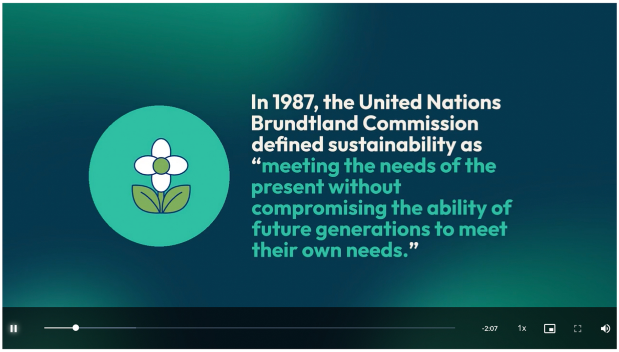
Introduction to Sustainable Agriculture

Sustainable Agriculture

Watch the video below to learn about what sustainable agriculture is and why it's important for us to practice it locally and globally.



In 1987, the United Nations Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

[Media description: Animated video.]

Video Transcript +

Sustainable Agriculture Practices in Canada Today

Sustainable Agriculture Practices in Canada Today

As a key food supplier on a global scale, it's important for us to have sustainable practices in place so we minimize our carbon footprint as best we can.

Click the tabs below to learn more.

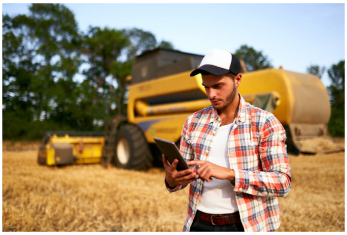
Precision Feeding +

Rotational Grazing +

Precision Agriculture –

Precision agriculture leverages technologies and big data to make farming efficient. Information is collected and shared about the climate, local soil, and livestock to inform agriculture decision-making. Examples are GPS, artificial intelligence, and high-tech farming equipment. These can be used to help reduce waste and increase cost savings.

[Media description: Image of farmer using online data management software to generate yield maps using precision farming.]



Best Management Practices (BMPs) +

Sustainable Agriculture

A WIL Digital Initiative

Initiatives for a Sustainable Food System

Many agribusinesses across the value chain are involved in bringing food to your plate. As the food system is a contributing factor to climate change, how do we ensure sustainability in the future?

Options for Reducing the Environmental Impact of Our Food System

The following options were presented in a 2018 article by Springmann et. al published in the journal, Nature.

REDUCING FOOD LOSS AND WASTE

TECHNOLOGICAL ADVANCES

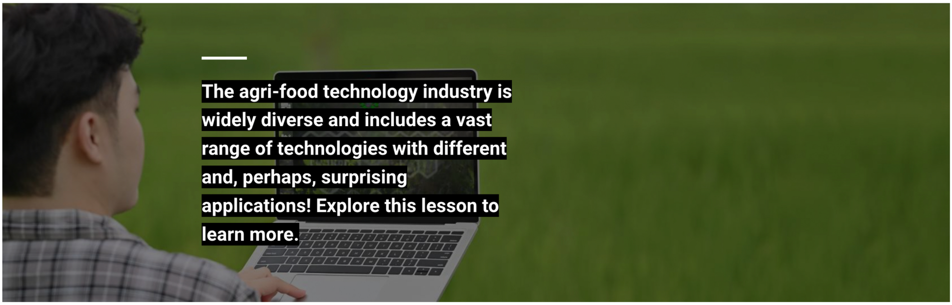
DIETARY CHANGES

The authors analyzed the impact of changing to a healthier diet, including lower consumption of meat and greater amounts of fruits, vegetables, nuts, and legumes. They estimated that with those changes, greenhouse gas emissions and other environmental impacts could reduce by 29% and 5-9%, respectively. Out of all the possible changes in diet, lower meat consumption had the biggest impact on greenhouse gas reduction.

[Media description: Image of fresh produce and healthy foods.]

Sustainable Agriculture
A WIL Digital Initiative

Snapshots: Agri-Food Technologies at Work



The agri-food technology industry is widely diverse and includes a vast range of technologies with different and, perhaps, surprising applications! Explore this lesson to learn more.

From oxen to tractors to the sensor technologies and robotics of today, agri-food technology has come a long way in the last 10,000 years. These advancements have decreased direct human effort, from mechanical functions to tasks like surveying, sensing, decision making, and planning.

Processes in agriculture are becoming more and more automated and understanding these technologies, how they've emerged, and the specific need that they fulfill is critical to becoming a part of the current agri-food sector.

Explore the following industry-important technologies to learn a bit more about the commonly used technologies in the modern agri-food sector.

Field Crops – Variable Rate Seeding (VRS) and Variable Rate Nutrient Application (VRNA)

[Media description: A field of soybean plants, planted in rows.]

Variable rate seeding (VRS) and **variable rate nutrient application (VRNA)** use information on soil composition and productivity in different areas of the field to inform the best possible rate of seeding and fertilizer and fertilizer additive application rates. This allows the farmer to divide their field into clear management zones and helps to increase both the yield and quality of crops in that area.

Sustainable Agriculture

A WIL Digital Initiative

Introduction to Agroecology

What is Agroecology?

Agroecology is a holistic way of producing food that takes into account the social, cultural, economic, and environmental factors that affect agriculture. It aims to support food sovereignty, social justice, economic sustainability, and healthy ecosystems through diverse knowledge and practices.

Farmer Autonomy

By reducing the reliance on externally purchased inputs and increasing farm and community self-sufficiency, farmers can gain more autonomy.

[Media description: Image of a bowl of tomatoes held by two people symbolizing farmer autonomy. Source: Unsplash]

Youth and Women

The evolution of agroecology relies on youth and women as the primary social bases. Territorial and social dynamics must allow women the opportunities for leadership and control of land and resources.

[Media description: Image of two female children working on a farm.]

Funded by the Government of Canada | Canada

The Information and Communications Technology Council (ICTC) is a neutral, not-for-profit national centre of expertise with the mission of strengthening Canada's digital advantage in the global economy.