



What's needed for **agriculture** to meet the needs of a **growing population**?

goals of sustainable agriculture

Sustainable agriculture is an important factor in our capacity to supply current food needs – without compromising the ability of future generations to meet their own needs.

Sustainable agricultural practices have three main goals:

- A healthy environment
- Economic profitability
- Social and economic equity



Every person involved in the food system, including growers, food processors, distributors, retailers, consumers and waste managers, is involved in developing a sustainable agricultural system.

There are many practices commonly used by people working in sustainable agriculture and food systems. Farmers use practices that promote soil health, minimize water use and lower pollution levels on the farm.

Consumers and retailers concerned with sustainability increasingly look for “values-based” foods that are grown using methods that are environmentally friendly or that strengthen local communities.

They have also started to look at ways that waste can be reduced in the food system. For example, some stores sell “imperfect” foods at a reduced price. These foods would otherwise not be used in grocery stores.

Consumers and municipal governments are looking at ways to encourage composting, which is “an aerobic, thermophilic process in which microorganisms break down organic material into a stable humus-like material.”



Consider the following argument for composting.



Waste not want rot

Day to day, tiny bits of household food waste – potatoes that have sprouted in the pantry, a head of broccoli that went soft at the back of the fridge, leftovers no one wanted – don't seem like much. Off they go into the garbage. We measure the success of yard clean-ups by the number of bags of grass, leaves, branches and tree trimmings we proudly place at the curb. Yet, each spring, we go to buy bags of soil for our flowerpots and compost for the veggie beds. We buy mulch and fertilizer to spread around our trees and our yard. We toss out organic matter into the garbage on one hand, and then essentially buy it back at \$5 a bag in the form of compost from the hardware and garden stores on the other hand.

Cockrall-King, J. (2015). Waste Not Want Rot. Faculty of Agricultural, Life & Environmental Sciences - University of Alberta: Online www.ualberta.ca/agriculture-life-environment-sciences/alesnews/2015/may/wastenotwantrot

population growth

The rate of population growth has greatly increased over the last 100 years. This population growth is due to the relationship between births and deaths. If the number of births equals the number of deaths, population does not change. However, if births exceed deaths, the population grows.

Historically, the world had a high birth rate but the population grew slowly because it also had a high death rate (e.g., high infant mortality).

With improvements in world health and more people living longer, population began to increase because the high level of births continued while the death rate dropped. This situation produced the exponential population explosion of the 20th century.

Food and Agriculture Organization (2007). How to Feed the World in 2050. United Nations: Online. www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf



How do you think rapid population growth affects the need for sustainable food systems? Why do you think this?

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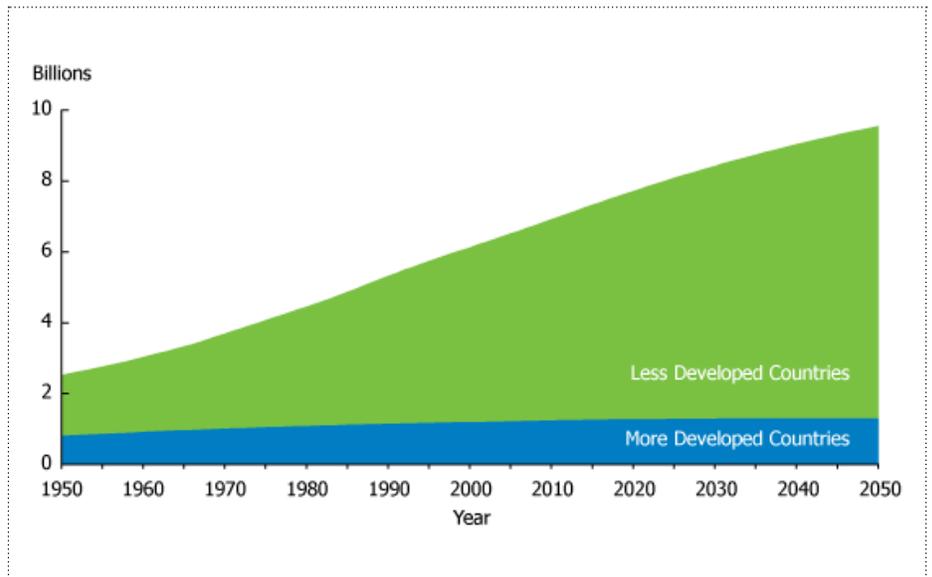
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World Population from 1950 to 2050



United Nations Population Division, World Population Prospects, the 2012 Revision.

back to the future

According to Food Secure Canada, "Canadian agricultural systems must build and maintain healthy soil, clean water and air, reduce dependence on fossil fuels, mitigate and adapt to climate change, protect and enhance biodiversity, protect farmland, and reduce waste."

Food Secure Canada. Environment and Agriculture. Online. <https://foodsecurecanada.org/resources-news/newsletters/6-environment-and-agriculture>

Sustainability is increasingly connected with the need to feed the world's population. However, the concept of sustainability has been around for many years.

Consider the following points made by the Canadian AgriFood Sustainability Initiative.



A commitment to sustainability

Sustainable development means a strong focus on environmental quality. It means ensuring that current human activities – including agriculture – do not cause irreparable damage to the natural environment for future generations. It means maintaining and improving the quality of water, air and agricultural soils.

It also means using agriculture, where possible, as a mechanism for environmental improvement – supplying renewable resources, for example, and converting atmospheric carbon dioxide into soil organic matter.

Sustainable development is recognized as having two other dimensions: social and economic. For agriculture, social sustainability includes an adequate supply of safe, nutritious food at affordable prices – for both Canadians and the rest of the world's 7.3 billion citizens....



What is one comparison you could make between the causes and effects of human population growth and the growth of populations in natural ecosystems?

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“Because of their connection to the land, farmers do more to protect and preserve our environment than almost anyone else. They are some of the best environmentalists around.”

– Ike Skelton

Social sustainability includes a commitment to respectful and responsible treatment of farm animals, which form a critical component of the Canadian and world food system. Farm animals are important in providing a high-quality, nutritious diet for many people. They play essential roles in converting many plant species that are not directly digestible by humans into food products (e.g., meat, milk, eggs), and that are especially valuable in maintaining/building agricultural soil quality (e.g., alfalfa and other forage crops). Food supply, quality and safety, and animal care are core elements of agricultural sustainability.

The economic component is equally critical. Agriculture and food-supply chains directly dependent on agriculture cannot be sustainable if there is not a reasonable financial reward from farming that enables an appropriate standard of living for farm families. Canadian farm families should enjoy the same quality of life and financial well-being as other Canadian families.

Canadian AgriFood Sustainability Initiative. Farm, Food & Beyond: Our Commitment to Sustainability: p. 6. Online. <https://static1.squarespace.com/static/5a4fc47f1f318d07aef77163/t/5a53a4f2652dea1af95a13e7/1515431161491/OurFarmSustainableAgenda-LR.pdf>