## Procedure

### Hook:

1. Show students [Canola Photo](#). Ask them if they know what it is/can identify anything in the photo.
2. Ask them if they can guess what kind of oil is in the photo.
3. After guesses and discussions, can tell them it is canola oil, canola seeds and canola meal.

### Body:

1. Show students the [What's in the Field? Canola Video](#)
2. After viewing the video ask:
  - a. What did you learn about canola?
  - b. How do they know canola is ready to be harvested?
  - c. Why is canola called a heart-smart oil?
3. Distribute a copy of *Canola: Canada's Oil* and *Canola Numbers* Student Handout to each student or pair/group of students.
4. Instruct students to use the information they read in *Canola: Canada's Oil* to complete the *Canola Numbers* Student Handout. Give students enough time to complete the answers and then display *Canola Numbers Answer Key* for students to check their work.

### Online Canola Products Sort

1. Have students open [Online Canola Products Sort](#) link on a device.
2. Have them move the three yellow boxes to the top of the page to create headings for three columns. Then students will sort the remaining words, in green boxes, under the appropriate heading. Students can use the *Canola: Canada's Oil* Handout to help.
3. Once they have sorted all the words under the correct headings, they will need to take a picture of their sort for assessment.

### Wrap up:

1. Have students write two reasons it is beneficial to use canola oil in cooking on a post-it as an exit ticket.

### Extension Activities

- [Grow BC Canola Story](#)
- [Bees and Canola](#)
- Learn Canola: [Canola Explained Video](#)
- Learn Canola (French): [Canola Explique Video](#)
- [Canola in the Pacific Northwest Video](#) (see how canola oil is processed at 2:28)
- Learn Canola: [Biofuels Lesson](#)
- Learn Canola: [The Skinny on Fats Lesson](#)

### Credit

Canola Photo: [https://www.canolacouncil.org/image-gallery/#!jig\[2\]/ML/6030](https://www.canolacouncil.org/image-gallery/#!jig[2]/ML/6030)

What's in the Field? Canola Video: [https://www.youtube.com/watch?v=qJt9g7B\\_\\_Tg](https://www.youtube.com/watch?v=qJt9g7B__Tg)

Online Canola Products Sort:

[https://www.flippity.net/ma.php?k=11bJBN1jnmAW\\_rKj4CLWiZpvnaofbaeuaS2pSEbBrUV8](https://www.flippity.net/ma.php?k=11bJBN1jnmAW_rKj4CLWiZpvnaofbaeuaS2pSEbBrUV8)

Grow BC Canola Story: <https://www.bcaitc.ca/grow-bc-commodities>

Bees and Canola: <https://www.canolacouncil.org/about-canola/sustainability/bees/#benefits>

Learn Canola: Canola Explained Video: <https://www.youtube.com/watch?v=ifx2bK0crLE>

Learn Canola: Canola Explique Video: <https://www.youtube.com/watch?v=6JGYdulApAo>

Canola in the Pacific Northwest Video: <https://www.youtube.com/watch?v=ifx2bK0crLE>

Canola Biofuels Lesson: <https://learncanola.com/educational-resources/biofuels-choice-or-necessity/>

The Skinny on Fats Lesson: <https://learncanola.com/educational-resources/the-skinny-on-fats/>



# Canola: Canada's Oil

Canola is a combined word meaning "Canadian Oil".

Canola was developed in the 1970s by Canadian plant scientists. It has become a very important plant crop for Canadian farmers.

Canola seeds are about 43 percent oil. This oil is low in saturated fat and is an excellent food choice for a healthy diet.

The oil from canola is used for cooking and baking at home, restaurants and in food processing plants. Canola oil also has non-food uses - for example biodiesel and bio-plastics. Canola meal, the part left over after the seeds are crushed and the oil extracted, is used for animal feed, pet food and fertilizer.

About 15.3 million acres of canola are harvested each year in the prairie provinces and in southern Ontario. After wheat, and barley, it is now Canada's third largest grain export. Canola is the third most widely used vegetable oil in the world after soybean and palm oil.

## What is Canola? And How Does it Grow?

On the farm, these plants grow to a height of one to two metres. Canola is a plant that is a member of a large family of plants called *crucifers*. Crucifers are easy to identify because the four yellow flower petals form the shape of a cross. The yellow flower produces seed pods that are about 5 centimetres in length. There is an average of 60 to 100 pods per plant. Each seed pod contains 20 to 30 tiny, round seeds which are 1 mm. in diameter. When it is ready to harvest, the plant changes colour from green to light yellow. These tiny seeds are crushed to extrude canola oil.

From germination to seed production, the life cycle of a canola plant takes about 3 ½ months, depending on temperature, moisture, sunlight and soil fertility.

Canola is a cool season crop. It grows particularly well on the prairies, where cool nights and hot days allow it to develop its unique fatty acid profile.

Canola belongs to a section (or genus) of the crucifer family called Brassica. As well as canola, Brassica plants include mustard, Brussels sprouts, cabbage, cauliflower, broccoli and turnip. Brassicas are a major source of food in many countries, including Canada.



## Where did Canola Come From?



Dr. Keith Downey

Dr. Baldur Stefansson

The name 'Canola' was registered as a trademark in Canada in 1970. The name comes from *Can* as in Canada and *ola* as in oil! The plant was bred by Canadian scientists, Dr. Baldur Stefansson and Dr. Keith Downey, who selected rapeseed populations when looking for a crop that would produce a healthy, edible oil product.

Prior to canola oil, most of the oil Canadians used for food purposes was imported and people wanted a home-grown edible oil.

Canola was selected from rapeseed through the knowledge and ingenuity of these prairie plant scientists. Canola is NOT rapeseed. It may look the same but its nutritional make-up is totally different. Canola came about only after years of hard work, research and

countless field tests of new plant varieties.

Canola oil has a complement of fatty acids that make it one of the healthiest oils. Canola oil is also a source of Vitamins E and K. Canola meal is a nutritious livestock feed.

Today, Canadians consume more canola oil per person than any other country in the world. In Canada, canola oil has captured about 80 percent of the salad oil market, 60 percent of the shortening market and 45 percent of the margarine market. Other large markets for Canadian canola include Japan, the United States, Mexico and China.

### Total Canadian canola harvested:

Saskatchewan	5.6 million tonnes
Alberta	4.3 million tonnes
Manitoba	2.6 million tonnes
Ontario	49,900 tonnes
British Columbia	31,800 tonnes

## Canola Contributes to the Canadian Economy

Canada's canola industry adds **\$13.8 billion in economic activity** to the Canadian economy. More than 52,000 Canadian farmers grow canola, largely as full-time farmers and in family farm businesses. They depend on canola to generate between one third and one half of their revenues. Domestically, canola generates economic activity of \$1.3 billion in Ontario and Quebec (primarily in the processing sector), and \$12.2 billion in western Canada. Seventy-five percent (75%) of Canadian canola is exported throughout the world, bringing back more than \$2.8 million to the country's economy.

In 2008-2009, Canada exported 15,500,000 tonnes of canola oil, 1,696,000 tonnes of canola meal and 8,999,000 tonnes of seed. In 2009, canola was Canada's most valuable cash crop. Canada is responsible for 75% of canola oil for global trade.

Canola's largest customer is the United States which imports 67% of Canada's canola oil (valued at \$345 million per year) and 95% of its meal (roughly worth \$85 million). Our principle seed buyers are Japan and Mexico. China is emerging as a major seed buyer. Japan, Canada's best canola seed customer, bought an average of 1.7 million tonnes of canola seed a year since 2000/01 valued at \$580 million.

Canadian farmers use almost 40% of the domestically produced canola meal to feed poultry, dairy cows, cattle, horses and sheep. It is also used in aquaculture as feed for salmon, trout, and shrimp. Specialty markets include feed for rabbits, gerbils, mink, ostriches, and finches.

Canada expects to boost its canola production by another 15% by 2015.



## Cooking with Canola

Canola is a versatile oil which can be used in baking, sautéing, frying, marinating and salad dressings.

**Salad Dressings** - Canola oil has a light taste and colour, stays liquid in the fridge (making it free-running) and blends well with herbs and spices.



**Baking** - Using canola oil in baking results in a soft, moist texture.

It can be used to grease baking pans and can be used to replace high saturated or *trans* fats as an ingredient. (see chart) Canola oil does not impart a distinctive flavour to baked products.

**Deep-Frying** - Canola oil has a high smoke point. Even after a long frying time, canola oil forms a minimal amount of *trans* fats. It doesn't transfer food flavours.

**Marinades** - The oil in a marinade helps to moisturize the food while the acid (vinegar or lemon juice, etc.) helps to tenderize it. Canola oil's mild flavour allows the flavours of the food and the other marinade ingredients to prevail. Staying liquid while refrigerated allows the canola marinade to be drained off easily. It stays liquid in the fridge which facilitates the marinating process.

**How to Store** - Store canola oil in a cool, dark place. Under these conditions, it will keep up to one year if tightly sealed. Storing canola oil in a warm, light intensive place can speed up oxidation which causes the oil to turn rancid.



**Melted Solid Fat to Canola Oil recipe Conversion Chart**

Solid Fat	Canola Oil
250 ml (1 cup)	175 ml (3/4 cup)
175 ml (3/4 cup)	150 ml (2/3 cup)
125 ml (1/2 cup)	75 ml (1/3 cup)
50 ml (1/4 cup)	45 ml (3 tbsp)

### Culinary oil smoke points

Culinary Oil	Smoke Point	
	(°F)	(°C)
Sunflower High-oleic	478	248
Canola High-oleic	475	246
Peanut	471	244
Canola	468	242
Safflower High-oleic	468	242
Sunflower	464	240
Corn	453	234
Soybean	453	234
Safflower	446	230
Grapeseed	435	224
Olive Processed	428	220
Extra Virgin Olive	331	166

Optimal deep frying temperature:  
365-375°F (185-190°C)

## Why Use Non-Hydrogenated Canola Margarine?

- It is recommended as a heart healthy choice.
- It has cholesterol-lowering effects.
- It contains Vitamins A and E.
- It contains essential fatty acids.
- It has less *trans* and saturated fats.

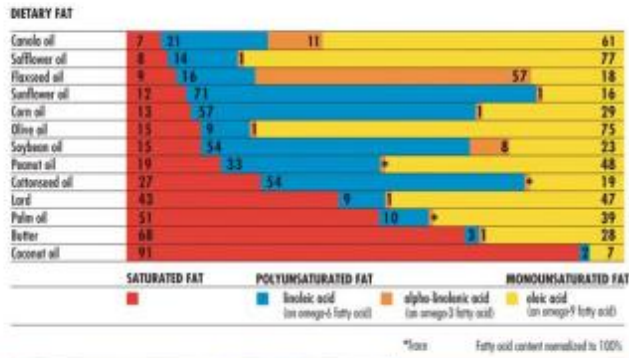
### Vegetable Oil Comes From...

Some food products labelled "vegetable oil" may contain canola oil. "Vegetable oil" on a label allows a food manufacturer to substitute or combine oils without having to change the product label. This is not always the healthiest choice as there is no guarantee of the oil's fatty acid composition.





## Comparison of Dietary Fats



*trans* – cause an imbalance, raising the bad LDL cholesterol and lowering the good HDL cholesterol, which can increase blood pressure, narrowing of the arteries (atherosclerosis), heart attack and stroke. Canada's Food Guide recommends that you include a small amount – 30-45 mL (2-3 Tablespoons) of unsaturated fat each day.

Canola oil is one of the healthiest vegetable oils available to consumers. It is the lowest in saturated fat, which raises bad LDL cholesterol and has been linked to increased risk of heart disease. It is high in monounsaturated fat which may reduce the risk of coronary heart disease by lowering bad LDL cholesterol in the blood and helping control blood glucose. And, it is high in Omega-3 fat as well as a source of Omega-6 fat – which must both be consumed in your diet.

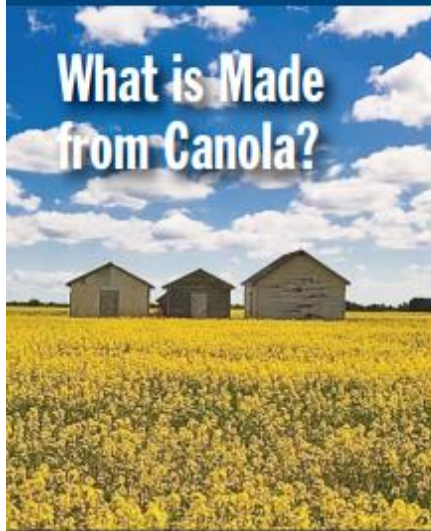
Canola oil contains no *trans* fats and is cholesterol free. It is high in Vitamin E which protects against oxidative damage and may protect against cancer and heart disease. Canola oil is also a source of Vitamin K which is important to blood clotting and bone metabolism. Fats, like canola oil aid in the absorption of the fat-soluble vitamins A, D, E and K.

## Put Good Fat in your Diet!

Some people think that all fat is bad. In truth, fat is an important part of the diet, providing the greatest output of energy per gram of any food. In addition, fats help keep us warm, and regulate the immune system. They contain essential fat-soluble vitamins and fatty acids and improve the flavour of food.

However, there is general agreement among health professionals that the type of fat consumed is as important as the total amount eaten. That's why it's important to choose healthier unsaturated fats, like canola oil. Eating too much and the wrong kinds of fats – saturated and

## What is Made from Canola?



### FOOD PRODUCTS FROM CANOLA OIL:

- High stability frying oil
- Margarine
- Salad oil
- Cooking spray
- Shortening
- Liquid shortening
- Mayonnaise
- Sandwich spread
- Coffee whitener
- Creamer
- Cookies
- Crackers
- Cake mixes
- Bread
- Snack foods

### NON-FOOD PRODUCTS:

- Cosmetics - lip gloss, creams, shampoo, soap, lipstick, massage oils
- Biodiesel
- Dust depressants
- De-icer for airplanes
- Printing ink
- Suntan oil
- Antistatic for paper and plastic wrap
- Biodegradable greases
- Bioplastics
- Industrial lubricants

### FROM CANOLA MEAL:

- Protein isolates for human food
- Livestock feed
- Poultry feed
- Pet food
- Fish food
- Fertilizer



Ontario Agri-Food Education Inc.  
8560 Tremaine Road, P.O. Box 460,  
Milton, Ontario L9T 4Z1  
Tel.: 905-878-1510  
Fax: 905-878-0342  
Email: info@oafe.org  
www.oafe.org  
www.farmsfoodfun.com

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## Canola Numbers Student Handout

Name: \_\_\_\_\_ Class: \_\_\_\_\_

Canola Number	What it describes
1970s	When canola was developed by Canadian plant scientists
43%	
1 or 2 meters	
5 centimeters in length	
20-30	
13.8 billion dollars	
75%	
31,800 tonnes	
468 Degrees Fahrenheit	
30-45 mL	

## Canola Numbers Answer KEY

Canola Number	What it describes
1970s	When canola was developed by Canadian plant scientists
43%	Canola seeds are 43% oil
1 or 2 meters	The height of a canola plant
5 centimeters in length	Length of a canola seed pod
20-30	The number of tiny seeds in each canola seed pod
13.8 billion dollars	The amount of money Canada's canola industry adds to the Canadian economy per year
31,800 tonnes	Total tonnes of canola harvested in British Columbia
468 Degrees Fahrenheit	Canola oil smoke point temperature
30-45 mL	The amount of unsaturated fat the Canadian Food Guide recommends including in your diet in a day