FISH FARM

AQUACULTURE IN CANADA

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DEFINITION

Aquaculture, also known as aquafarming, is the controlled cultivation or farming of aquatic organisms such as fish, crustaceans, mollusks, algae, and other valuable organisms in aquatic environments.

It involves the breeding, growing, and harvesting of these organisms for various purposes, including food production and commercial products.

-But it have some negative effect-

Figure 8.8 shows the main ideas of the Aquaculture industry pie chart in Canada in 2009 in the book page 291.

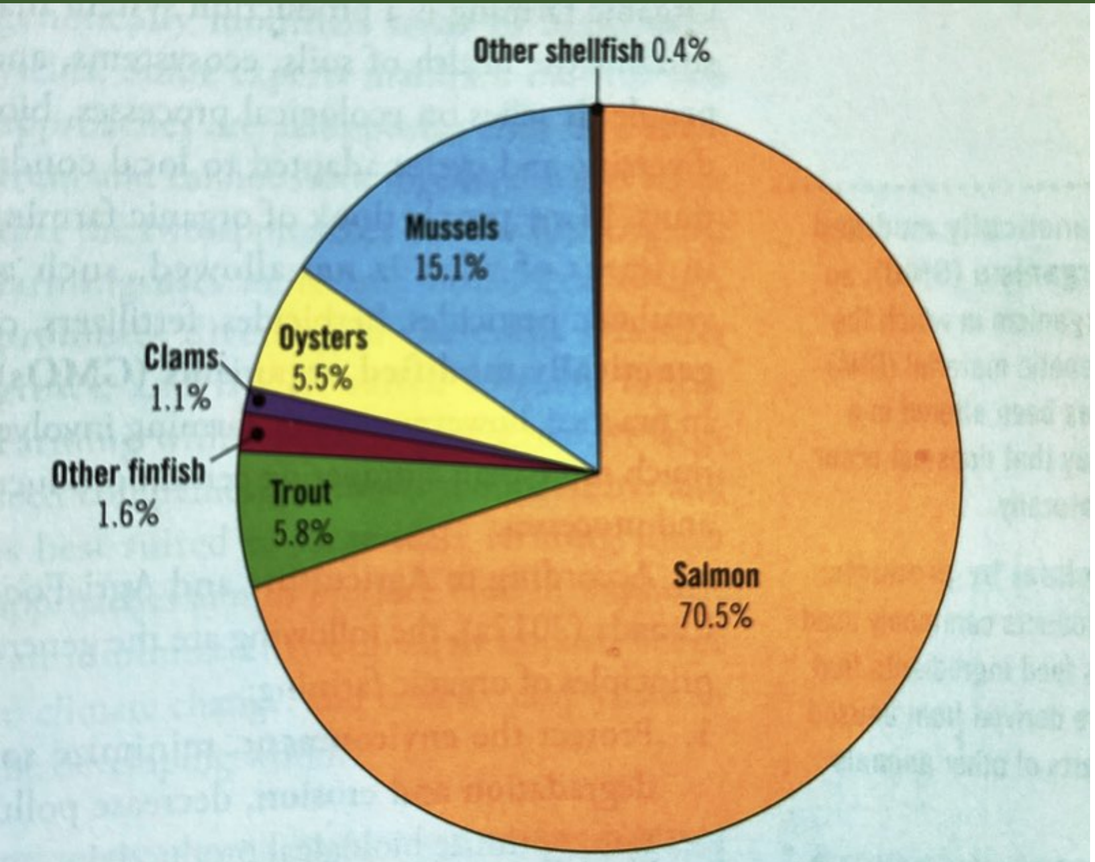


Figure 8.8. The proportion of different species of fish and shellfish produced through aquaculture in Canada in 2009. Note. Adapted with permission from Statistics Canada, as produced by Fisheries and Oceans Canada, 2011.

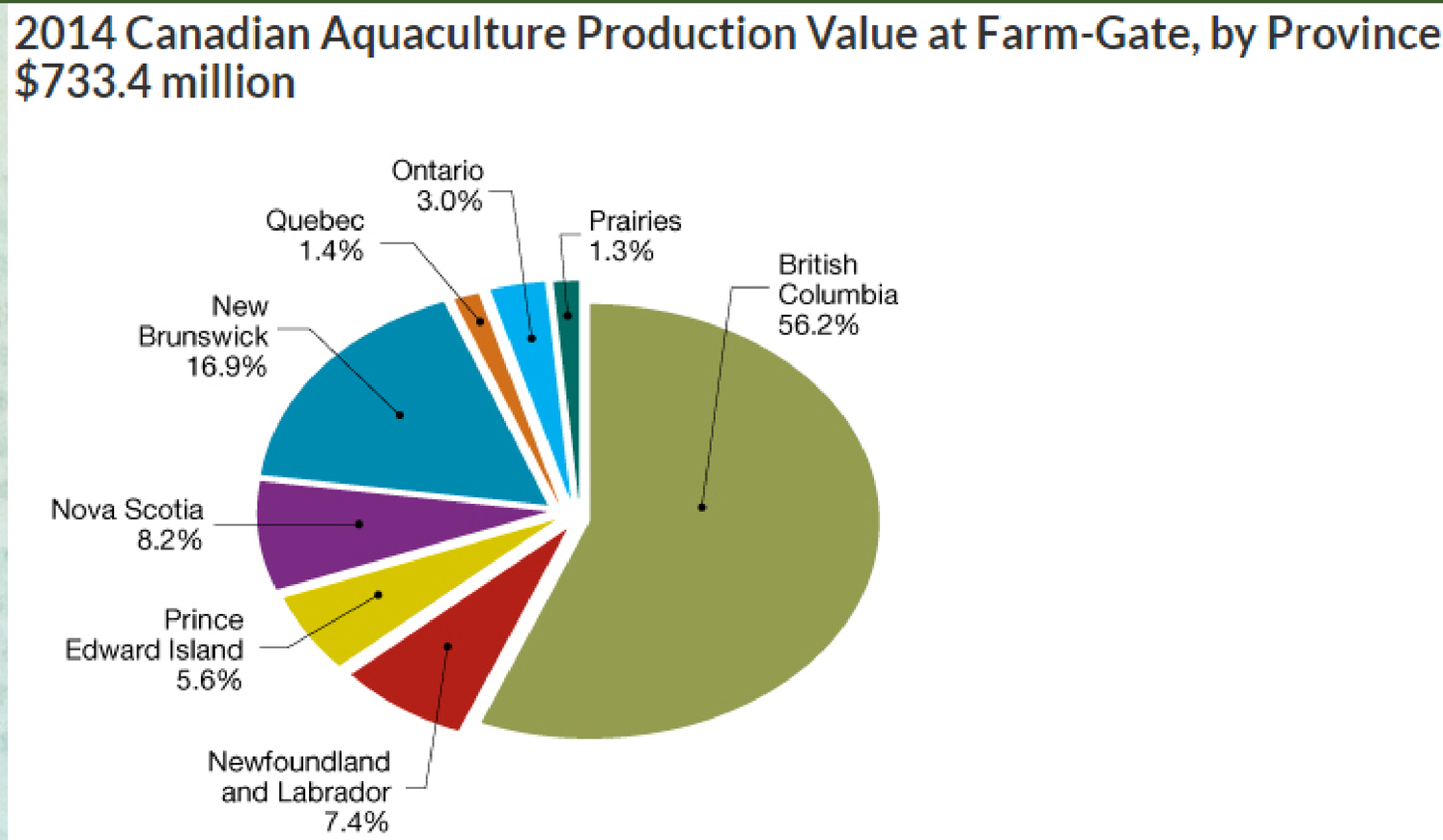
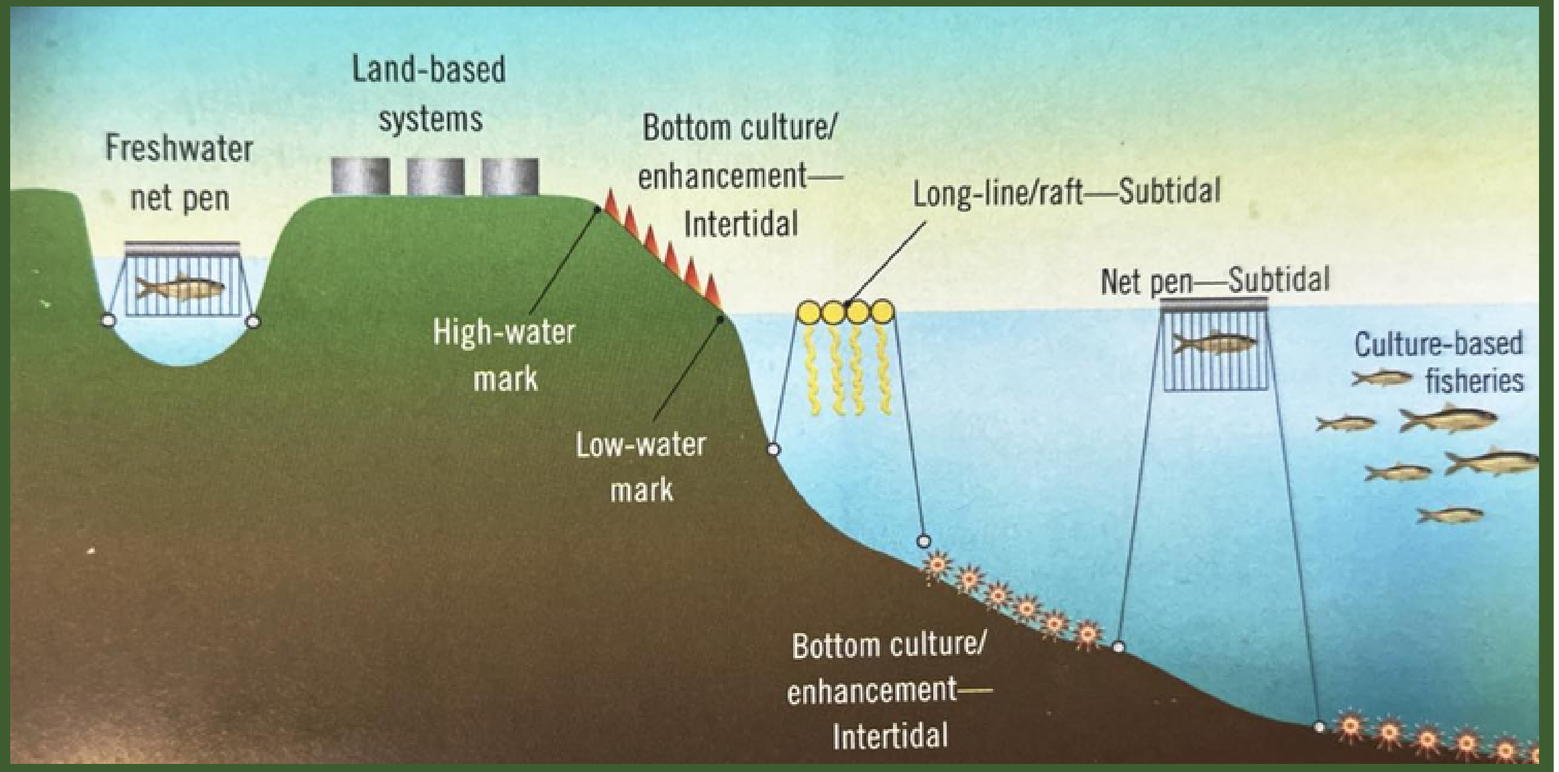


Figure 8.9 shows the different steps to farm fish and the ingredients needed to catch and raise fish. (page 291)



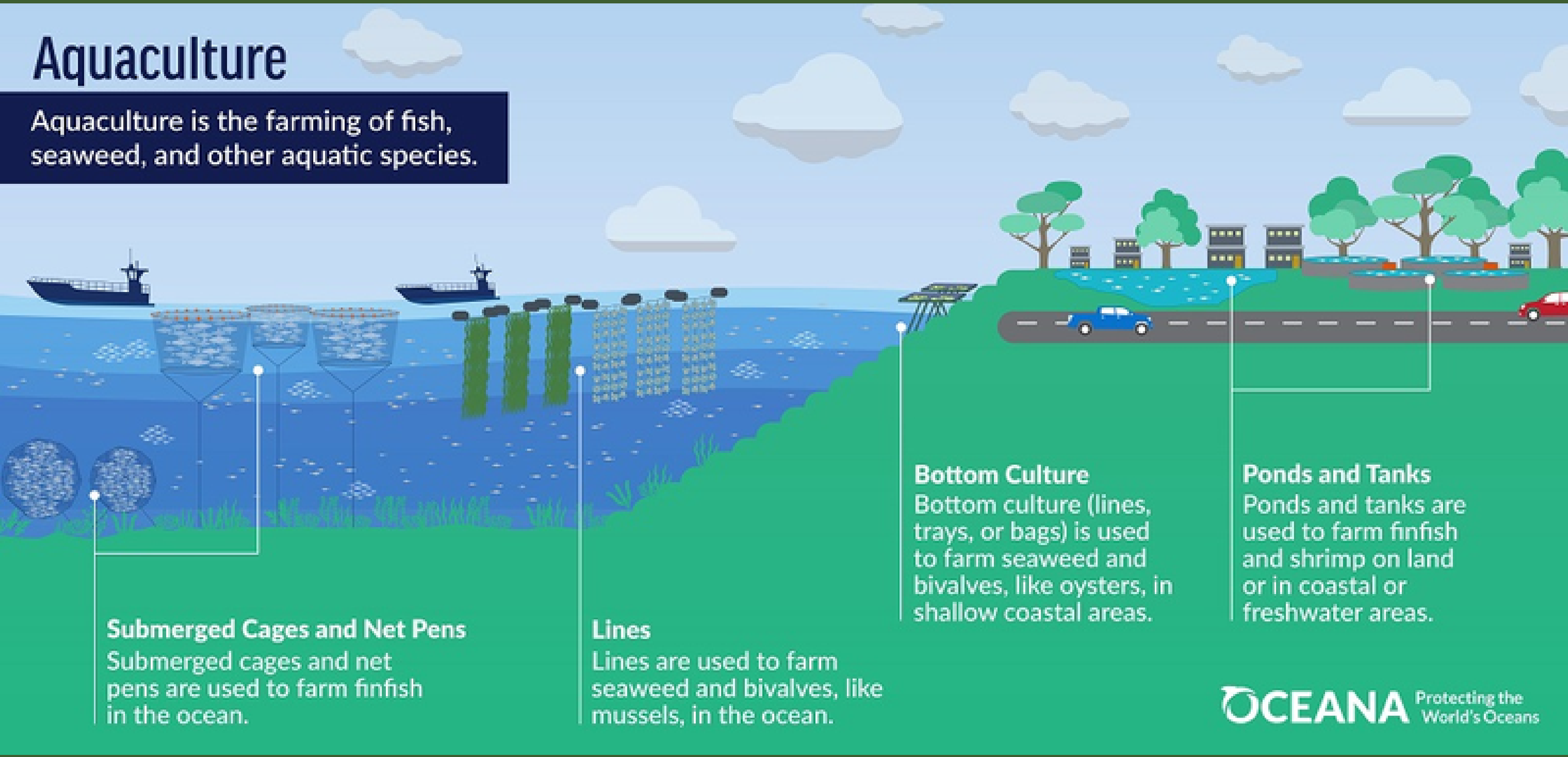
Land-based systems provide greater control over water quality, temperature, and feeding regimes, reducing disease outbreaks and improving growth rates.

These systems enable year-round production in any location, regardless of proximity to water bodies.

They also minimize environmental impact by reducing water usage, preventing the escape of farmed species, and minimizing pollutant discharge.

Aquaculture

Aquaculture is the farming of fish, seaweed, and other aquatic species.



Submerged Cages and Net Pens
Submerged cages and net pens are used to farm finfish in the ocean.

Lines
Lines are used to farm seaweed and bivalves, like mussels, in the ocean.

Bottom Culture
Bottom culture (lines, trays, or bags) is used to farm seaweed and bivalves, like oysters, in shallow coastal areas.

Ponds and Tanks
Ponds and tanks are used to farm finfish and shrimp on land or in coastal or freshwater areas.

OCEANA Protecting the World's Oceans

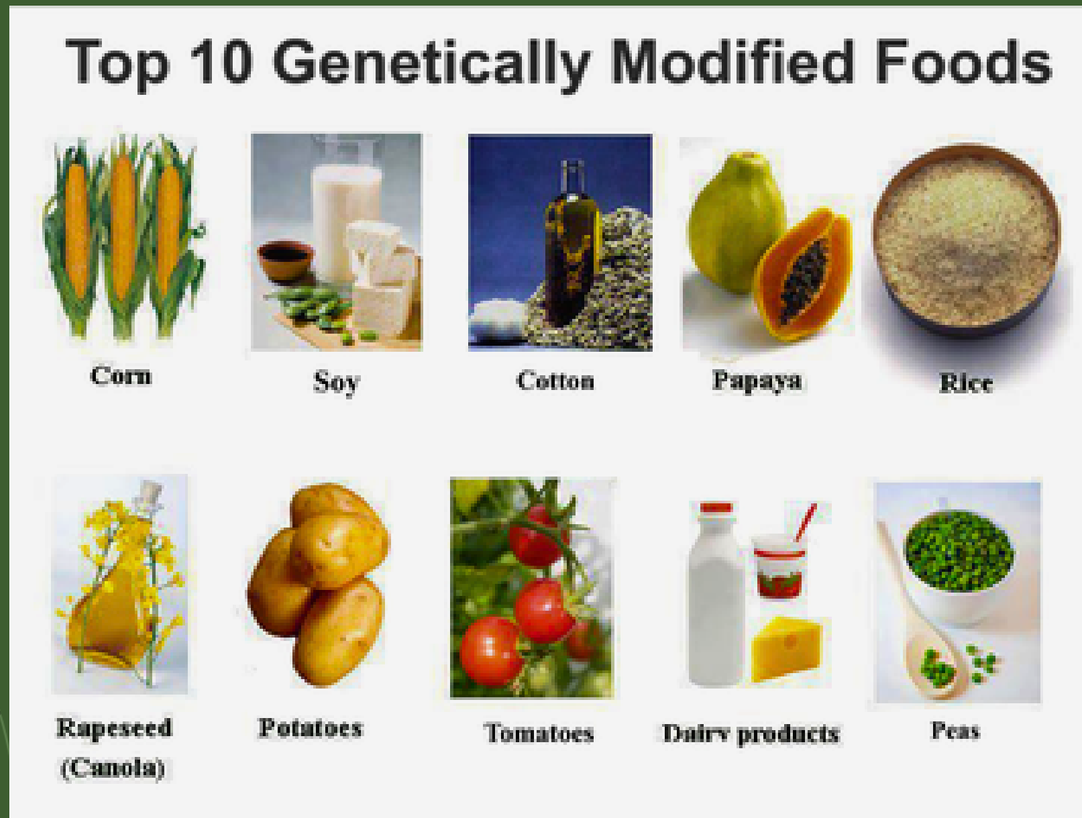
02

ORGANIC FARMING

Organic farming is a method of agriculture :

- Emphasizes the use of natural inputs and techniques.
- Avoiding synthetic chemicals.
- Pesticides, fertilizers, herbicides or genetically modified organisms (GMO).
- Promotes ecological balance and sustainability by focusing on soil health, biodiversity, and the well-being of animals.

Organically raised poultry, cattle, and other animals are fed a certified organic diet that is free of hormones, GMOs, and animal by-products, and they are given ample space and opportunities for natural socialization.



BENEFITS

01 Protect the enviroment

02 Maintain long-term soil fertility

03 Maintain biological diversity

04 Recycle materials and resources

05 Provide care the health

06 Prepare organic product

07 Rely on local renewable resources

02 Maintain long-term soil fertility by optimizing conditions for biological activity within the soil.

01 Protect the environment, minimize soil degradation and erosion, decrease pollution, optimize biological productivity, and support a sound state of health.

03 Maintain biological diversity within the system.

04 Recycle materials and resources to the greatest extent possible.

06 Prepare organic products and use careful processing and handling methods in order to maintain the organic integrity and vital qualities of the products at all stages of production.

05 Provide care that promotes the health and meets the behavioral needs of livestock.

07 Rely on local renewable resources to the greatest extent possible.

03

ORGANIC AGRICULTURE IN CANADA

Small-scale

Small scale organic farming has increased in Canada over past decade.

Canada Exports

A wide selection of Canada certified organic products,ranging from bulk grains to many kinds of processed foods

- A wide range of fresh organic produce is available at farmer's markets and in grocery stores, particularly in and near urban centres.

- Along with vegetables, fruit,and nuts, you can find organic meat, mushrooms, honey, and maple syrup.

- Organic milk is also produced, but it represents only about 1 percent of the total milk produced in Canada.

Canada's top 3 fish and seafood exports by species, 2021					
Species	Value of Exports ($ B)	Change of Values (%)	Change of Volumes (%)	Change of Prices (%)	Share of Exports (%)
Lobster	3.26	55.8	17.1	33.1	37.1
Crab	2.18	64.3	15.5	42.3	24.8
Salmon	1.12	15.0	10.5	4.1	12.7
Other	2.24	9.0	4.2	4.5	25.4
Total	**8.79**	**36.5**	**8.3**	**26.0**	**100.0**

- Organic wheat is the biggest export, but Canadian farmers also export oats, barley, soybeans, rye, corn, canola, hay, and other grains and oilseeds.

- The largest share of Canadian organic exports goes to the United States, the European Union, and Japan

ORGANIC AGRICULTURE AROUND THE WORLD

1. The global demand for organic products was once a small-scale niche market.

2. in 2011 it reached a value of almost $65 billion CDN and there are now about 1.8 million certified organic producers worldwide .

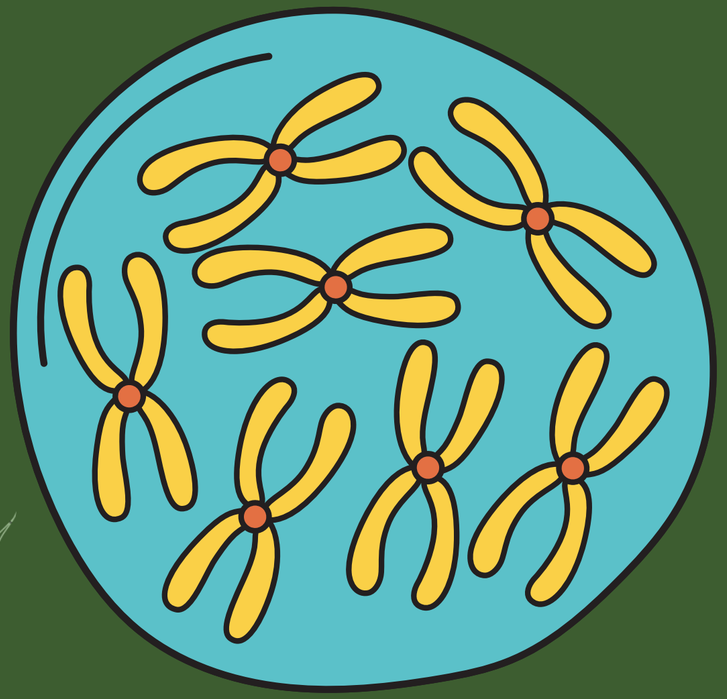
3. In sub-Saharan Africa, organically grown crops have been found to be better able to withstand extreme climates and produce higher yields than conventionally grown crops.

4. Organic farming uses more traditional knowledge, promotes diversity in the crops a farmer grows, and is well suited to small farms.

BIOTECHNOLOGY

Biotechnology refers to the use of living organisms or their components to develop or create useful products and processes. It encompasses a wide range of applications, including healthcare, agriculture, industry, and environmental management. Biotechnological techniques can involve the use of microorganisms, plants, animals, or their cells and molecules to develop new drugs, improve crop yields, create biofuels, clean up pollutants, and more.

GENETIC ENGINEERING



Genetic engineering (GE), or genetic modification (GM), is a newer form of biotechnology that can be applied to both plants and animals.With GE technology, scientists can alter the genetic makeup of plants or animals by introducing one or more genes from another organism that need not be related.

APPLICATIONS

For example, canola oil is produced by genetically modifying rapeseed plants, which are part of the mustard family. Oil from rapeseeds was previously used in soaps, lipsticks, lubricants, and inks; oil from genetically modified rapeseeds- canola oil- is used as a food in cooking, salad dressings, and many processed foods. The goal of GE is to enhance certain traits in the modified organism.

GLOBAL USE OF GMOS

Cotton bollworm, Before the introduction of GM cotton, farmers used to spray the crops with a toxin.

GM cotton is genetically modified to produce a substance that is poisonous to the cotton bollworm, a pest that devastates many cotton crops.

By growing the GM variety, cotton farmers can use fewer pesticides, improve yields and profits, and lower health risks for farm workers by reducing pesticide use.

GMO SAFETY

LABLE

GMO food do not be labeled in Canada.

SAFETY

All GM foods that have been approved for use in Canada are considered safe to eat.

EFFECTS

the long-term effects of GMOs on plants, humans, and the environment are unknown.

CONTAMINATION

cross-contamination, meaning that GM seeds will contaminate non-GM seeds.

UREBAN AGRICULTURE

- the practice of farming within an urban environment, especially the cultivation of food crops for human consumption.

- Urban agriculture includes the cultivating, processing and distributing agricultural products in urban and suburban areas.

  - Community gardens, rooftop farms, hydroponic, air training, and vertical production are all examples of urban agriculture.

04

UREBAN AGRICULTURE

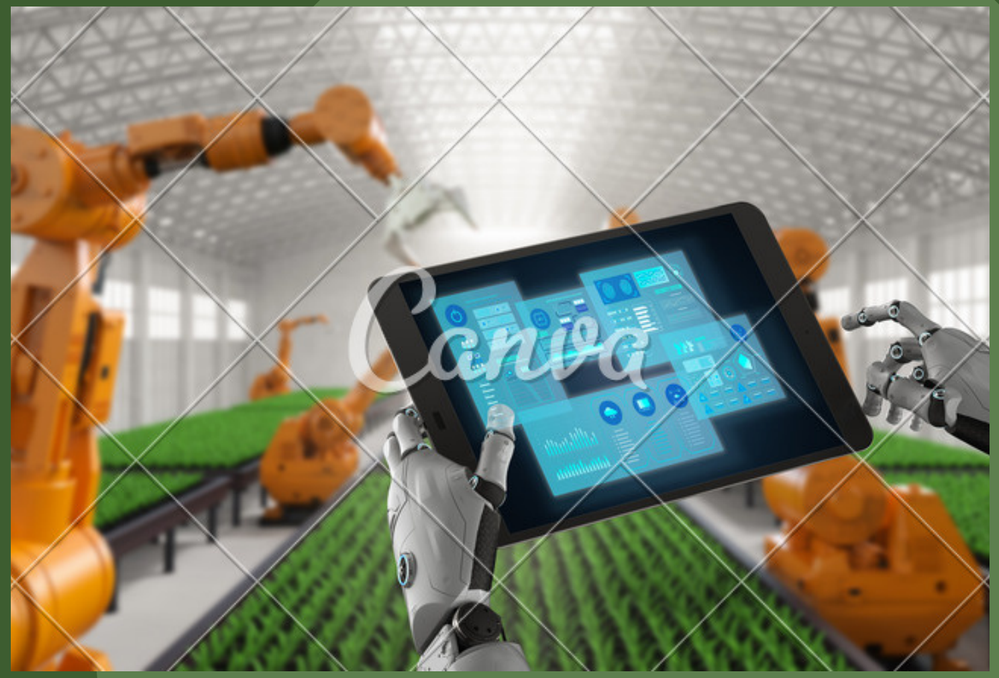
A more concentrated form of urban horticulture is urban agriculture, which has five separate objectives.

- Provide youth employment and leadership skills training
- Increase participants' knowledge of organic farming, environmental management and local food systems skills
- Enabling communities to generate more local food and address environmental issues
- Promote healthy nutrition and active lifestyles
- Increase the possibility of rare vegetable and other plant species

02

GPS Technology and Agriculture

GPS tracking technology can be used to map out fields, allowing farmers to plant crops in a precise and efficient manner. This can result in a more efficient use of resources



04

GPS TECHNOLOGY AND GRICULTURE

- GPS technology is very expensive
- Some farmers form cooperatives to buy GPS equipment and share the cost.
- In some large farms, such as the Canadian Prairies, they can support their own GPS equipment, saving time and cost.

THANK YOU
FOR ATTENTION