



Before the Plate

Teacher Guide

Educational Resource for Grades 9-12



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Who is Agriculture in the Classroom Canada?

Agriculture in the Classroom Canada (AITC-C) is the national voice of agriculture education. We believe in enhancing the knowledge and appreciation of agriculture and food in Canada. As part of a cross-country effort, we work with 9 provincial members organizations to empower students and educators with accurate, balanced, and current curriculum-linked programs, resources, and initiatives focused on the agriculture and food sector. As a charitable organization, we are proud to work with numerous partners, including government, industry, commodity organizations and passionate individuals who share our belief in creating educational experiences for students that will engage, connect, and inspire a deeper connection to agriculture in Canada.

About Before the Plate

Before the Plate (1 hr 30 min) attempts to close the gap in perception between the urban consumer and farming in Canada. Modern consumers are increasingly interested in where and how their food gets to them, but accurate information isn't always easy to come by and often feels out of reach. Before the Plate follows young farmers and industry experts in order to show the general population what a modern Canadian farm operation looks like, and answer the most pressing questions consumers have about their food. The film will follow staples of the Canadian diet all the way from the farm to the harvesting and processing operations, and showcase the final product at Canoe, one of Toronto's most prestigious restaurants. The project will explore various types of agriculture, including both organic and conventional practices to answer some of the biggest questions around farming in our society.

Agriculture in the Classroom Canada values the subject matter experts that led in the development of this resource:

Education Consultants:

Ginny Hogervorst - *Strathroy's Holy Cross Secondary School*

Melissa Galay - *Agriculture in the Classroom Canada*

Karen Hill - *Agriculture in the Classroom Manitoba*



Watch the Documentary

You can [click here](#) to get full access to the *Before the Plate* Documentary (1 hr 30 min).

Supplementary Resources:

#MyFoodChoice: A national, inquiry-based resource that promotes students' critical thinking skills when looking at the food choices they make and answering the overall question of '*How can I make informed food choices*'. This resource will take approximately 2 weeks to complete and has videos, interactive student sheets, approved resources and more! For more information and to download the resource for free, [click here](#).

snapAG: What are GMOs and are they okay to eat? What does organic farming look like? How are animals like chickens or cattle raised? snapAG is a series of informational resources that invite students to explore the hot topics around agriculture today. Topics range from organics, biotechnology, GMOs, livestock and more. Visit <https://aitc-canada.ca/en-ca/learn-about-agriculture> to access snapAG sheets relevant to the *Before the Plate* documentary.

AITC-C's Educational Resource Matrix: For free, curriculum linked resources, learning kits, activities and lesson plans visit <https://aitc-canada.ca/en-ca/for-educators/curriculum-linked-resources>.



Documentary: *Before the Plate*

Pre-Viewing Answer Key

- 1. We will be watching a documentary called *Before the Plate*. Based on the title, what do you predict this film will be about?**
 - Where food comes from.
- 2. When you sit down to eat a meal, where do you imagine your food comes from?**
 - Farms
 - Grocery stores
 - Refrigerator
- 3. Have you ever visited a farm? If so, what was it like?**
 - Answers will vary
- 4. What would you like to learn about farmers and farming?**
 - What a typical work day is like for a farmer
- 5. Have you ever met a farmer? What were they like?**
 - Answers will vary
- 6. What is your opinion of farmers? What level of education do you think most need to do their job well? What do you think their typical day is like?**
 - Answers will vary
- 7. What is your knowledge and present opinion of organic food and non-organic food?**
 - Answers will vary
- 8. What do you know about GMO foods? What is your present opinion of GMO foods?**
 - Answers will vary. Some students will say organic is healthier, others will say that non-organic is just as healthy.



Documentary: *Before the Plate*

Viewing Answer Key

Part A: Introduction Answers

1. What is Chef John's goal in the film?

→ To follow the 10 main ingredients of his meal back to the farm to learn about what goes into making the ingredients for his dish.

2. Chef John says: "Farmers need to hear our voice, and we need to hear theirs." Do you believe this is true? Why or why not?

→ Answers will vary

3. According to Chef John, what makes it easy for consumers to complain about price?

→ Consumers do not see the work and skill that goes into making our food

Part B: The Potato Farmer Answers

1. What is one of the challenges the potato farmer notes when it comes to selling his product?

→ Competing against low cost producers in other countries

2. List two things you learned from the potato farmer about chemical use on farms.

→ Due to blight disease, spraying potatoes is necessary

→ Pesticides kill fungus, it is like antibiotics for plants

→ Farmers must pass a chemical course, so they are informed on how to use them properly



Part C: The Cattle (Beef) Farmer Answers

1. List three things you learned about animal antibiotics from the beef farmer.

- Antibiotics are a tool for treating sick animals
- There are drugs for preventing disease and drugs for promoting growth
- Antibiotic resistance is a problem
- Antibiotics will not be allowed for growth promotion
- There is a withdrawal period where the antibiotics are depleted from the meat before it is consumed

2. List two things you learned about hormones in beef cattle.

- Giving hormones to beef cattle is allowed to bulk them up
- Using hormone implants makes less tender beef
- Added chemicals for consumption is completely minimal
- Finishing systems vary

3. How are beef cattle killed, and why is this method used?

- Research has shown that a stun gun is the most humane way

4. In addition to beef, what else is the animal used for?

- Beef hide for leather (car seats and clothing), and bones for fertilizer

5. Do you as a consumer of beef want to know how beef cattle are raised? Why or why not?

- Answers will vary. Some may say yes so that they understand the work and care that goes into beef production. Others may say no because they don't want to be thinking about live cattle while they are eating steak



Part D: The Tomato Farmer Answers

1. List two things you learned about growing tomatoes in a greenhouse.

- The sheer volume of a greenhouse operation is very expansive
- Plants come to the greenhouse at 7 weeks of age and are about 40 cm tall
- Plants grow 1 foot each week
- Plants are grown in slabs to retain moisture
- Hives of bumble bees are brought in for pollination
- CO₂ is a waste byproduct of ethanol and a greenhouse gas, so having the plants convert it to oxygen is good for the environment
- The excess heat from the ethanol plant is also used to heat the greenhouse, which helps the plants grow

2. What do you think are the challenges of growing tomatoes in a greenhouse?

- Pests and disease
- Controlling heat and humidity on very hot days
- Watering and controlling proper moisture
- Answers may vary

3. What do you think are the benefits of growing tomatoes in a greenhouse rather than in a field?

- Better control of pests and temperature, you don't need to depend on weather
- Tomatoes don't get bruised from rain or eaten by pests as easily
- Answers may vary



Part E: The Cash Crop Farmer Answers

1. How is the cash crop farmer (who grows corn) connected to the tomato farmer?

- The cash crop corn farmer sells his corn to the ethanol plant that in turn gives CO₂ and heat to the tomato greenhouse
- Ethanol is a byproduct of corn

Part F: The Vegetable Farmer (Carrots, Onion, Celery) Answers

1. How many truckloads of vegetables fill the farmer's cooler each week?

- $\frac{3}{4}$ million pounds or 21 truckloads

2. Why does the farmer like to harvest when the soil is cold, right before the first frost arrives?

- If the air around them is cool, they will be happier and last longer
- They get sweeter the longer you wait into the Fall season to harvest them

3. Dr. Clarence Swanton says consumers' expectations for perfect looking food come at a cost to the environment and to the food production system. What does he mean by this?

- It creates problems in the production systems because it is wasteful in terms of the food and the effort (and chemicals and fuel) that went into making the food
- It is wasteful because there is nothing wrong with bruised food, it can still be eaten or bad spots can be cut out

4. How were the onion plants planted? Why does the farmer choose to plant them this way?

- They were planted with little onion plants that were brought in from a greenhouse
- This gives them a better head start in terms of fighting against the effects of springtime frost



5. The vegetable farmer brought a helicopter in to spray his field because it was too wet to take vehicles in to do the spraying. What do you think is wrong with taking farm vehicles onto wet farmland?

→ It compacts the soil and makes it so rain can't get through to the roots of the plants. The crop has trouble gaining root in the land and turns soil into mud cakes. (Answers may vary)

6. What does the vegetable farmer hope people will come to understand about modern farming?

- As the world needs more food, we have become more efficient at using the land that we already farm rather than buying more land to farm
- We need to use technologies that allow us to use the land better, to become more productive
- We need to ignore the fear factor warnings that new ways of farming is not better than old ways of farming

7. Research Ontario's Holland Marsh. What is it known for? What makes it so special?

→ Rich agricultural wetland used mainly for vegetable farming, 50km north of Toronto has very rich and fertile soil that is excellent for producing market garden crops such as onions and carrots

Part G: The Sunflower Farmer Answers

1. What does a sunflower have to look like in order to be harvested?

→ The seed must be dead and dry in order to be harvested

2. The farmer produced his seed by taking plant genetics from two plants and creating a hybrid. When deciding on what seed to use to grow his plants, what factors does the farmer consider?

- The farmer used trial and error as well as studies and tests to arrive at the best flavor, aroma, and colour he could make
- Yield is an important factor, it has to be profitable for the mill and for the farm



- 3. What percentage of oil is each sunflower seed comprised of?**
 - 45% of each sunflower seed
- 4. How many months of the year does the sunflower farmer make sunflower oil?**
 - 12 months of the year, full time
- 5. Why did the sunflower farmer decide to start growing sunflowers?**
 - Chefs were looking for an oil that was more versatile and had wider application in their kitchens

Part H: The Dairy Farmer Answers

- 1. Why are the female calves raised in their own pen, rather than all together?**
 - So they are under individual care and they can monitor the intake of feed (how much they drink and eat) pen by pen
 - Otherwise, a calf might not be getting enough food
- 2. Where do the male calves go?**
 - They are raised elsewhere for veal
- 3. List three things you learned about milking cows.**
 - Dairy cows are given two months off of the year where they are not milked
 - Each cow takes 4.5 minutes to be milked
 - Each cow can produce 40-45 L of milk per day
 - In free stall barns, cows can lie down, eat when they want, and they are taken to a milking parlour
 - In tied parlour barns, cows are tied up in individual pens and go out to pasture for portions of the day
 - In robotic barns, cows are free to move around throughout the day and the cow voluntarily goes and gets milked throughout the day
 - 17,000 L of milk is produced and picked up per day



- 4. What kind of fine must an Ontario dairy farmer pay if antibiotics are found in a batch of their milk?**
 - \$25,000 fine plus you lose the milk
- 5. Why is milk pasteurized?**
 - To kill bacteria
- 6. How many cows are on the typical Canadian dairy farm? How many in the USA? Why do you think there is such a difference?**
 - In Canada, the average is 60
 - In the USA, the average is 1500
 - The reason for the difference is Canada's farming system is largely still under the family owned model whereas in the USA, many farms are multinational corporations
- 7. List two facts this video segment offers about GMO foods.**
 - GMO foods are tested for 10-20 years before they are consumed by anyone
 - GMO foods are safe to eat
 - People are taught to fear GMO foods
 - Seed mutation is a natural process, done faster by GMO researchers
 - GMO foods require less pesticides
- 8. How does the dairy farmer practice preventative health care on his farm?**
 - He invites in a nutritionist and veterinarian to visit regularly and monitor the health of the cows



Part I: The Wheat Farmer Answers

1. When you buy a bag of wheat flour from the grocery store, is all that flour from one single farm? Explain.

→ No, it is a mix from a number of farms because wheat is sold to grain elevator companies

2. What did you learn about the planting, dormancy, and growing stages of wheat?

→ Seed is planted in the fall, it lies dormant in the winter and starts to grow in the spring

3. The wheat farmers talk about how farming is a lifestyle and not a career. What do they mean by this?

→ At 5pm, the job is not over

→ You have to be willing to work at all hours of the day depending on weather, season, etc.

Part J: The Honey Farmer Answers

1. Why does the farmer leave some honey behind on the cells?

→ For the bees to eat during winter

2. How much honey can one bee produce in its lifetime?

→ One tenth of a teaspoon

3. Briefly explain how honey is made.

→ The farmer describes it as “bee vomit”

→ It is perceived that way because it does come out of the bee’s mouth

→ The bee collects and stores nectar from flowers in a special stomach or “honey sack” within its body that is separate from its stomach that is used for digestion



4. List 3 bee health issues noted by the honey farmer

- Inadequate access to a diversity of pollens
- Disease
- Exposure to pesticides

Miscellaneous Questions Answers

1. What is 100KM Foods Inc.?

- A local food distribution company

2. What did you learn about the food inspection system?

- There are quality checks on all food brought into the grocery store

3. What was the goal of this video?

- To tighten the gap between the urban consumer and farming in Canada
- To show the general population what a modern Canadian farm operation looks like
- To answer the most pressing questions that consumers have about their food

4. How can you contact a farmer?

- On social media
- Visit a farm

5. What did you learn about the adoption of new farming technologies?

- It is important for farmers to do things efficiently, to keep up with the market economy, and to effectively feed a growing population



Documentary: *Before the Plate*

Post-Viewing Reflection Answers

- 1. How can you continue to educate yourself about where your food comes from?**
 - Answers will vary. Examples will include reading, talking to farmers, watching videos, social media, etc.
- 2. What impact do you think the consumer has on what grocery stores supply?**
 - Answers will vary. Examples may include discussion of imperfect produce
- 3. Did your stance on Canadian agriculture (including organic and GMO foods) change? What was it before and how has it changed as a result of watching this video?**
 - Answers will vary. Many students will have gained some knowledge of GMO foods from the documentary, and will likely answer that they are less afraid of GMO foods now, if they had a fear of them before watching
- 4. Identify a food not mentioned in this video and identify where it is grown in Canada. Next, phone or email a farmer with your questions. Write down their answers.**
 - Answers will vary. For younger grades, consider involving parents in the discussion
- 5. After watching this video, describe how you would explain Canadian agriculture to one of your friends who do not have an agricultural connection.**
 - Answers will vary. Students may comment on the average education level of most farmers in Canada (a bachelor's degree in agricultural science)



6. Do you have any remaining questions about Canadian food production? What are they? What can farmers do to address them and make the answers more available and well known to the wider public?

→ Answers will vary. Teachers may want to direct students to their provincial Agriculture in the Classroom organization and the supplementary resources listed at the beginning of this viewing guide

7. What makes this documentary a credible source of information on farming practices in Canada?

→ The information comes straight from farmers, a chef, professors of agriculture studies, and industry experts

8. Is it necessary to know where your food comes from? Why or why not? Why do chefs and farmers think it is important?

→ Yes, it is important because consumers help to drive the market

→ Farmers and chefs want to meet the demands of the consumer, and it helps if the consumer is educated in terms of where their food comes from

9. A migrant worker from Jamaica was featured in the potato segment of *Before the Plate*. What types of farms do you think require migrant workers, and why? What do you think it is like for those migrant workers to be working so far away from home?

→ Farms have seasonal highs and lows

→ Farms with heavy labour that the average Canadian does not want to perform for minimum wage

→ Answers may vary



10. Write a letter to the director with your remaining questions.

→ Questions will vary depending on the students' personal interests

11. Reflect on the title of the film, *Before the Plate*. Do you think this title is appropriate? Why or why not?

→ Answers will vary

12. A popular bumper sticker states: "Farmers Feed Cities". After watching this video, what does this statement mean to you? What images come to mind?

→ Answers will vary

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