



How have **food systems** changed over time?

food systems

What is a food system? How are food systems today similar to or different from those in the past?

A **food system** is the entire process involved in making food accessible to all people. A food system includes how and where food is grown, the inputs needed to grow the food, how it is processed and distributed and how it is consumed. It also includes the waste that is created by all these activities.

Inputs refer to the many resources used in farming and food production - like seeds, livestock, soil and water, farm equipment and tools, irrigation systems, fertilizer and pesticides as well as human labour. Where can you identify inputs in the food system diagram below?



Our relationship with food has changed over the course of history. Do you agree or disagree with this statement? Explain why you think this and give one example.

Everyone eats. Therefore, everyone relies on food systems, both local and global. The movement of food and food ingredients in food systems includes animals and animal products, plants and plant products, minerals and vitamins.

Food systems have always been part of human activities and play an important role in cultures and daily lives. People need to obtain food, prepare it to eat and deal with the waste that results.

Food systems also affect the land and environment. Growing crops and raising animals for food depends on inputs from the land and environment – like water, soil, climate and air.



Although the stages in a food system have stayed the same, the human activities associated with each stage have changed over time. Some of the food that you now buy in “retail” markets and grocery stores was mainly grown and used in the past by families on local farms. You can also now find food that comes from distant locations that could not be transported in the past. In comparison, some markets and grocery stores are swinging back to focus more on offering local, community-grown foods.

Many changes in the food system occurred in response to challenges that farmers faced as they produced the food that they and their communities required. However, changes over time have also caused new challenges.

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How would you match the descriptions here to the stages illustrated in the food system illustration?

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What is one example of a challenge that you think farmers face today that they did not face in the past? What is one example of a challenge that has not changed over time?

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food systems across time

Food systems are part of every culture and society. Societies that followed sources of food as well as those that started to grow crops and raise animals for food produced that food, processed or prepared it in some way, distributed or transported it, consumed it and dealt with the waste that resulted.

Early farmers started to grow more crops and raise more animals than they needed to just feed themselves and their families. This meant that they could start to dry and store some of their harvests to use later.

Different types of grains started to emerge in early societies across the world – maize in Mexico, rice in China and wheat and barley in the Middle East.

Pulses – the edible dry seeds of plants in the legume family – are also a crop with ancient roots. The first evidence of pulses come from over 11 000 years ago in the Fertile Crescent, which is a region in the Middle East.

Oilseeds, like rapeseed from the Brassica species, were used for lamp and cooking oils by ancient societies in Asia and Europe. Rapeseed is closely related to other Brassica species like cabbage, cauliflower, kale, and brown and oriental mustard.

“” Indigenous food systems

Indigenous food systems include all of the land, air, water, soil and culturally important plant, animal and fungi species that have sustained Indigenous peoples over thousands of years. They are closely integrated with the environment.

Indigenous foods move through a food system in which they are cultivated, taken care of, harvested, prepared, preserved, shared or traded within the boundaries of their respective territories. Indigenous food systems are in turn maintained through active participation in traditional land and food systems.

Indigenous Food Systems Network. Land and Food Systems: Online. www.indigenousfoodsystems.org



As populations and settlements grew, some early societies started to experiment with the way they produced foods. They developed new farming practices and technologies.

New types of seeds were cultivated. Canola is an example of a seed that was developed by plant breeders in Alberta and Saskatchewan during the 1960s and 1970s.

Different techniques – like irrigation – were invented. Water was brought to areas that were too dry to grow some crops. Farmers also used practices like planting shelterbelts to protect the land and soil.

The practices used by early farmers were not always good for environments – there are examples of overgrazing animals or mismanaging natural water systems. However, there are also examples that show how changing farm practices improved soil quality, increased the yield from crops and protected the land against flooding and drought.

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In what ways do you think changes over time in farming practices affected the different steps in the food system? For example, think about changes in the way food was produced as well as the ways that food was distributed and waste was handled.

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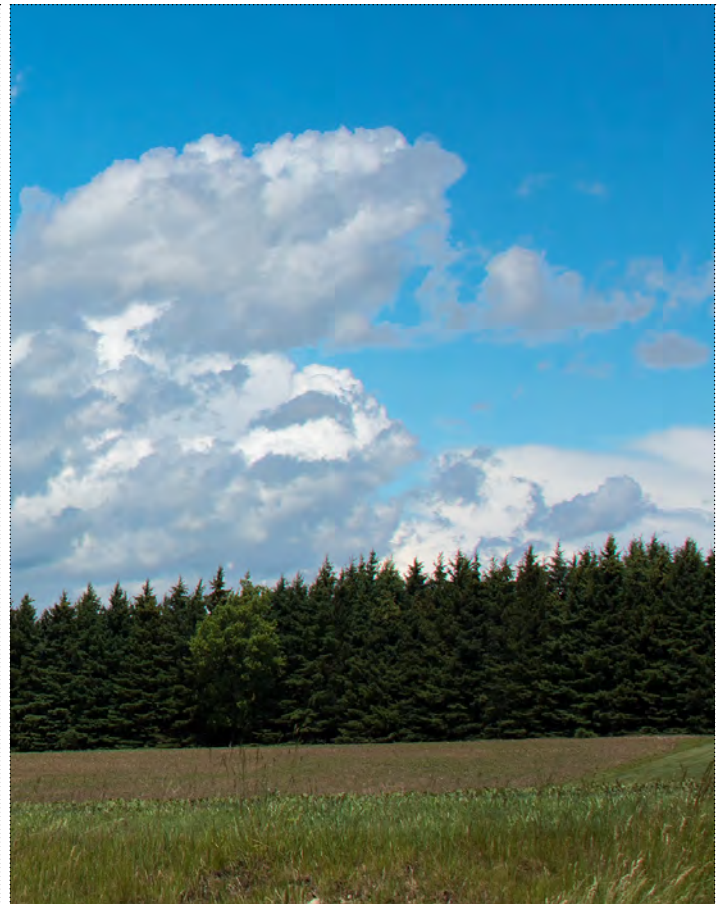
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at the time of Confederation

About the time of Confederation, wheat was probably the most important crop in Canada's food system. Oats, barley and corn were also grown. The Census that was conducted in 1861 showed that farmers grew buckwheat, peas, turnips and hay and produced butter and pork.

Many farms at the time were **mixed farms**. This meant that farmers both grew crops and raised livestock.



Photo: Glenbow Archives,
NA-3981-1

Farming at the time of Confederation was not an easy job. Think about what the following article can tell you about what the food system looked like over 150 years ago.

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150 years later, agriculture in Canada has changed radically

In his just-published book, *How different it was: Canadians at the time of Confederation*, [the author] Michael J. Goodspeed describes how farmers were willing to take tremendous risks and endure considerable hardships to achieve land ownership.

“Weather, crop and animal diseases, sickness or injury could be critical factors in the success and prosperity of a family farm. One year a farmer could find himself with bumper crops and surplus income, and the next he could be plunged into hunger, debt and poverty,” Goodspeed writes.

“Frosts, droughts, and insect infestations were common and caused near-famine conditions in many areas.”

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The author of this article uses another source to help him draw a picture of what agriculture was like in the past. Find one example of a description of farming in the past and write it in your own words.

While life expectancy is now estimated at 81.9 years, at the time of Confederation it was just 41.6 years with one in five children not making it to age five. Waves of devastating diseases included diphtheria, scarlet fever, tuberculosis, measles and whooping cough.

Innovation has been one constant over the years. Confederation-era farmers were incredibly skilled, building and repairing almost everything they owned.

Writes Goodspeed: "Beside the barn, or next to the farmhouse, was often a small shed with the farmer's tools: A carpenter's bench, a vise, hammers, numerous saws, planes, chisels, perhaps a wood lathe, and woodworking tools with which they fashioned shingles, plough handles, oxen and horse yokes, leather work of every description, furniture, toys."

The 1866 Almanac lists hundreds of agricultural patents [the right to stop others from making, using or selling an invention] that were issued in just one year from improvements in horseshoes to mould board ploughs and reaping [cutting and gathering a crop] and mowing machines.

The technological pace only quickened in the 20th century with tractors replacing horses, combines taking over from threshing machines and new devices such as hydraulics. The breakthroughs made it possible for farmers to do more, handling more acres and relying less on hired help or neighbours.

Agricultural innovations

A mould board plough is a machine that cuts the soil and lifts it to turn it over. The plough has a curved plate that is called a mould board. The idea behind a mould board plough is very old, with different versions used as long as 5000 years ago. Early ploughs were made of wood while later versions were made of iron.

Hydraulics refers to the use of water or another liquid that is placed under pressure to provide a source of mechanical energy. Hydraulics were used in early tractors. They provided power to steer and brake the tractor as well as lift and dig to prepare the land for planting. Hydraulics, now combined with electronics, are still important to agriculture today. Can you identify where the hydraulics would be in the tractor photo below?



...At the same time there has been a steady decline in the farm population.... At the time of Confederation, more than 80 percent of Ontario's population lived in rural areas. [In 2016, farmers made up 1.7 percent of Canada's] total population.

Terry Daynard, a Guelph-area grain farmer and former agricultural scientist, says the fall in farm population might be the most significant development.

"This has had major effects on rural communities, schools, churches and more," Daynard says. "Farm families are now a minority even in the most rural communities."

Miner, J. (2017). 150 years later, agriculture in Canada has changed radically. Farmers Forum Online: <https://farmersforum.com/150-years-later-agriculture-in-canada-has-changed-radically/>



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Rural areas supply food, water and energy for urban areas. They support industries and provide recreation for Canadians and people from other countries. What do you think Terry Daynard meant when he said that the fall in farm population has had major effects on communities, schools and more?

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What factors can you identify in the article that influenced changes that agriculture and communities experienced over time?

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