

Sustainable food

Key Points

Climate and agriculture - Impacts on agriculture in Alberta - Food system challenges - Solutions in agriculture - Consumer impacts

What's going on?

Climate change is having a big effect on Alberta's food systems, from farm to plate. The weather is changing, causing problems for farmers like droughts, heavy rain and unusual frosts. This can mean crops don't grow well or at the right times, or ranchers don't have sufficient forage for their herds. Additionally, melting glaciers and shifting precipitation patterns can result in changes to water availability, impacting irrigation and water-management practices in agriculture. These changes are making it harder for farmers and ranchers to have viable businesses and for people to have access to fresh, local food. To address these problems, we need to make sure our food systems can handle the changes brought on by climate change and support the agriculture industry [through policy](#) and [consumer choices](#) to build a sustainable future for our food.

What are we doing right now?

From regenerative farming practices to reducing food waste, Alberta has many innovative projects that support sustainable food systems:

- [Siksikaitstapi Agriculture Project](#) – Rural Routes to Climate Solutions – On-farm and on-ranch climate solutions (e.g., regenerative agriculture, farm energy efficiency, on-farm clean energy) on Blackfoot territory.
- [Blackfoot Phenology for Farmers](#) – Young Agrarians – A year-long course designed to help aspiring, new, and experienced farmers and food lovers to observe and learn from their local ecologies.
- [Circular IC&I Project: Circular Innovation Council, Leftovers Foundation](#) – Bluplanet Recycling – Diverting waste from small and medium enterprises and rerouting it to charities in Calgary.

What can I do?

There are several actions you can take to support sustainable food systems, from reducing food waste to shopping locally to increasing the number of vegetables you eat with every meal. With the rising cost of food and inflation in Alberta, some actions may be more accessible than others. Supporting a sustainable food system might look like:

- Trying to incorporate more legumes, fruits and vegetables into your diet.
- Participating in programs that help reduce food waste. Services like [Too Good To Go](#) let you purchase food directly from local bakeries, restaurants and stores at a fraction of the cost, diverting good food from the landfill.
- Connecting with [local farmers](#) to learn about where your food comes from.
- Planning meals and bulk cooking can help you save time and [reduce food waste](#).

- When possible, [purchase seasonal, local produce](#). Farmers markets or local food-subscription services are great places to start, and this can be less expensive than buying out-of-season produce.
- Join a community group or sign petitions that [advocate for policies](#) that promote sustainable and equitable food systems.

Overview

In Alberta, a changing climate will mean we'll have to adapt farming methods and where we get our food. Locally, farming has the potential to reduce emissions, be resilient and be a part of the climate solution. Farmers and ranchers have long been stewards of the land and are key in helping solve the challenges global food suppliers face as a result of climate change. Implementing new and adapted agricultural practices that allow us to grow and provide a variety of foods locally would make global food shortages a small concern for Alberta's food supply. Alberta farmers will need several kinds of support to be able to expand and continue to implement sustainable growing practices. Sourcing foods locally not only benefits the resiliency of our food supply, but it benefits the local economy, reduces emissions and strengthens our relationship with our food and the farmers who grow it.

Climate and agriculture

Climate change is already having drastic impacts on our global and local food systems. Farmers worldwide experience the challenges of growing crops in a changing climate with warmer temperatures and changes in precipitation. Here in Alberta, our farmers face these challenges, too. As consumers, we will also see evidence of this in our daily lives as food prices increase and the food supply chain changes — foods we regularly eat may become less accessible due to climate challenges. This will mean drastic impacts on the choices we have to make about the food we eat, and what we will see available at our local grocery centers.

Impacts on agriculture in Alberta

While certain aspects of climate change, such as a longer growing season, could benefit farmers in Alberta, it is more likely the net outcome will be negative because of the costly nature of the agricultural disasters caused by climate change. Alberta can expect increases in weather extremes such as forest fires, droughts and intense rainfall events.¹ Weather becoming more unpredictable means that traditional ways of agriculture will be challenged. In 2021 alone, Alberta crop yields dropped by 37% due to a severe heat wave and devastating drought, forcing the Government of Alberta to provide \$340 million in aid to help producers overcome the financial challenge.²³ Climate challenges that can result in devastating impacts on crop yields, and that we are likely to see in Alberta, include:

- Delayed seeding from spring flooding on fields
- Wilted crops from long droughts
- Delayed harvesting due to extreme weather
- Having to abandon crops under unexpected snow

¹ [Climate change in Alberta](#)

² [Alberta Crop Report: Crop Conditions as of October 5, 2021](#)

³ [Province and feds provide combined \\$340M for ranchers after drought-laden summer | Globalnews.ca](#)

- Restricted feed availability for cattle and livestock

The challenges aren't expected to disappear, but rather continue to get worse for farmers and ranchers in Alberta and across Canada. The future of agriculture means developing resilience-focused and sustainable practices in the face of climate change. The Government of Canada is investing more than half a billion dollars into federal programs to support farmers adopting sustainable practices and clean technologies. These new programs include the [Agriculture Clean Technology Program and the Agriculture Climate Solutions Program](#).⁴

Where are Albertans at?

- Environmental sustainability is a key challenge for the agriculture sector, with grassland preservation, carbon sequestration and climate change mentioned most often ([Government of Alberta, 2021](#))
- 46% of producers and 61% of food processors said climate change and the environment was a very important or important priority area in the context of agricultural policy ([Government of Alberta, 2022](#))
- Alberta has the highest rate of food insecurity of all Canadian provinces, with 1 in 5 households having inadequate or insecure access to food ([Proof, 2021](#))

Food system challenges

Agriculture practices depend on climate stability. The changes farmers see now — and will continue to see in the future — not only increase risk to the economic health of farming families and local communities, but will likely create food supply-chain issues on a global scale, affecting the availability and costs of food we have become used to eating regularly.

“The consumer relying on a particular diet throughout the year, regardless of the season, is something that might have to change, as the places we rely on for that food to come to us from California or from Mexico as they face their own climate problems, we may not be able to rely on that supply.”

- Tatenda Mambo, Food Systems Specialist and Simon Farms Project Manager

[Meechim Project](#): Food Sovereignty in the Prairies

“The Meechim Project follows the story of Garden Hill First Nation — a northern Manitoba community that is only accessible via air and ice roads — and its journey to build a self-sustaining farm. Through a combination of both Indigenous and farm knowledge, the community’s efforts to attain food sovereignty show that climate resilience can lead to better social, economic, health and environmental outcomes for all.”

Source: Prairie Climate Centre



⁴ [Government of Canada taking action to support farmers facing extreme weather](#)

Solutions in agriculture

There is a need for both climate change-adaptation and mitigation measures in the agriculture industry. Adaptation will help minimize losses that will be inevitable with the trends in climate change we see now. Examples of adaptation include changes to resilient seeds, adapted machinery to work in various conditions, improved water-management systems and practices to reduce soil erosion. Mitigation in the agriculture sector will primarily focus on reducing emissions within the industry.

[Farmers for Climate Solutions](#) states that the climate crisis and farmers' debt crisis share many of the same causes and many of the same solutions. Read more about the connection [here](#).

[Biogas and Biochar](#): Offsetting emissions from agriculture

Agriculture is responsible for 8% of Canada's greenhouse gas emissions. "It's part of the problem, but it's also part of the solution," says Kunbi Adetona, an energy systems researcher at the University of Calgary. In this video, Adetona talks about the potential of converting manure and other agricultural waste products into biogas, which can offset fossil-fuel usage. But what's really exciting is that researchers have now started converting manure into biochar — or more simply charcoal — which can be used to store carbon in the soil for hundreds of years, while improving soil health. "It's a win-win strategy," concludes Adetona. "Agriculture could be part of the solutions to greenhouse gas emissions."



Consumer impacts

As producers struggle to overcome climate-change challenges that reduce crop yields, the cost of food will continue to rise. As consumers, we can be mindful about where our food comes from and support sustainable solutions. Supporting local innovative agriculture (such as [indoor farming](#)) that leads to year-round food production will increase investment in solutions that reduce our reliance on imported food. These solutions reduce transportation costs and emissions and provide us with a stronger connection to our food source.

Livestock can also be part of the solution. Choosing to buy sustainable beef when possible helps maintain healthy grasslands. Sustainable ranching provides extremely valuable carbon sinks that pull carbon from the atmosphere and cycle to reintroduce it to our soils, making landscapes more resilient. Reducing emissions through our diets is not solely about where it comes from, but also what it is. There are a variety of foods that are significantly less emissions-intensive that we should consider at the top of our grocery lists.

What foods are you eating that are associated with high emissions? Go [here](#) to see how your food diet compares and see if there are ways to reduce your emissions by swapping for lower-emission foods next time you visit the grocery store.

“For people in southern Alberta ... we do have a choice. We eat three times a day and every time you put something in your mouth, you are making a choice. You’re sending a signal to the market as to what it is you want.”

- Tatenda Mambo, Food Systems Specialist and Simon Farms Project Manager

Recap

Climate change will affect agriculture and our food systems in truly significant ways. In the coming years, we will see a shift in the way agricultural systems operate as farmers in Alberta and around the world adapt to changing climates and overcome challenges such as water-supply shortages and heat damage to crops. Producers who adopt farming innovations that both increase farm resilience and serve as a climate solution are leaders in the future of agriculture in Alberta and across the globe. Consumers will have to be more mindful about food habits and willing to adjust in order to support a resilient, local and abundant local food system.

Resources from local organizations that support learning and action for sustainable food systems			
Resource	Organization	Audience	Description
Alberta Environmental Farm Plan	Agricultural Research and Extension Council of Alberta	Farmers	A voluntary, whole-farm self-assessment tool that helps producers identify their environmental risks and develop plans to mitigate identified risks.
Nature-Based Solutions for Farms	ALUS Alberta	Farmers, ranchers, producers	ALUS (Alternative Land Use Services) helps farmers and ranchers build nature-based solutions on their land.
Regenerative Agriculture Lab	Rural Routes to Climate Solutions	Farmers and producers	A series of workshops, interactive tools and peer-to-peer learning moments on regenerative agriculture practices.
Alberta Food Directories	Government of Alberta	General public	Connecting Alberta-based food processors and producers with buyers to promote locally-produced food.
How to Start Farming in Alberta (Guide)	Young Agrarians	Youth	A starter kit for those wondering how to start farming in Alberta.
YYC Growers Harvest Box	YYC Growers	General public	YYC Growers’ Harvest Box is a community-supported agriculture (CSA)-style program. The box contains a medley of high-quality vegetables and other crops grown in and around Calgary and southern Alberta. Participating farms practice regenerative farming that heals the earth while producing clean, delicious and nutrient-dense food.

[Find more resources here.](#)